Creative Class in the Portuguese Economy

Rui Tiago Claro Farlens

June 2013

Abstract - Creativity as source of growth and development has been target of increase interest by several authors. This paper addresses the importance of the Creative Class in Portuguese Economy, looking for the main literature addressing the topic of the creativity. Using a matched employer-employee data set called *Quadros de Pessoal,* containing information regarding Portuguese private firms and their employees, this paper aims to shed light about the role of creative workers in Portugal.

The results suggest that creative workers have higher educational levels and also higher salaries, and that they are mostly present in smaller, older Multinational firms.

Empirical findings also suggest that creative workers have a higher propensity to become entrepreneurs compared to non-creative workers, even considering the individual characteristics such as education and firm's characteristics.

This paper applies concepts and methodologies used previously in national and international studies and aims to establish a solid foundation, with empirical data for future research related to the themes of creativity, entrepreneurship and work.

Keywords: Creativity; Entrepreneurship; Occupational choice; Wages; Longitudinal Database; Portugal.

1 - Introduction

Creativity as source of innovation and growth has been studied and target of growing interest for the explanation of economic development and growth of certain regions.

Creativity can be defined as the capacity of creating new knowledge or the ability of using already existing knowledge to innovate. Sherwin Rosen defines creativity as being a fundamental part of human capital of an individual, his intangible assets such as knowledge, skills, general intelligence, educational attainments, or personality characteristics (Rosen, 1987). Therefore, creativity is identified as an important element of human capital and plays a fundamental role in the development and growth of a certain region or company.

The importance attributed to creativity in order to achieve economic growth is identified primarily in two key aspects. First, creativity is crucial in innovation and R&D which represent a crucial goal to obtain economic growth (Solow, 1988; Gittleman & Wolff, 1995). Second it is notorious a growing interest in the last decades on the goods and services provided by the so called creative industries (Caves, 2003; Howkins, 2001) as well as the employment growth in these industries (Florida, 2004).

Sternberg and Lubart (1999) suggest that entrepreneurship is a form of creativity in the way that almost all type of new business is in some way original and useful. Richard Florida (2004) studies the relationship between creativity and entrepreneurship and distinguishes creativity in three types: artistic or cultural creativity, technological creativity (innovation) and economic creativity (entrepreneurship) and argues that these types are all related do themselves. In other words, Florida claims that a person's creativity that is involved in an entrepreneurial project not only can be stimulated by his background, experiences and achievements but also in other related fields such as art and technology. Art and culture can be considered as incentives towards an entrepreneurship activity of certain individuals. A highly cultural environment may be a hothouse for the creation of new ideas in a rich creative atmosphere (Sacchetti, Sacchetti, & Sugden, 2009).

This paper tries to define the importance of creativity by analyzing the impact of the creative workers in Portuguese private firms, and therefore defining their

importance in the Portuguese economy, aiming to fill a gap in literature since there are only a few studies in Portugal regarding the topic of the creativity.

The paper is organized as follows. After the introduction, section 2 introduces the main theoretical concepts. Next, section 3 presents the data and the methodology. After, section 4 focuses on the descriptive analysis, while section 5 is devoted to the presentation of the empirical results. Finally, the last section concludes and presents avenues for further research.

2 - Creative occupations

According to Florida, creative workers are those who have creative and innovative professions, therefore these workers can be found in any type of industries, what leads to the necessity of empirical researchers to identify and separate creative workers from those who do not have creative professions.

According to Florida, the creative class is separated in three categories: super-creative core, creative professionals and bohemians (Florida, 2002). The workers represented in the creative core are those *"whose economic function is to create new ideas, new technologies and/or new creative content"* (Florida, 2004, p. 8).

Creative professionals are considered "*those who work in business and finance, law, health care and related fields*" (Florida, 2004, p. 8)*, "they engage in complex problem solving that involves a great deal of independent judgment and requires high level of education"* (Florida, 2004, p. 8).

Bohemians have cultural and artistic occupations, they are part of the creative class and represent an urban climate of tolerance, therefore they represent an important role in attracting the remain categories of the creative class *"All members of the Creative Class (…) share a common creative ethos that values creativity, individuality, difference and merit. For the members of the Creative Class, every aspect and every manifestation of creativity, technological, cultural and economic is interlinked and inseparable"* (Florida, 2004, p. 8).

In *The Geography and the Effect of Creative People in Germany*, Michael Fritsch identified four different types of creative occupations that had been applied in the joint project *Technology, Talent and Tolerance in European Cities: A Comparative Analysis* which main goal was an international comparison of the role of the Creative Class for regional development.

The considered Super-Creative Core identified by Florida is also identified by Fritsch as creative core and the creative professionals are identified by the same name by both authors. The main difference between the two classifications of creative workers is that the former includes the bohemians in the creative core, while the latter creates a separate category for them, "…*because of the special character of bohemian occupations, we departed from Florida's approach of including bohemians in the creative core and instead created a separate category specifically for them"* (Boschma & Fritsch, 2009, p. 397) by using two different definitions of the Creative Class: Creative Class A, as the sum of the Creative Core and the Creative Professionals; Creative Class B, which contains the Creative Class A, plus the Bohemians, separating also the freelancers that do not have what we can call a profession per se. Fritsch claims that "*Bohemians are engaged in cultural and artistic occupations. Bohemians have two roles: they are part of the creative class and are a sign of an urban culture of tolerance; thus, they play a key role in attracting the two other categories of the creative class"* (Boschma & Fritsch, 2009, p. 395).

Table A in Appendixes presents the creative occupations considered by Michael Fritsch in *The Geography and the Effect of Creative People in Germany* (2007). The definitions of the different type of creative occupations were classified according to the International Standard Classification of Occupations (ISCO) in the version of 1988.

In this paper, we will consider as *"freelance artists"* all individuals that are paid in green receipts (used by independent workers) and therefore are not included in the *Quadros de Pessoal* dataset, so they are not contemplated in this work.

3 - Data and Methodology

3.1 – Data

The main source used in this dissertation is a dataset formally called *Quadros de Pessoal (QP)* dataset. Since 1986, *QP* matches data of employers with employees with the exception of the years 1990 and 2001 when there is no data available. This database covers nearly the entire private Portuguese firms with at least one employee. Public sector and employing entities and workers in seasonal agriculture activities and housekeeping are not covered by the data contained in *QP*. At the time of this study the

last data available corresponds to the year 2009.

3.2 – Methodology

In this paper we will begin by doing a cross-section analysis for the year 2009, to quantity the number of creative workers in the Portuguese private sector and to analyze the educational levels and salaries of creative workers compared to non-creative workers. In this paper we will also define some characteristics of the firms that hire creative workers, namely if they are National or Multinational firms and their location according to NUTS II.

For the period comprehended between the years 2005 and 2009, an estimation of econometric models will be done to exploit two research questions and explain what the importance of creative workers is indeed in Portuguese economy. These questions are:

-How are the creative workers earnings compared to non-creative workers?

-Does a creative worker have the propensity to become an entrepreneur?

4 – Descriptive analysis

4.1- Quantitative analysis of creative workers in the Portuguese private sector

Using the *Quadros de Pessoal* dataset and the creative professions already referred previously in this work[1] we were able to quantify the presence of creative and non-creative workers in the Portuguese Private sector for the year 2009.

The number of Creative Professionals stands for 20.7% of the total of creative workers in the Portuguese Private sector, followed by the Creative Core that represents 4.4% and at last the Employed Bohemians representing 0.5% of the total of creative workers in the contemplated professions.

In order to get more accurate results from the *QP dataset* we had to eliminate all duplicated data, therefore eliminating all data related to the same subject that appeared more than once. 31,977 results were eliminated and therefore are not accounted for any analyses in this work.

4.2 – Education

To analyze the education levels of the creative workers considered in the *QP* dataset, we have divided the creative workers in three levels based on their educational degree:

Level 1 – Workers without educational degree or possessing Basic education only (9 years of school enrollment);

Level 2 – workers with secondary or post-secondary education below Bachelor degree;

Level 3 – workers who have a Bachelor, Master or Doctorate degree;

From Figure 1 of the Appendixes we can observe that 30.7% of the creative workers do not have any educational degree or only possess basic education, 26.2% of the considered creative workers have secondary or post-secondary education below bachelor degree and 43.2% of the creative workers possess a bachelor, master or doctorate degree. 74.3% of the total 2,286,214 of non-creative workers do not possess any educational degree or only possess basic education. This number is 2.4 times higher than the number of creative workers in the same category (Without educational degree or Basic education). 20.7% of the non-creative workers have secondary or post-secondary education below bachelor degree, and only 5% of the non-creative workers possess a bachelor, master or doctorate degree, a number 8.6 times lower than the percentage of creative workers with a bachelor, master or doctorate degree.

From Figure below 1 it is clear that almost three thirds of the non-creative workers do not possess any educational degree or only possess Basic education (9-years of school enrolment). On the other hand, the creative workers possess higher habilitations. In fact the number of creative workers with a Bachelor, Master or Doctorate is higher than the one regarding creative workers without educational degree or with only Basic education.

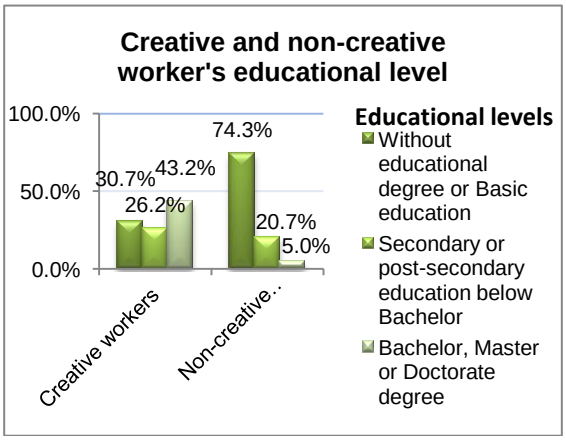

Figure 1 - Creative and non-creative worker's educational level

[1] Fritsch, M. (2007). The Geography and the Effect of Creative People in Germany. *Jena Economic Research Papers*, p.6.

4.3 - Creative and non-creative workers' salaries

The comparison between creative and non-creative workers' salaries was done based on the wage per hour of these workers. This wage per hour is the sum between the base remuneration (per month) and the regular earnings (per month) divided by the number of regular hours worked (per month):

$$\frac{renumeration + regular\ earnings}{regular\ hours\ of\ work} = wage\ per\ hour \quad (1)$$

To better understand the salaries of the creative and non-creative workers, we have taken the means of Base wage, Regular Earnings, Number of hours worked per month and wage per hour. We observed a mean of 5.93€ on the wage per hour of all workers (creative and non-creative workers), with data contained in the *Quadros de Pessoal* with a standard deviation of 6.65€.

From Figure 2 we can see that 23.0% of the creative workers receive under or equal to the wage per hour mean, against 80.4% of the non-creative workers, a number 8.5 times higher, and 77.0% of the creative core workers have a wage per hour salary above the mean, while only 19.6% of the non-creative workers fall in this category.

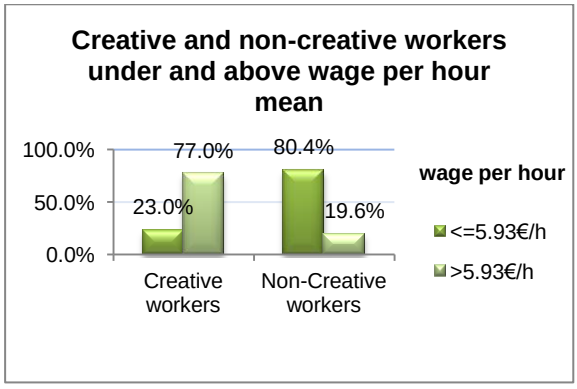

Figure 2 - Creative and non-creative workers under and above wage per hour mean

4.4 - Who hires more creative workers? Domestic or Multinational firms?

Using the *Quadros de Pessoal* dataset we were able to see how many creative and non-creative workers are present in Domestic and Multinational firms. We have considered as being Foreign Firms those that have fifty or more percent of foreign capital.

From Figure 3 we can observe that of the 2,811,567 workers employed in Domestic Firms, 25.2% are creative workers, while 74.8% are non-creative workers. In Multinational Firms, 59.9% of the 284,582 workers employed in Multinational Firms are creative workers while only 40.1% are non-creative workers. Therefore, comparing these results in proportions, we can state that Multinational Firms hire a higher proportion of creative workers.

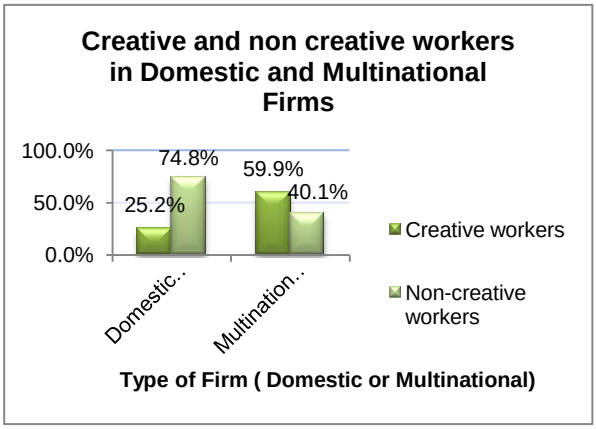

Figure 3 - Creative and non-creative workers in Domestic and Multinational Firms

4.5 - Propensity to become an entrepreneur

One of the main objectives of this work is to try to quantify the importance of creative workers in Portuguese economy by understanding if these creative workers have a greater propensity to become business owners than non-creative ones. Descriptively, this can be done by quantifying the creative and non-creative entrepreneurs.

From Figure 4 we can observe that 25.1% of the creative workers are entrepreneurs, against only 1.0% of non-creative entrepreneurs. These results, along with the already referred study *Entrepreneurship and Cultural Creativity* (2010) show that the proportion of self-employers is indeed higher on the creative professions that it is on the non-creative ones.

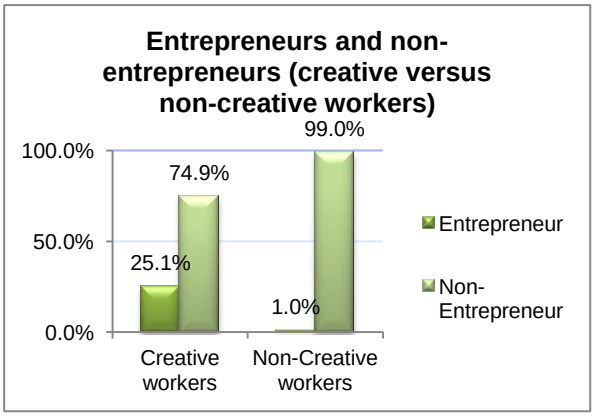

Figure 4 - Entrepreneurs and non-entrepreneurs (creative versus non-creative workers)

4.6 - Location of creative and non-creative firms (Nuts II)

In this work 349,788 firms employing creative and non-creative where accounted for using the *Quadros de Pessoal* dataset.

As it was expected the majority of the proportion of creative workers when compared to non-creative workers are employed in Urban Locations (Lisbon and Porto), accounting for 57.4 percent of the total of creative workers.

North, Center and Lisbon, with 22.9%, 23.7% and 30.2% respectively have the higher proportion of creative workers against non-creative workers in the same region by NUTS II. The islands and Alentejo present the lowest percentage of creative workers when compared with non-creative workers.

5 – Results

This chapter presents two main empirical results. First, an earnings estimation that discriminates individuals between creative and non-creative workers which allow us to acknowledge the importance of creative workers (and creative classes) in the labor market. Second, an occupational choice model to better understand the relative importance of the creative workers in entrepreneurial activities.

5.1 – The earnings model

We compared individual earnings using hourly wages (while in wage employment) for the years between 2005 and 2009 as the variable of interest. We investigate whether being a creative worker has a significant impact on the individuals' earning. The explanatory variables include individual characteristics such as education, age, sex and tenure, being considered a creative worker (model I) or being a creative core, creative professional or employed bohemian worker (model II). We include firm characteristics' such as the urban location (Lisbon and Porto), number of employees and sector of industry (sector 1 - primary sector is the omitted one; sector 2 - Total manufacturing; sector 3 - Energy and construction; sector 4 – Services; sector 5 – Social Community and personal services). We exclude job assignment from the estimation.

We specify a panel data model of wage determination as:

$$log\ (wit) = xit\beta + vit \qquad (2)$$

where i indexes worker and t indexes time period; w_{it} is the hourly wage received by worker i in period t; xit is a vector of individual characteristics including education (three dummy variables), tenure (and its squared term), sex, age (and its squared term), being a creative worker and also firm's characteristics such as urban location (dummy variable), number of employees and sector of industry (five dummy variables). vit is the error term.

5.2 – Rewards to creative workers

Model I of Table 1 presents wage levels equations estimated by pooled OLS for individual and firm's explanatory variables for all creative workers, and Model II presents wage levels estimated by pooled OLS for individual and firm's explanatory variables for the three category of creative workers (Creative Core, Creative Professionals and Employed Bohemians).

This study shows that age has statistically significant effect on wages, showing increasing results, reversing at 55 years of age, and tenure also has statistically significant effect on wages reversing at 47 years of tenure. Female gender creative workers have a negative statistically effect on wages of 19.93 percent.

Having a creative occupation has a positive 37.58 percent statistically significant effect on wages. If the creative worker belongs to the Creative Core it has a positive 44.74 percent statistically significant effect on wages, a worker of the Creative Professional category has a positive 36.08 percent statistically significant effect on wages and the Employed Bohemian workers have a positive 36.91 percent statistically significant effect on wages.

Creative workers with only basic education (9 years of school enrollment) have a positive statistically significant effect on wages of 14.57 percent, while creative workers with secondary or post-secondary education below Bachelor have a positive statistically significant effect on wages of 28.84 percent. Having a higher education certainly seems to mean higher salaries, because creative workers with a Bachelor, Master or Doctorate have a positive statistically significant effect on wages of 70.42, almost five times higher than workers with only Basic education and more than the double of workers that possess secondary or post-secondary education below Bachelor.

Creative workers employed in urban located firms have a positive statistically significant effect on wages of 3.88 percent. The creative workers belonging to the Total Manufacturing sector have a negative statistically significant effect on wages of 2.78

percent when compared to the creative workers in the Primary sector.

The remainder sectors, Energy and Construction, Services and Social Community and Personnel Services all have a positive statistically significant effect on creative workers' wages when compared to the Primary sector of 1.58, 2.16 and 0.74 percent respectively.

Regarding firms' dimension in terms of number of employees, it is observed a positive and statistically significant effect on creative workers' wages of 5.04 percent on firms with higher number of employees.

Table 1 - Wage equations[2]

Explanatory Variables	**All Creative workers**	**Creative categories (creative core, creative professionals and employed bohemians)**
	(I)	**(II)**
Creative workers	0.3758***	
	[0.0003]	
Creative core		0.4474***
		[0.0007]
Creative professionals		0.3608***
		[0.0003]
Employed bohemians		0.3691***
		[0.0014]
Basic education (9 years of school enrollment)	0.1450***	0.1457***
	[0.0003]	[0.0003]
Secondary or post-secondary education below Bachelor	0.2884***	0.2899***
	[0.0003]	[0.0003]
Bachelor, Master or Doctorate	0.7042***	0.6903***
	[0.0004]	[0.0004]
Tenure (in years)	0.0202***	0.0203***
	[0.0000]	[0.000]
Tenure^2 x 10^{-2}	-0.0220***	-0.0221***
	[0.0000]	[0.000]
Age (in years)	0.0258***	0.0258***
	[0.0001]	[0.0001]
Age^2 x 10^{-2}	-0.0239***	-0.0240***
	[0.0001]	[0.0001]
Gender (0-Male; 1-Female)	-0.1993***	-0.1987***
	[0.0002]	[0.0002]
Urban location (0-No; 1-Yes)	0.0388***	0.0395***
	[0.0002]	[0.0002]
Total Manufacturing sector (0-No; 1-Yes)	-0.0278***	-0.0271***
	[0.0007]	[0.0007]
Energy and Construction sector (0-No; 1-Yes)	0.0158***	0.0149***
	[0.0007]	[0.0007]
Services sector (0-No; 1-Yes)	0.0216***	0.0229***
	[0.0007]	[0.0007]
Social Community and Personal Services sector (0-No; 1-Yes)	0.0074***	0.0040***
	[0.0007]	[0.0007]
Firm's Dimension (logarithm)	0.0504***	0.0504***
	[0.0001]	[0.0001]
Constant	0.6326***	0.6300***
	[0.0013]	[0.0013]
Year Dummies	Yes	Yes
Observations (no. of workers)	13,396,702	13,396,702
R-squared	0.5458	0.5459
F test	847121.493	767043.868

Notes: Dependent variable is the logarithm of individuals' hourly wage between the years 2005 and 2009. Tenure and Age are measured in years. Basic education (9 years of school enrollment); secondary or post-secondary education below Bachelor; Bachelor, Master of Doctorate degree; gender; urban location and economic sectors are all defined as dummy variables.
*** Significant at 1%.

[2] The results showed take into account duplicate results for the years between 2005 and 2009.

5.3 The occupational choice model

An additive random utility model of occupational choice, following Parker's (2004) exposition of the Logit model. Consider a sample of individuals, there each individual i (i = 1, …, n) is confronted with is occupational choice between two distinct occupations, denoted by j = S in Self-employment and j = P as paid-employer. Wi is the vector of observed characteristics for the individual i who derives utility $U_{ij} = U(Wi\ j) + \mu_{ij}$ while working in occupation j: U (.;.) in the observable utility and

μ_{ij} is the idiosyncratic unobserved utility (random component).

Latent variable $Zi*$ as the utility in business owner compared to paid-employer because to take a decision of becoming business owner the individual will compare the utility derived in each occupation:

$$zi* = U(Wi;S) - U(Wi;E) - ui\mathrm{E} + uis \qquad (4)$$

Assuming that U (.;.) is linear in the form of U(Wi;j) = β_j Wi, where β_j are vectors of coefficients. If we include the intercept term in Wi in its first column as a set of ones and assume to be null the expected values of μ_{is} and μ_{iE}(E[μ_{is}] = 0 and E[μ_{iE}] = 0), then we can write:

$$zi* = \beta' Wi + vi + \alpha \qquad (5)$$

where $\beta' = \beta'_s - \beta'_E$ is a vector of coefficients and $v_i := \mu_{is} - \mu_{iE} \sim\|D(0,\sigma^2)$ is a disturbance term.

Individual i chooses self-employment over paid- employment if $zi* \geq 0$

We thus define the variableZi, which indicates us the observable occupational choice:

$$Zi: \begin{cases} 1 \; if \; the \; individual \; i \; is \; observed \; in \; S, i.e. if \; zi* \geq 0 \\ 1 \; if \; the \; individual \; i \; is \; observed \; in \; E, i.e. if \; zi* < 0 \end{cases} \qquad (6)$$

Thereupon, the probability for an individual *i* is drawn from the population and appears in the sample, considering is vector of characteristics Wi will be:

$$Pr[Zi = 1[Wi] = Pr[Zi* \geq 0|Wi] = Pr[Wi\beta + vj > 0] = Pr[-vi < Wi\beta] \qquad (7)$$

The Logit model consists of this equation treated when the distribution function of vi is assumed to have a logistic distribution in which case it becomes:

$$Pr[Zi = 1|Wi] = \frac{\exp\{Wi\beta\}}{1+\exp\{Wi\beta\}} \qquad (8)$$

Given its non-linearity, the model is estimated by a maximum likelihood. Applying the maximum likelihood estimation the *β* parameters can be estimated.

5.4 – Probability of Becoming an Entrepreneur

In order to analyze the probability of switching into entrepreneurship, results from the logit estimations are described in Table 2. We look specifically at two estimations: one for all creative workers (estimation I) and other for the three categories of creative workers (Creative Core, Creative Professionals and Employed Bohemians – estimation II).

On the likelihood of transition into self-employment it is observable the negative and significant effect of being a creative woman. Age and Tenure show significant positive effects on the probability of becoming a business owner. Being a female show a negative significant effect on the probability of switching from paid employee into business ownership.

Being a creative worker from any category has a significant effect on the probability of switching from paid-employee into business ownership, the same result is observed on being a Creative Core worker or a Creative Professional. The Creative Professional workers show the higher probability from switching from paid-employee into business ownership, followed by the Creative Core workers and at last the employed bohemian workers show the lowest, however significantly positive probability of becoming a business owner.

Regarding education, a creative worker from any category with only basic education (9 years of school enrollment), secondary or post-secondary education below bachelor degree or with a bachelor, master of doctorate degree has a positive significant effect on the probability of switching from paid employee into business ownership. The higher it is the education level, so it is the probability of becoming a business owner. The creative workers with the highest level of education considered (bachelor, master of doctorate degree) have the highest probability of becoming a business owner, followed by the creative workers with secondary or post-secondary education below bachelor degree and finally the creative workers with only basic education (9 years of school enrollment).

Regarding firm's characteristics, working in an urban located firm has a positive significant effect on the probability of creative workers becoming a business ownership. The creative workers employed in firms that operate in the Total Manufacturing sector, Energy and Construction sector, Services sector and Community social and Personal Services all have a positive significant effect on the probability of becoming a business owner.

On firms' dimension in terms of number of employees, results show a negative significant effect on the probability of creative workers becoming business owners, i.e, creative workers employed in smaller firms

have a higher probability of switching from paid-employee to business owners.

Table 2 - Transitions from paid-employment to self-employment in Portugal for creative workers (model I) and Creative Core, Creative Professionals and Employed Bohemians (model II), logit regression results, 2005-2009[3]

Explanatory Variables	**All Creative workers**	**Creative categories (creative core, creative professionals and employed bohemians)**
	(I)	**(II)**
Creative workers	0.0890***	
	[0.0034]	
Creative core		0.0457***
		[0.0064]
Creative professionals		0.0971***
		[0.0036]
Employed bohemians		0.0155***
		[0.0121]
Wage per hour (logarithm)	0.0382***	0.0394***
	[0.0023]	[0.0023]
Basic education (9 years of school enrollment)	0.0580**	0.0575***
	[0.0029]	[0.0029]
Secondary or post-secondary education below Bachelor	0.0880***	0.0871***
	[0.0033]	[0.0033]
Bachelor, Master or Doctorate	0.0747***	0.0840***
	[0.0047]	[0.0049]
Tenure (in years)	0.0088***	0.0088***
	[0.0003]	[0.002]
Tenure^2 x 10^{-2}	-0.0095***	-0.0099***
	[0.0004]	[0.0004]
Age (in years)	0.0187***	0.0186***
	[0.0006]	[0.0006]
Age^2 x 10^{-2}	-0.0235***	-0.0235***
	[0.0008]	[0.0008]
Gender (0-Male; 1-Female)	-0.0453***	-0.0455***
	[0.0021]	[0.0021]
Urban location (0-No; 1-Yes)	-0.0034*	-0.0039**
	[0.0020]	[0.0020]
Total Manufacturing sector (0-No; 1-Yes)	0.0302***	0.0302***
	[0.0076]	[0.0076]
Energy and Construction sector (0-No; 1-Yes)	0.0069	0.0078
	[0.0076]	[0.0076]
Services sector (0-No; 1-Yes)	0.0424***	0.0420***
	[0.0063]	[0.0064]
Social Community and Personal Services (0-No; 1-Yes)	0.0411***	0.0448***
	[0.0086]	[0.0087]
Firm's Dimension (logarithm)	-0.0421***	-0.0421***
	[0.0005]	[0.005]
Observations (no. of workers)	153,769	153,769
F test	17486.395	17578.774
R-squared	0.1173	0.1180

Notes: Dependent variable is the transition from paid-employee to business owner between the years 2005 and 2009. Tenure and Age are measured in years. Basic education (9 years of school enrollment); secondary or post-secondary education below Bachelor; Bachelor, Master of Doctorate degree; gender; urban location and economic sectors are all defined as dummy variables.
Robust standard errors are in brackets.
*** Significant at 1%.
** Significant at 5%.
*Significant at 10%.

[3] The results showed take into account duplicate results for the years between 2005 and 2009.

6 – Conclusions and Future Research

This paper approaches the Creative Class in Portuguese Economy using a longitudinal matched employee-employer dataset commonly called *Quadros de Pessoal* to make a descriptive. This work also includes two models, the first called Rewards to Creative Workers that compared individual earnings using hourly wages (while in wage employment) for the years between 2005 and 2009 as the variable of interest. We investigated whether being a creative worker has a significant impact on the individuals'

earning. The second, The Probability of Becoming an Entrepreneur, where we presented an additive random utility model of occupational choice, following Parker's (2004) exposition of the Logit model.

From the descriptive analysis we can conclude that the creative workers have higher education levels and salaries when compared to non-creative workers. Also the majority of creative workers are present in smaller and older firms, and that Multinational firms hire more creative workers than Domestic firms. Results from the descriptive analysis also show that creative workers have a higher propensity to become business owners and the majority of creative workers are employed in urban located firms.

Empirical findings also suggest that creative workers have a higher propensity to become entrepreneurs compared to non-creative workers, even considering the individual characteristics such as education and firm's characteristics.

This paper aims to set a solid base with empirical data for future research related with the topics of creativity, entrepreneurship and labor dynamics and also be an incentive for future studies related to the importance of creativity and entrepreneurship.

References

Boschma, R. A., & Fritsch, M. (2009). Creative Class and Regional Growth:Empirical Evidence from Seven European Countries . *ECONOMIC GEOGRAPHY ISSUE, Volume 85, Issue 4* , 355-496.

Caves, R. E. (2003). Creative Industries, Contracts between Art and Commerce. *The Journal of Economic Perspectives, Vol. 17, No. 2* , 73-84.

Florida, R. (2004). *The Rise of the Creative Class, revised paperback edition.* New York: Basic Books.

Fritsch, M. (2007). The Geography and the Effect of Creative People in Germany. *Jena Economic Research Papers, 2007-001* , 1-34.

Fritsch, M., & Rusakova, A. (2010). Entrepreneurship and Cultural Creativity. *Jena Economic Research Papers* , 1-39.

Gittleman, M., & Wolff, E. N. (1995). R&D activity and cross-country growth comparisons,. *Cambridge Journal of Economics,19* , 189-207.

Howkins, J. (2001). *The Creative Economy. How People Make Money from Ideas.* London: Penguin.

Madruga, P., & Escária, V. M. (2003). The construction of a Longitudinal Matched Employer-Employee Microdata data set. *Small Business Economics, 30:49-58* .

Parker, S. C. (2004). *The Economics of Self-employment and Entrepreneurship.* Cambridge University Press.

Rosen, S. (1987). Human capital . In *The New Palgrave: A Dictionary of Economics, vol. 2* (pp. 681–690). London: MacMillan.

Sacchetti, F., Sacchetti, S., & Sugden, R. (2009). Creativity and socio-economic development: space for the interests of publics. *International Review of Applied Economics, Volume 23 Issue 6* , 653-672.

Solow, R. (1988). Growth Theory and After. *American Economic Review, Vol. 78, No. 3* , 307-317.

Sternberg, R. J., & Lubart, T. I. (1999). The Concept of Creativity: Prospects and Paradigms. In R. J. Lubart, & R. J. Sternberg, *Handbook of Creativity, Volume 1* (pp. 3-15). Cambridge: Cambridge University Press.

Appendixes

Table A - Creative Occupations (Michael Fritsch)[4]

Groups of Creative People	Occupations (ISCO-Code)
Creative Core	Physicists, chemists and related professionals (211); Mathematicians, statisticians and related professionals (212); Computing professionals (213); Architects, engineers and related professionals (214); Life science professionals (221); Health professionals (except nursing) (222); College, university and higher education teaching professionals (231); Secondary education teaching professionals (232); Primary and pre-primary education teaching professionals (233); Special education teaching professionals (234); Other teaching professionals (235); Archivists, librarians and related information professionals (243); Social sciences and related professionals (244); Public service administrative professionals (247).
Creative Professionals	Legislators, senior officials and managers (1); Nursing and midwifery professionals (223); Business professionals (241); Legal professionals (242); Physical and engineering science associate professionals (31); Life science and health associate professionals (32); Finance and sales associate professionals (341); Business services agents and trade brokers (342); Administrative associate professionals (343); Police inspectors and detectives (345); Social work associate professionals (346).
Employed Bohemians	Writers and creative or performing artists (245); Photographers and image and sound recording equipment operators (3131); Artistic, entertainment and sports associate professionals (347); Fashion and other models (521).
Freelance Artists	Writers, performing arts, fine arts, music.

[4] Source: Fritsch, M. (2007). The Geography and the Effect of Creative People in Germany. *Jena Economic Research Papers*, p.6.