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The determinants of self-employment

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Resumo

O crescente interesse no trabalho por conta-própria é evidente. O trabalho por conta-própria e o empreendedorismo são considerados como meios importantes para o desenvolvimento de um país. Sendo contributos para a criação de emprego e riqueza, têm recebido um aumento de atenção por parte dos governos. Este estudo investiga os determinantes do trabalho por conta-própria, procura uma nova perspectiva do trabalho por conta-própria e empreendedorismo em Portugal, explorando relações entre um conjunto de variáveis que se pensam relevantes no contexto desta dissertação. Os dados providenciam informação acerca das características dos trabalhadores por conta-própria, das transições de e para trabalho por conta-própria e permitem relacionar essas transições com aspectos demográficos, capital humano e experiência. Observámos que os trabalhadores por conta própria são maioritariamente homens, pessoas numa faixa etária entre os 45-64 anos, casados, com um agregado familiar pequeno, e com níveis de educação baixos. Usando o modelo Logit pode-se observar que a probabilidade de ser empregado por conta próprio aumenta com o facto de se ser do sexo masculino, mais velho, casado, com um nível de educação mais elevado, viver no norte de Portugal, ser um trabalhador não qualificado e trabalhar no sector "construção", "Comércio por grosso e a retalho; reparação de veículos automóveis, motociclos e de bens de uso pessoal e doméstico" e "alojamento e restauração". De acordo com o modelo usado para calcular a probabilidade de transições de desempregado e empregado por conta de outrem para empregado por conta própria, pode-se concluir que a possibilidade de transição de desempregado para empregado por conta própria é maior para pessoas do sexo masculino, com uma faixa etária mais elevada, solteiro, doutorados e estar no sector "construção", "actividades financeira" e estar no quarto trimestre do ano. O trabalho por conta-própria e o empreendedorismo são vistos como meios de aumentar a produtividade e a geração de emprego. Por estas razões, este estudo contribui para uma melhor compreensão e conhecimento sobre as características dos trabalhadores por conta-própria, os processos de escolha ocupacional e os mecanismos que sustentam esses processos. É sabido que Portugal está a fazer esforços para promover e aumentar o número de empresários, assim, esta dissertação auxilia na compreensão de como apoiar esta intenção.

Palavras-chave: Trabalho por conta-própria, Empreendedorismo, Inquérito ao Emprego.

Abstract

The emergence of interest in self-employment is evident. Self-employment and Entrepreneurship are considered as being major means for development, employment and wealth creation and, therefore, gaining an increasing attention from governments and policy makers. This study investigates the determinants of self-employment by looking at the relationships between a set of variables, in order to shed new light on self-employment and entrepreneurship in Portugal. The analysis uses the Labour Force Survey for Portugal to investigate individuals' transitions from paid employment, unemployment and inactive status to self-employment. The data provide specific information on self-employment which allows studying the complete set of transitions in and out of self-employment and to relate those transitions with the individuals' demographic traits, human capital, and experience. The descriptive statistics show that the self-employed tend to be men, people aged between 45-64 years, married, with a small household, and with a low level of education. By using a logit model, it is possible to observe that the probability of being self-employed rises with the fact of being a men, older, married, with a higher level of education, living in the north of Portugal, having an unskilled occupation and working in sector "Construction", "Wholesale and retail trade, repair of motor vehicles" and "Hotels and restaurants". Concerning the model used to analyze the probability of transitions from unemployed and paid employed to self-employed this study finds that the likelihood of transition from unemployment to self-employment is higher for men, older individuals, single, having a PhD, being in the sector "Construction" and "Financial Intermediation". Self-employment and entrepreneurship are seen as a way of increasing job generation and productivity. For these reasons this study contributes for a better understanding and knowledge about the self-employed characteristics and processes of occupational choice, and the mechanisms that underpin those processes. It is known that Portugal is making efforts to promote and increase the number of entrepreneurs, thus this dissertation helps to understanding how to support this intention.

Keywords: Self-employment, entrepreneurship, Labour Force Survey.

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Chapter 1 - Introduction

"Self-employment presents an opportunity for the individual to set his or her own schedule, to work when they like, to answer to nobody and possibly even as a way to become rich"
Blanchflower (2000)

The emergence of interest in self-employment is evident, as it is receiving more attention from researchers all over the world (Anu, 2007; Giandrea et al., 2008; Livanos, 2009). Self-employment and Entrepreneurship are considered to be important for development (Pietrobelli et al., 2004; Parker, 2004 and Anu, 2007) and positively associated with employment and wealth creation. For these reasons, self-employment and entrepreneurship are receiving increasing attention from governments and policy makers (Meyer, 1990; Levine, 2004 and Kunt et al., 2007).

Self-employment, understood as the basic notion of people working for themselves rather than for someone else, has been practiced for a long time; for example, according to Aronson (1991) "self-employment is unquestionably the oldest way by which individuals offer and sell their labor in a market economy." However, the concept of self-employment may be used in a narrow or broader perspective, according to the unit of analysis, the country being studied, or the specificities, methodological issues and goals of each research.

On the one hand, if we consider that self-employed individuals search for and explore new market opportunities and who start their own businesses, self-employment may be viewed as being associated with entrepreneurship. On the other hand, self-employment may reflect an alternative professional occupation for unemployed or unsatisfied people who have quitted their job and who just want to enter the labor market as self-employees, without necessarily developing anything new. This study will investigate these strands, in order to shed new light on self-employment and entrepreneurship in Portugal and look at the relationships between a set of variables that are considered to be relevant in the context of this dissertation.

Empirical evidence for Portugal shows that the entrepreneurship rate has been growing. According to the Global Entrepreneurship Monitor (GEM), in 2007, the total entrepreneurial activity rate (TEA)1 was 8.8 %, which means that out of 100 adults (aged between 18 and 64), nearly nine were engaged in early-stage entrepreneurial activities. When compared with 2004, this rate more than doubled, thus marking a steady increase in entrepreneurship in Portugal. In 2004, Portugal was ranked 13th out of

[1] The total entrepreneurial activity (TEA), measures the adults proportion (age between 18 and 64) in a nascent stage of business (business which did not pay for a period exceeding 3 months), or in new business management (business that did pay for a period between 3 and 42 months).

16 European countries included in the GEM. However, in 2007, Portugal was the best classified among 18 UE countries.

The current research will use the Portuguese Labour Force Survey (LFS) to investigate the determinants of individuals' transition into self-employment in Portugal, in 1999-2007. The richness and nature of the LFS allows for an encompassing analysis of occupational flows, a longitudinal perspective of the self-employment phenomenon and for an assessment of socio-economic indicators' evolution across time.

More than simply examining transitions into self-employment, the data allow us to study a set of independent variables that help explaining some factors underlying those transitions. Therefore, it is possible to identify individuals' main demographic characteristics, human capital and their occupational routes before becoming self-employed. This dissertation focus on transitions from paid employment and unemployment to self-employment.

The empirical analysis in this study looks at flows across occupational status. Among the factors that, according to the literature, may influence transitions into self-employment, this study focuses specifically on: Demographic Traits (age, gender and family background), Human capital and Experience (Education and experience in past Employment) and Macroeconomic Context (Unemployment Push and Prosperity Pull). The main aspects that may influence self-employment choice are described in the following Figure 1.

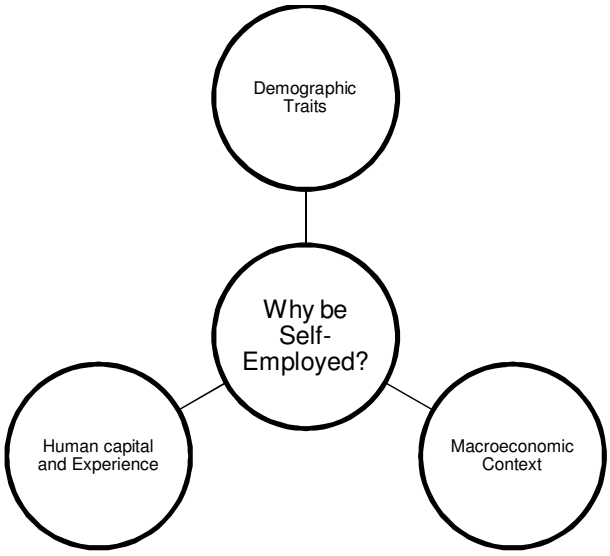

Figure 1:Main aspects that may influence self-employment choice

This chapter discusses the importance of self-employment and entrepreneurship and introduces the focus of the study and the main research propositions derived from the literature. Chapter 2 discusses conceptual issues, endeavoring to offer suitable definitions of the phenomena under analysis. Chapter 3 reviews the main findings related to self-employment. The reviewed literature explores the main reasons why individuals are currently self-employed and why they have chosen to become self-

employed. Chapter 4 describes the design and data structure of the Labour Force Survey, which is the main source of data used in the empirical analysis developed in this dissertation. In chapter 5, the self-employed are described using data from INE. Variables such as age, gender, marital status, household, profession and sector of activity are analyzed and discussed. In chapter 6, a logit model is applied, to analyze the impact of diverse variables on the probability of being self-employed and the probability of transitioning from paid employment or unemployed to self-employment. Chapter 7 summarizes the main results obtained and concludes this dissertation. It also discusses possible directions for future research work.

Chapter 2 - Definitions and Conceptual Issues

"All human knowledge thus begins with intuitions, proceeds thence to concepts, and ends with ideas."
Immanuel Kant

This chapter aims at clarifying the concepts of "self-employment" and "entrepreneurship" through an assessment of the literature and a discussion of different standpoints on the topic at hand. Self-employment and entrepreneurship are often intertwined; therefore a cautious appraisal of concepts is needed in order to untangle them. Only after delineating the boundaries of each of these phenomena will we be able to discern the ways in which they relate to each other.

2.1 SELF-EMPLOYMENT

The European System of Accounts (ESA) defines employment as "covering both employees and self-employed persons, who are engaged in some productive activity that falls within the production boundary of the system" [2]. More specifically, self-employed persons are defined as persons who own sole or joint businesses of the unincorporated enterprises in which they work, with the exception of those unincorporated enterprises classified as quasi-corporations. The self-employed categories include unpaid family workers, outworkers and workers engaged in production undertaken entirely for their own final consumption or own capital formation, either individually or collectively.

The Organization for Economic Co-Operation and Development (OECD)[3] categorizes the employed into paid employment, unpaid employment and self-employment. The individual categorized as self-employed is defined as someone who does some work for profit or family gains, in cash or in kind. A self-employed individual can be an employer, own account worker or a person in production of goods/services and household consumption.

The International Labour Organization (ILO)[4] classifies employment as employees, unpaid family helpers, employer and own account workers. An employer is an individual who operates his/her own economic enterprise independently in a profession with one or more employees. An own account worker is a person who operates his/her own economic enterprise independently in a profession with no employees. Employers and own account worker groups give the total number of self-employed.

Parker (2004) considers the self-employed as individuals who earn no wage or salary but derive their income by exercising their profession or business on their own account and at risk. Partners of an

[2] Definition can be find in http://www.oecd.org
[3] http://www.oecd.org
[4] http://www.ilo.org

unincorporated business are usually considered as self-employed too. It is sometimes helpful to partition the self-employed into employers and own account workers (the latter of which work alone), or into owners of incorporated or unincorporated businesses. Incorporated businesses entail some disadvantages, including the fact that they are expensive to maintain, the need to keep proper accounting records, the maintenance of shareholder minutes and resolutions. Despite these disadvantages, there are several advantages to incorporated business like limited liability, which means the protection from claims against personal assets as a result of actions taken by a company, credit proofing, ability to have other family members own company, possibly lower tax rate, ability to delay income taxes. By contrast, the main advantages of an unincorporated business are that they are easy to operate, have less costs, and that revenue and expenses are reported in personal tax return. Some of the disadvantages are the unlimited liability, the fact that a family member cannot own part of the business unless a partnership or joint venture is created, and the inability to delay taxes.

As this dissertation analyses self-employment empirically, by using data from *Instituto Nacional de Estatística*- INE[5] (Statistics Portugal), the definition of self-employment used throughout is the one approved by INE and endorsed by Eurostat (the European statistical office). INE defines as self-employed any individual who performs an independent activity, with or without partners, earning an income that is directly dependent on the profit (realized or potential) from the goods or services produced. Partners may or not be household members. Additionally, a self-employed person may be classified as either having or not having employees. In the latter case, the self-employed person is referred to as an isolated self-employed individual.

Self-employed without employees (also termed non-employers)
INE defines an isolated self-employed person as someone who performs an independent activity, with or without partners, earning a salary that is directly dependent on the profit (realized or potential) from the goods or services produced and that usually does not hire employee(s) on behalf of others to work with him. The partners may or not be household members.

Also, it is important to refer the sole trader concept, as some papers may associate self-employment without employees with the concept of sole traders. INE defines sole trader as an individual who usually carries on an organized, non-commercial economic activity on his/her own account for profit. This does not include the liberal professions. UK national statistics characterizes sole trader as someone who owns and controls a business. Basically, a sole trader, despite having to be registered as self-employed, does not have to pay any registration fees, and does not have any employees.

Self-employed with employees (also termed employers)
Finally, according to INE definition, a self-employed employer is an individual who performs an independent activity, with or without partners, earning an income that is directly dependent on the profit (realized or potential) from the goods or services produced and who normally employs one or more employees on behalf of others to work in his company.

[5] http://www.ine.pt

Although different definitions of self-employment exist in the literature, no study analyses how far definitions affect the comparability of self-employment statistics in depth. The similarity of the wording in much of the data suggests there should be a broad degree of comparability. Van Stel (2005) produced a study where he harmonized data from 23 OECD countries. He finds that the main problem was the different statistical treatment of self-employment, and, in order to resolve this, he chooses a common definition of self-employment for each data set. He comes to the conclusion that harmonized data provides a more reliable data set; it is nevertheless very difficult to improve cross-country comparability.

2.2 ENTREPRENEURSHIP

Similarly to self-employment, the concepts of entrepreneurship and entrepreneurs also lack a clear and unique definition. For example, according to Evans (2002) an entrepreneur is an individual who organizes, manages, and supervises issues related to the production for the supply of goods and services. The author also defines three types of entrepreneurs working in private business, namely, those responsible for the routine aspects of management, those with an innovative attitude, and those who actively control the business.

According to Anu (2007) "entrepreneurs are self-employed people running their own company" and are the major source of development. The importance given to entrepreneurship in academic enquiry derives from the crucial role it plays the creation of wealth and employment. Because stimulating entrepreneurship appears as an effective way of improving a country's economic performance, governments are increasing subsidies and support schemes aimed at entrepreneurs (Anu, 2007).

When speaking about improving the economic performance of a given country, the concept of intrapreneurship must be mentioned alongside that of entrepreneuship. Anu (2007) distinguishes between intrapreneurship[6] and entrepreneurship. The main difference is the fact that an intrapreneur is supported by his organization whereas the entrepreneur does not. Moreover, while an intrapreneur must obtain final approval for his ideas from a superior within the organization, an entrepreneur is, himself, responsible for the business. This dissertation focuses on entrepreneurship.

Buera (2009) defines an entrepreneur as an individual who invests his/her capital and devotes his/her entire labor to produce output using an agent specific technology, and who reports having a positive amount of business equity. Berglund et al. (2007) defend that entrepreneurs have to acquire new knowledge in order to develop their ventures. They argue that the process of entrepreneurial learning includes: experimentation, evaluation, unreflective actions and unverified assumptions.

[6] Anu (2007) defines intrapreneurship as "the spirit of entrepreneurship within an established organization". Basically it is related with opportunities given to employees to generate innovation within an organization.

For some authors, entrepreneurship overlaps with self-employment (Evans and Leighton, 1989). In order to clarify the terminology in this study, the analysis follows Parker (2004) in that: at the conceptual level, the term ‘entrepreneur’ will be used but the empirical approach; where issues of measurement, statistics and policy are involved, the concept of and data on ‘self-employment’ will be applied.

Chapter 3 - Literature Review

"Past performance produces present privileges."
Unknown

The figures for self-employment have been increasing in recent years among countries from the developed world. There is a growing scientific interest for self-employment, which can be translated by the fact academic studies on self-employment have steadily been increasing over time (Bates, 1995; Le, 1999 and Pietrobelli et al. 2004).

Research on self-employment focuses both on macroeconomic and microeconomic aspects. At the macroeconomic level, studies analyze the probability of becoming self-employed and its association with unemployment rate and country wealth (Blanchflower, 2000). At a microeconomic level, the concepts explored are, for instance, past employment experiences, higher earnings expectations, and the need for independence (Henley, 2004). This dissertation uses both micro and macro data in order to examine how personal attributes and macroeconomic context influence the self-employment rate at the country level, i.e. in Portugal.

Several studies argue that the main determinants individuals take into account when choosing to become self-employed are age, gender, education, family background, wealth and financial resources (Carroll and Mosakowski, 1987; Bates, 1995; Parker, 2004; Georgellis and Wall., 2005). This literature review focuses on these variables, and divide them into three main groups with diverse sub-categories. First, Demographic Traits includes age, gender and family background. Second, Human Capital and Experience comprehends education and past employee experience. Finally, the Macroeconomic Context section looks at the unemployment rate in order to analyze the unemployment push and prosperity pull effects.

3.1 DEMOGRAPHIC TRAITS

In this section we analyze three main variables fitting the demographic traits dimension. The analysis begins with the age variable, followed by gender and lastly by family background.

3.1.1 AGE

The scholarly discussion on the relationship between age and self-employment can be divided into two main strands. Whereas one strand argues that self-employment is more likely to be undertaken by older people, the other strand claims that self-employment is higher among the younger layers of the population.

Scholars who defend the first strand argue that typically there is a strong positive relationship between age and self-employment. One of the authors who defend the older self-employed strand is Blanchflower (2000), who says that in the OECD countries self-employed people are unlikely to be young. This is also verified by Johansson (2000) in a study conducted on the Finish population. According to Evans and Leighton (1989), for the US, a 10 percent increase in age leads to approximately 18 percent increase in the unincorporated self-employment rate and a 24 percent increase in the incorporated self-employment rate. These authors also argue that the probability of becoming self-employed increases with age. In their findings, the fraction of the labor force that is self-employed rises with age until the early 40s and then remains constant, implying a curvilinear relationship between age and self-employment, as very young and very old people are not expected to be self-employed. However, the transition from not working into self-employment has its peak at the age of 32[7].

Consistent with Evans and Leighton (1989), Bates (1995) analyzes entry into self-employment in the US making the division into three specific industry groups: skilled services, construction, and large-scale goods industries. According to his study, the likelihood of entry increases with age, peaks at age 40 and then continues to level out, in all the groups.

Several other studies find that older people have higher chances of becoming self-employed; diverging only on the age at which the probability of becoming self-employed peaks. Thus, Livanos's (2009) results for Greece and the United Kingdom confirmed the results obtained by Bates (1995) and Evans and Leighton (1989). Livanos showed that the age-peak for entering self-employment is even higher than initially expected. Carrasco (1999) finds, in Spain, that the probability of switching to self-employment is highest for people between 35 and 45, and decreases for those over 55. Cowling et al (2004) find similar results to UK, i.e. that age positively affects the probability of self-employment, which increases until age 41, and then begins to decline. For Henley (2007), who also looks at Britain, the probability of a transition into self-employment peaks at the age of 34 and declines thereafter. Georgellis and Wall's (2005) research on the relation between age and self-employment in Germany exhibits an inverted u-shape, peaking at 39 years of age.

The age-peak for becoming self-employed happens in the interval between 32 and 45, and then declines. Some authors argue that the age-peak is even higher, and view self-employment as an alternative to retirement. Since older people have a higher probability of becoming self- employed, Zissimopoulos and Karoly (2005) highlight the importance of the age factor in the US. They analyze data from the 2001 Current Population Survey (CPS) and find that self-employment rates are very low among younger people and rise as age increases. The highest percentage of self-employed people (29.4%) is found in the 70+ age group. These results can be explained by the concept of risk aversion, as older people may be less risk averse. Amaral and Baptista (2006) findings for Portugal also converge in stating that the probability of becoming self-employed increases with age, although they

[7] This, they argue, can be explained by the fact that older people have had more time to make the decision of whether they want to switch into self-employment.

argue that the relationship between switching from paid employment to entrepreneurship is curvilinear because they find a negative effect for the squared value of age. In the same study, there is a positive correlation between age and self-employment until the age of 50, at which point the relation becomes negative. It is important to refer that Amaral and Baptista (2006) use a matched employer-employee data set, which means that only the transitions from paid employment to self-employment are analyzed.

Blanchflower and Meyer (1994) find a non-linear effect of age on self-employment. They examine the transition into self-employment in Australia and the US, and obtain different results. In both countries, the probability of becoming self-employed increases with age. However, the transition rate in Australia is best described by a quadratic in age, because the probability of becoming self-employed rises much faster at higher ages, while in the US, where the growth is slower, the relationship is linear.

Some studies, despite confirming the positive relationship between age and self-employment, argue that the self-employment rate decreases over the person years. For example Kidd (1993) argues that age is an indicator of capital accumulation. Indeed he argues that, *ceteris paribus*, an increase in age leads to an increase in the likelihood of being self-employed in Australia, but at a decreasing rate.

In general, these studies point out the existence of a common denominator: they all confirm that there is a strong relationship between age and self-employment, with many authors arguing for a positive correlation between them.

A smaller number of studies argue that younger individuals are more likely to be self-employed. That is the case of Holtz-Eakin et al. (1994), who find that the attitude toward risk is correlated with an individual's age. According Holtz-Eakin et al. (1994), there is a concave relationship between age and transition into self-employment, with older individuals being less likely to become self-employed. Arenius and Minniti (2005), for example, argue that entrepreneurship tends to be more common between young men. Their analysis used data from de Global Entrepreneurship Monitor (GEM) project. The sample used information from Mexico to UK. They find that the relationship between age and the probability of starting a new venture peaks at a relatively early age and then decreases.

Despite the intuition that the young are more likely to aspire to become a self-employed, most people do not have enough experience to make the transition until they reach their mid-thirties. Indeed, most studies on this subject referred to above concur that older people's successful transitions into self-employment are largely due to the capital and the experience they have gained in their previous jobs. However, according to the human-capital theory, since the earnings of salaried workers increase with age, even as their capital increases older people may have less of an incentive to become self-employed.

3.1.2 GENDER

When considering self-employment, most literature gives more attention to the study of men. This may be because men seem to be more likely to be self-employed than women, as is the case in Germany (Carroll and Mosakowsky 1987), in the US (Brush 1992, Blanchflower 2000, Wenger 2003), and in Britain (Henley 2009). In his comparative study on the determinants of self-employment in Greece and the UK[8], Livanos (2009) also finds that females have less chances of being self-employed than males. Moreover, Arenius and Minniti (2005) find that women have half of likelihood of entering self-employment than do men. This argument holds across self-employees' different ages, since the authors also find that retired women are two thirds as likely to start a new venture as retired men.

However, as Georgellis and Wall (2005) demonstrate, women are more likely than men to become self-employed as a substitute for being unemployed or for part-time employment. According to the authors, it appears that men and women take different factors into consideration when deciding to become a self-employed; men give more importance to the wage differential, to liquidity constraints when moving from paid work to self-employment. For example Eddleston and Powel (2008) examining if the psychological construct of gender identity explained sex differences in business owners' preferences for career satisfiers, find that female business owners do not give such importance to status attainment to a greater extent as men do.

Bates (1995) analyzes the transition into self-employment distinguishing between skilled services, construction and large-scale goods industries and, and finds that the likelihood of women becoming self-employed is greater in skilled services than in the other two groups. The rates of participation are therefore different for men and women.

Although men are more present in self-employment, there is evidence that this gap has been growing narrower. According to Evans and Leighton (1989) and to Bates (1995), the number of women becoming self-employed in skilled services has been growing faster than that of men. Levine (2004) asserts that the disparity between the number of self-employed women and that of men has been decreasing in the US. This can be explained by the advantages they may derive from being able to control their schedules.

Ekelund et al. (2005) claim that the different rates of self-employment are due to the fact men are less risk averse than women. Indeed, many studies confirm that women have a greater aversion to risk than men (Byrnes et al., 1999 and Watson and McNaughton, 2007). Even as the gendered division of labor is becoming less and less clear-cut, many women still dedicate a significant part of their time to household management and parenting, and are therefore less available for entrepreneurial ventures. Henley (2007) suggests that this may be enhanced by discrimination by external support agencies, such as lenders of capital.

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[8] It is important to mention that this is a study about the incidence of self-employment in Greece, which has the highest rate of self-employment in the EU, and the UK, where the rate is among the lowest in the EU. In both cases, nevertheless, women have a lower probability of becoming self-employed.

In conclusion, evidence shows that men have a higher probability of being or becoming self-employed than women, although the gender gap, in this respect, has been steadily eroding in recent decades.

3.1.3 FAMILY BACKGROUND

An individual may have a propensity to follow his/her parents in their career choices. How far does this happen with regards to self-employment?

Wit and van Winden (1989) and De Wit (1993), argue that, in the Netherlands, an individual's probability of becoming self-employed increases if his parents were self-employed. Moreover, having self-employed parents increases the probability of becoming self-employed at an earlier age. Carroll and Mosakowski (1987) agree with this finding, and claim that there is a sequential transition into owner-management: first, those with self-employed parents help their parents in the business, and later, they assume full control in the ownership of the firm. They see their parents as a model and have a more realistic understanding of self-employment.

Nevertheless, it is interesting to point out that if the father or the mother ceases to be self-employed, this does not have a significant influence on the child's decision (Wit and van Winden, 1989). This means that even if an unsuccessful experience of self-employment occurs in the family it does not have repercussions in the decision to become self-employed. This suggests that the self-employment rates are likely to carry on growing as the next generation takes over the labor market.

This event is not limited to blood relatives: most empirical studies find that married people have a greater propensity of being self-employed than those who are not married (Fairlie and Meyer, 1996; Blanchflower, 2000; Lombard, 2001; Livanos, 2009). These results may be explained by the fact that marriage grants stability, thereby reducing the inherent risk associated with self-employment. Thus, as Henley (2007) argues, paid employment may be more appealing to married individuals with greater family commitments, because it is less risky. This author claims that married individuals are less likely to begin a new business, but are more likely to transition into self-employment, mainly due to the risk factor.

A study on the transitions into self-employment in the US (Bruce, 1999) concludes that married women have greater chances of entering self-employment either early or late in their working lives. Henley (2007) says that married women may have higher odds of starting a business venture because of the protection offered by their spouse's income. There is also an increase on the probability of a woman becoming self-employed if her husband is self-employed and able to help with capital (Caputo and Dolinsky, 1998).

Several researchers argue that women with young children have a higher chance of becoming self-employed than without children (Brush, 1992 and Caputo and Dolinsky, 1998). This may occur because entrepreneurship affords greater flexibility in schedules, which helps to manage domestic responsibilities and gives the opportunity to spend more time with children.

3.2 HUMAN CAPITAL AND EXPERIENCE

This section looks at education and past employee experience. We will analyze the ways in which these variables influence the decision of be self-employed.

3.2.1 EDUCATION

Several studies highlight education as an important factor when considering the decision to become self-employed, as we discuss below. However, the literature presents mixed evidence on the role played by education in becoming a self-employed. Education may be positively or negatively associated with self-employment. On the one hand, the better-educated may have more skills and assets to become successful entrepreneurs; on the other hand, individuals with higher levels of education may believe that they can earn more money in employment.

According to Lucas (1978), the odds of entering and staying in self-employment are greater if the individual has a higher level of education, because education endows individuals with better skills and abilities. However, Lucas also argues that higher levels of education may act as a dissuasive factor in the choice of entry self-employment.

Consistent with this theory, in Sweden, Wiklund et al. (2004) find that individuals with high levels of education and earning high salaries see entrepreneurship as an unattractive alternative. Since an individual's wage earning capacity increases with education, individuals with higher education levels may think they can receive more money and maybe be promoted more easily in wage work.

Livanos (2009) argue that, in Greece and in the UK, individuals with higher educational levels have less chances of being self-employed than people holding primary and secondary education. However, Livanos's (2009) findings are in disagreement with several other papers. Evans and Leighton (1989) distinguish between incorporated and unincorporated self-employment in US.[9] For incorporated self-employment, the amount of self-employment increases with the frequency of education. However, for unincorporated self-employment, the relationship between self-employment and education is not so clear. They get to the following ranking of education and the self-employment rate (high to low): high-school dropout, college dropout, college graduate, graduate, and high-school. Evans and Leighton (1987), based on their nationally representative sample of young males, state that the likelihood of entering into self-employment increased with increased levels of educational attainment.

Dolinsky, et al. (1993), in a study made in the US, argue that for women, the likelihood of becoming self-employed increases with higher levels of education. They explain this by the fact women may face financial constraints and because they have lower chances of becoming self-employed. Birley et al.

[9] The distinction between incorporated and unincorporated self-employment workers is made mainly due to economic policy variables. The taxes are 50% higher for unincorporated self-employed workers than for wage-workers, and 100% higher for incorporated self-employed workers than for wage-workers.

(1987) show that in the UK the educational attainment between self-employed men and self-employed women is nearly equivalent.

Zissimopoulos and Karoly (2005), when analyzing transitions to self-employment at older ages, find that the transition to self-employment is positively related to education attendance, which is more expressive among men. Bates (1990) finds that the probability of being and remaining in self-employment over time increases with increasing levels of education. In another paper, Bates (1995), finds that the probability of becoming self-employed in skilled services increases greatly as the level of education rises; however, for the construction sector the opposite situation prevails.

Consistent with Bates, Blanchflower and Meyer (1994) find that education has a positive influence on self-employment rates in US young males. Henley (2009) investigates the switching cost and occupational transition into self-employment. The author argues that individuals with higher levels of education appear to have lower switching costs, and consequently have a great probability of being self-employed. The author suggests that a solution to solve this problem would be interventions to assist less educated individuals in order to prepare them for entrepreneurship, since doing that may improve their representation amongst the self-employed.

By contrast, Clark and Drinkwater (2000), who investigate self-employment rates among ethnic minorities in England and Wales, argue that that the likelihood of being self-employed is lower for those with formal educational qualifications. Amaral and Batista (2006) find two different results concerning education and entrepreneurship in Portugal. They argue that education does not affect the chance of switch from paid work to entrepreneurship if the person has higher (tertiary) education. But a positive effect is found for individuals who only have secondary education.[10]

Most of the studies find either a positive or negative relationship between education and self-employment, however some studies find no relationship between these two variables. According to some longitudinal studies, education is insignificant for individuals considering self-employment (Schiller and Crewson, 1997; Bruce, 1999; Johansson, 2000). Additionally, Carroll and Mosakowski (1987) argue that the relationship between education and transition into entrepreneurship is not particularly robust.

From all the studies under analysis educational attainment is, in general, positively associated with transition into self-employment, but not highly statistically significant.

[10] Amaral and Batista (2006) explain their results by saying that people with tertiary education are a small minority Portugal and this minority will have higher opportunity costs switching to entrepreneurs since have more possibilities of returning to study in paid labor.

3.2.2 PAST EMPLOYMENT EXPERIENCE

Birley et al. (1987) investigated if entrepreneurs' previous employment impacts their choice to start a business. For these authors, past employment did provide an experiential base for the entrepreneurs as it gives managerial skills necessary for a successful start-up. According to Evans and Leighton (1989) and Bates (1995), individuals learn from past experiences, and previously self-employed people are more likely to re-enter self-employment than those who have never run their own venture. Evans and Leighton (1989) argue that individuals with longer job tenures have more probability to transit into self-employment, while previous self-employment experience significantly raises the odds of transition. Carrasco (1999) finds that unemployed workers are more likely to become self-employed, although past unemployment experience is negatively associated with self-employment survival and those with more unstable work histories have more odds to transit to self-employment. Wiklund et al. (2004) also believe that individuals with entrepreneurial experience have more probability to accumulate human capital which may be more valuable to self-employment instead to a wage work. Consistent with this argument, individuals with higher work experience are less likely to become self-employed because the opportunity cost of entrepreneurship increases.

As seen, there are few studies concerning past experience and self-employment. The extant evidence positively associates past self-employment experience with a higher likelihood of transiting into self-employment, because of the learning experience.

3.3 MACROECONOMIC CONTEXT

There are two theories concerning the way unemployment may influence the decision to become self-employed. The unemployment push theory suggests that high unemployment rates result in few paid employment offers, and that this leads to many opting for self-employment. On the other hand, the prosperity pull theory argues that when the unemployment rate is low, offers for paid employment are frequent and many attempt the self-employment option believing that if the venture fails, another job will be available.

3.3.1 UNEMPLOYMENT PUSH

Authors who defend this theory believe that unemployment will have a positive influence on the self-employment rate.

Thurik et al (2008) defend the existence of two distinct relationships between self-employment and unemployment. The authors deem the "refugee" effect to the phenomenon of increase in start-up activity caused by high unemployment rates. The "entrepreneurial" effect occurs when higher rates of self-employment tend to increase entrepreneurial activity, which then reduces unemployment in subsequent periods. The authors also conclude that the "entrepreneurial" effects are stronger than the

"refugee" effects, and particularly that a rise in unemployment has a positive impact on subsequent self-employment rates. At the same time, a rise in self-employment rates has a negative impact on subsequent unemployment rates.

Moore and Mueller (2002) find that workers who collect unemployment benefits between jobs are less likely to become self-employed than workers who do not receive benefits. Therefore, they may extend their period of search for paid work, instead of becoming self-employed. Authors like Blau (1987) and Blanchflower and Meyer (1994) support the unemployment push and the refugee or desperation effect views, as they all argue that increasing unemployment leads to increasing self-employment, because it decreases the opportunity cost of starting a firm.

According to Simpson and Sproule (1998), in Canada, the likelihood of entering self-employment among women increases with the local unemployment rate. The same result is finding by Schuetze (2000) for Canadian males in the US. However, some authors argue that high unemployment rates can also entail lower levels of personal wealth, which lead to a lower likelihood of becoming self-employed (Johansson, 2000).

3.3.2 PROSPERITY PULL

According to the prosperity pull theory, an optimistic atmosphere leads to increases in self-employment, meaning that people opt for self-employment when the unemployment levels are low.

Simpson and Sproule (1998) find that in Canada, for men, the chances of entering self-employment decrease with the local unemployment rate. Blanchflower and Oswald (1990) also find a strong negative relationship between regional unemployment and self-employment in the UK. Evans and Leighton (1990) also defend the pull perspective.

Cowling and Mitchell (1997) find that in the UK, the number of self-employed people is negatively related with short-term unemployment, but they find the opposite for long-term. They believe this may mean that self-employment is a last resort for those individuals. Alba-Ramirez (1994) obtains similar results in Spain and the US.

Hamilton (1989) suggests that the relationship between unemployment and self-employment is non-linear. He argues that at low rates of unemployment, as unemployment increases, new firm formation also increases; however, once a "critical" point of unemployment is reached, increases in unemployment lead to reductions in new business formation.

A summarizing table of the most important papers for this dissertation is presented in the appendixes (Table A.1.).

Chapter 4 - The Labour Force Survey

"In the fields of observation chance favors only the prepared mind"

Louis Pasteur

In this dissertation we will analyze the answers given by the Portuguese population to the Labour Force Survey (LFS) since 1998 to 2007. This chapter discusses the significance and purpose of the LFS, beginning with the main facts on the historical evolution of the EU LFS in order to introduce the reader some contextual aspects. Moreover, it we explain the purpose of Labour Force Surveys, the methodology used and, finally, describe the classification and concept of self-employment in the European Union Labour Force Survey.

4.1 BRIEF HISTORY

In the latter half of the 19th century censuses of population were introduced in some countries in order to obtain more information on the workforce. However, increasing industrialization and events like mass unemployment during the Great Depression in 1930 created a need for new, more exhaustive approaches, and more sophistication in conceptualizing and measuring labor market dynamics. The LFS was first introduced in the United States in 1940 with features designed to provide information about relevant labor market characteristics (the CPS – Current Population survey). Just 10 years later, and mainly due to a more global view of the labor market, European countries launched the Labour Force Surveys. The first country was France, followed by the Federal Republic of Germany. After this experimentation period there was, in 1960, a first attempt to carry out a LFS covering the European Community with the six original member states. Since then, the LFS has been revised and optimized.

The LFS is carried out in all EU countries and is one of the most important surveys, because it collects information not only on individuals' labor status, but also on several other socio-economic variables that are relevant to economic studies. The LFS is a European harmonized survey controlled by EUROSTAT and it is governed by the European Union. There are, nevertheless, divergences between the methods used across different countries.

In Portugal, the labour force survey has been conducted since 1983 as a quarterly survey and it covers the entire national territory. Since 1998, the survey is done continuously, with compulsory participation, every three months, and more than 22,000 households participate. The LFS covers only private dwellings; however, the survey also covers segments of the population who live in collective residences and who represent a potential for the labor market, as they have family links with the

private dwellings (national servicemen or students). All the persons living in the same dwelling are interviewed. Although the survey is directed at the households, the dwellings are taken as sampling units. Figure 2 summarizes the mains events in the LFS history.

LFS gathers information including the labor status of individuals and information about socio-demographic characteristics. The survey uses a regionally stratified multi-stage sampling method with rotation of 1/6 of the sample every quarter. This means that each household is followed during six quarters, which gives an opportunity to do a longitudinal analysis of the information, and to observe the evolution of socio-economic indicators. This survey allows us to analyze flows and, consequently, to track individuals' histories across time. Concerning the weighting procedure, the weight is derived as the product of a design weight and a factor that calibrates the sample to the independent demographic estimates.

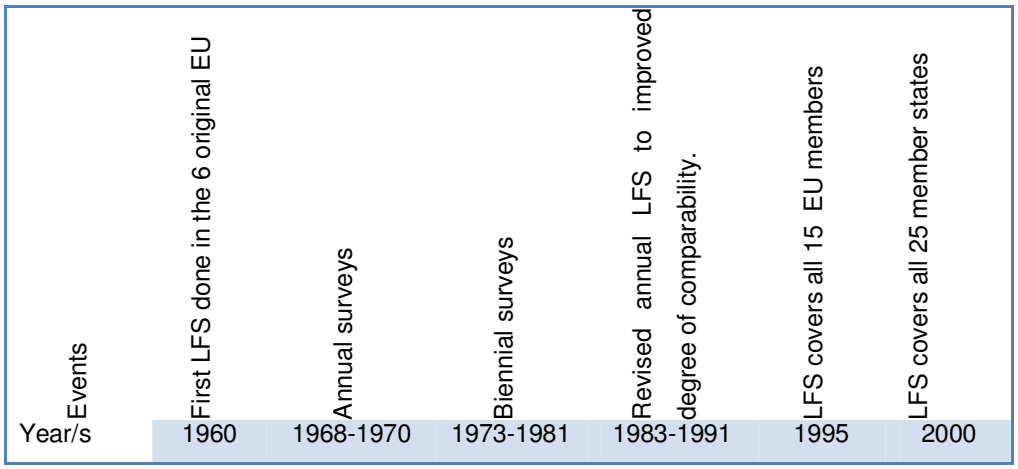

Figure 2: The LFS history.

4.2 THE PURPOSE OF LABOUR FORCE SURVEYS

The LFS major statistical objective is to divide the adult population, (aged 15 or more), into three mutually exclusive and exhaustive groups, namely employed, unemployed and inactive persons, providing descriptive and explanatory data for each one. Respondents are categorized according to the most objective information possible obtained in the survey questionnaire and assigned to one of the groups.

Looking at flows, we will be able to define certain characteristics of the labor market that are not usually available from other statistical sources. The inherent flexibility of a LFS derives from its potential for obtaining information on relevant labor market aspects across all the sectors of the economy in a consistent manner. Finally, an important aspect of the Survey, in the context of the European Union, is that most of the definitions used are the same for every country and, therefore, comparability between Member States is guaranteed for certain estimates. However, there are some

limitations to LFSs. One of them is the cost on the overall sample size. Also, if the movements involved are relatively small, there is a limitation in what can be achieved in monitoring trends over time. Finally, the sampling procedures place a limitation on the level of detail that can be achieved when analyzing the results.

4.3 LABOUR FORCE CLASSIFICATION IN THE EUROPEAN UNION LABOUR FORCE SURVEY

Figure 3 presents the Labour Force classification in the EU LFS. As it can be seen, according to a person's answers s/he will be classified as employed or unemployed, and part of the labor force, or, instead, as part of the inactive population.

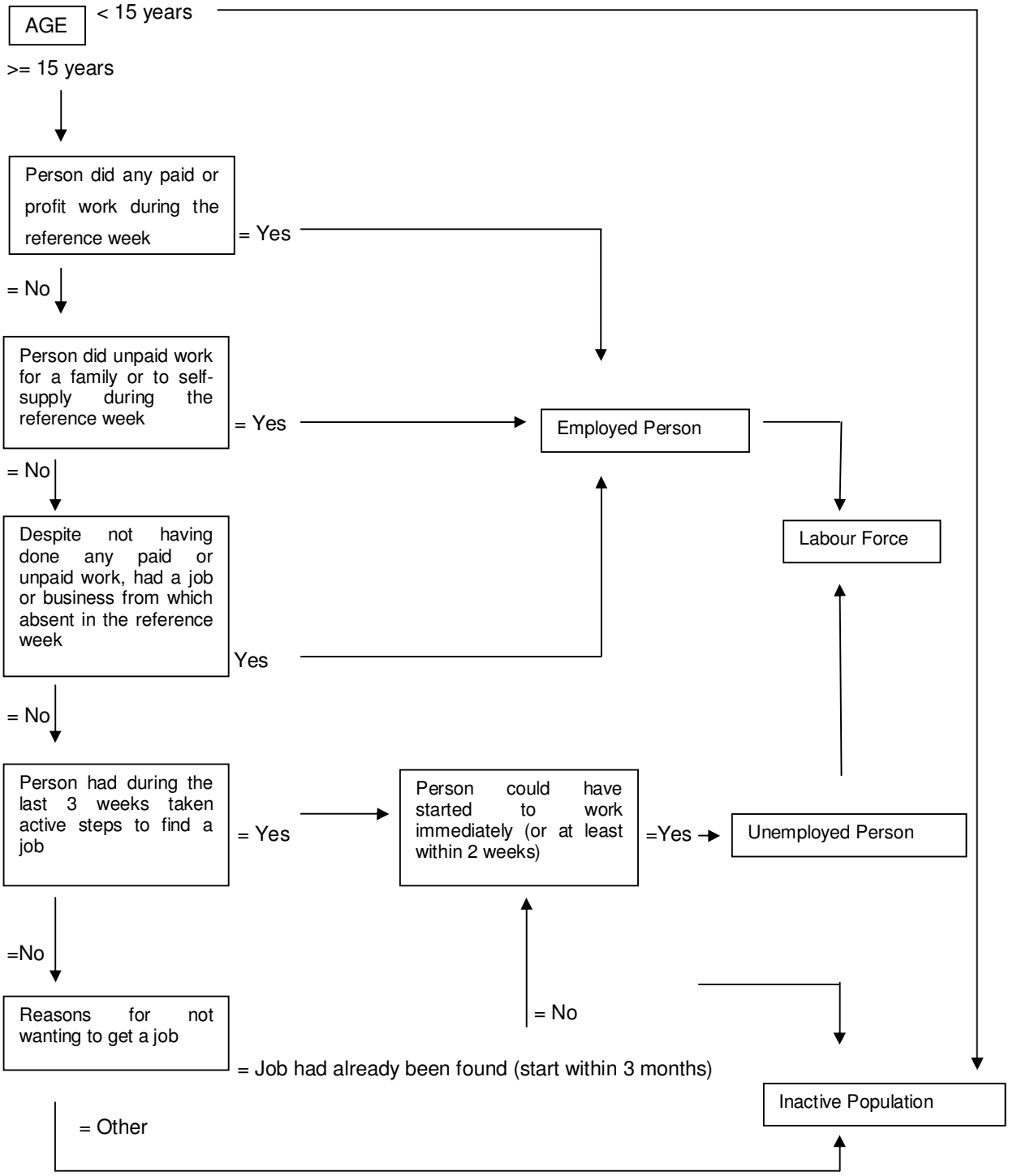

Figure 3: The algorithm of the labour force classification.

Chapter 5 - Descriptive Analysis

"But after observation and analysis, when you find that anything agrees with reason and is conducive to the good and benefit of one and all, then accept it and live up to it"
Buddha

In this chapter we describe and analyze the main variables and how they associate (or not) with self-employment. According to the literature reviewed in the previous chapter, the variables under analysis fit the following dimensions: Demographic traits (age, gender and family background); Human capital (educational level) and Experience (individuals' experience in past employment). Descriptive statistics are provided, using mean values for years 1998 to 2007 from of the LFS. The statistics presented are calculated taking into account the weights of each observation and are, therefore, estimates for the whole population (and not just for the sample).

5.1 INDIVIDUALS' DISTRIBUTION ACROSS DIFFERENT OCCUPATIONS

In order to provide a broad overview of the Portuguese labor market, we start by analyzing how the population is distributed throughout different labor market occupations. For the purpose of this study, occupational profiles can be split across five categories: Paid employees; Self-employees with employees (also termed employers); Self-employees without employees (also termed non-employers); Family workers and Others. Our analysis focuses primarily on Self-employment with and without employees. Hereafter, the abbreviation SE will be used for Self-employment and PE for Paid employment. Table 1 shows individual's distribution across occupations in 1998—2007.

Table 1: Individual's distribution across occupations in 1998—2007

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Occupation										
Paid Employee	3,335,119	3,445,013	3,544,282	3,596,536	3,632,819	3,624,497	3,669,748	3,697,728	3,783,518	3,785,856
Self-employed without employees	490,104	471,600	459,104	481,265	480,496	469,902	451,133	448,619	436,126	441,724
Self-employed with employees	279,391	282,411	282,027	299,527	299,555	307,149	309,984	285,069	263,848	272,090
Family workers	49,587	50,636	51,619	43,648	48,362	39,428	37,691	40,984	32,107	27,413
Other	24,11	26,963	35,195	24,345	21,622	20,350	21,441	24,862	22,424	21,912
Total No. of Individuals	4,178,311	4,276,623	4,372,227	4,445,321	4,482,853	4,461,327	4,489,998	4,497,262	4,538,025	4,548,995

The following chart (Figure 4) shows how occupational distribution evolves across the period under analysis.

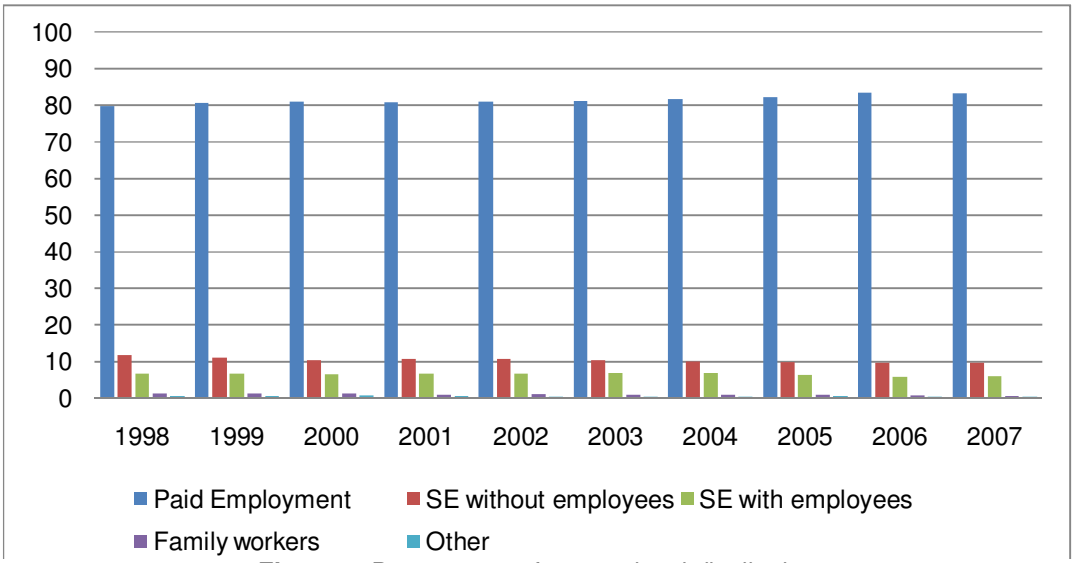

Figure 4: Percentages of occupational distribution

It is possible to observe that in Figure 4, results remain reasonably stable from year to year. The majority of the workforce is paid employed (from 80% to 90%), followed by the group of self-employed without employees, accounting for around 10% of total population. While the chart depicts a slight decrease of this occupational group in recent years, the group of paid employees has been growing throughout time. If we take, for example, the total number of self-employees (both with and without employees) in 1998, it accounts for 769,495 individuals. Five years later, in 2003, the same occupation presents a similar distribution. While employees are almost 82% of the population, self-employees account for about 18% of the population. When looking at the proportion of employers and non-employers within the SE group, it is possible to observe that, once again, the majority of self-employed do not have employees. In 2007, for example – the last year under analysis – we may observe that the total number of self-employed is 713,814, from which 441,724 do not have employees.

Figure 5 depicts the average number of individuals spread throughout different occupations across all years in 1998–2007.

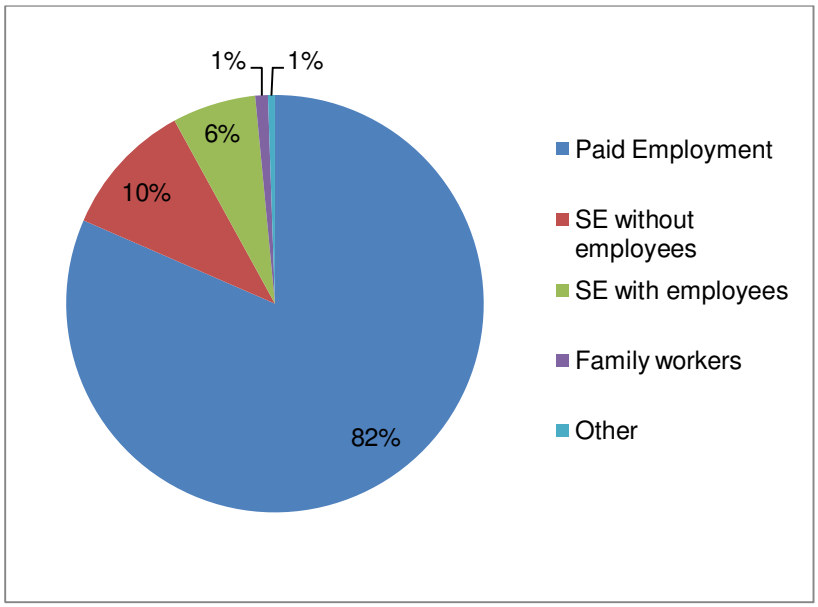

Figure 5: Average number of individuals in different occupations in 1998—2007

The majority of people are paid employed (82%), followed by SE without employees (10%) and by SE with employees (6%). The less represented occupations are family workers and others. These results were expectable, since SE is frequently defined as an alternative risky occupation. Moreover, being a SE often associates with liquidity constraints, which is an important entrepreneurial entry barrier. Even if individuals who are developing efforts towards the start-up of a new business have the available financial capital to do so, their decision is contingent on high levels of risk and uncertainty regarding the business and profits. Therefore, the help of governments with incentives is important, in order to promote the entry in self-employment. Paid employment is considered to be a safer occupation than the others (Ekelund et al., 2005). Hence, from a public policy perspective, governments have been designing public support schemes and measures in order to promote individuals' enrollment in self-employment.

5.2 GENDER

According to the literature reviewed in Chapter 3, men are more likely to be self-employed than women. This stylized fact can also be observed in our data. According to our descriptive statistics, female have indeed lower rates of SE participation than men do. Table 2 shows the percentages for SE and PE by gender in 1998–2007.

Table 2: Gender percentages in self-employment and in paid employment

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
	%	%	%	%	%	%	%	%	%	%
SE										
Men	66.11	65.54	66.13	66.65	66.28	64.77	65.93	65.50	64.90	65.35
Women	33.89	34.46	33.87	33.35	33.72	35.23	34.07	34.50	35.10	34.65
PE										
Men	54.43	54.04	53.98	53.53	53.30	52.86	52.43	52.46	52.54	52.15
Women	45.57	45.96	46.02	46.47	46.70	47.14	47.57	47.54	47.46	47.85

According to the table above, the percentage of SE is higher for man than for women, a trend that remains constant over time. The same occurs in PE; notwithstanding, the percentage of women has increased by two percentage points since 1998, and women have higher participation rates in SE in 2007 than they had in 1998. Additionally, the percentage of women in SE has also increased by one percentage point. This trend may point out that the role women play in SE is changing across time (i.e., it is increasing), women are still seen as someone with less wealth independence and who stays at home taking care of children. The difference between women and men has been diminishing, which may be related with the fact that a self-employed can have a flexible work schedule which allows women to control their time better and being able to have more quality time with family. Women participation in self-employment is higher now than in previous years. Furthermore, many authors argue that women have higher risk aversion than men (Byrnes et al., 1999; Watson and McNaughton, 2007; Ekelund et al., 2005), which can be one of the underlying reasons contributing to explain our descriptive results. However, both, men and women have high probabilities of entering SE if they are less afraid of failure (Arenius and Minniti, 2005).

As discussed in this section, most of self-employed are men, however, since the data show that differences between men and women in SE are progressively becoming smaller, it suggests that women are beginning to perceive self-employment as a viable occupation choice. Since women have becoming more independent and proactive, self-employment may represent a way for them to feel self-fulfilled, with more flexibility and autonomy in their professional occupation (Greene, 2000). The chart in Figure 6 shows self-employment participation according to gender from 1998 to 2007.

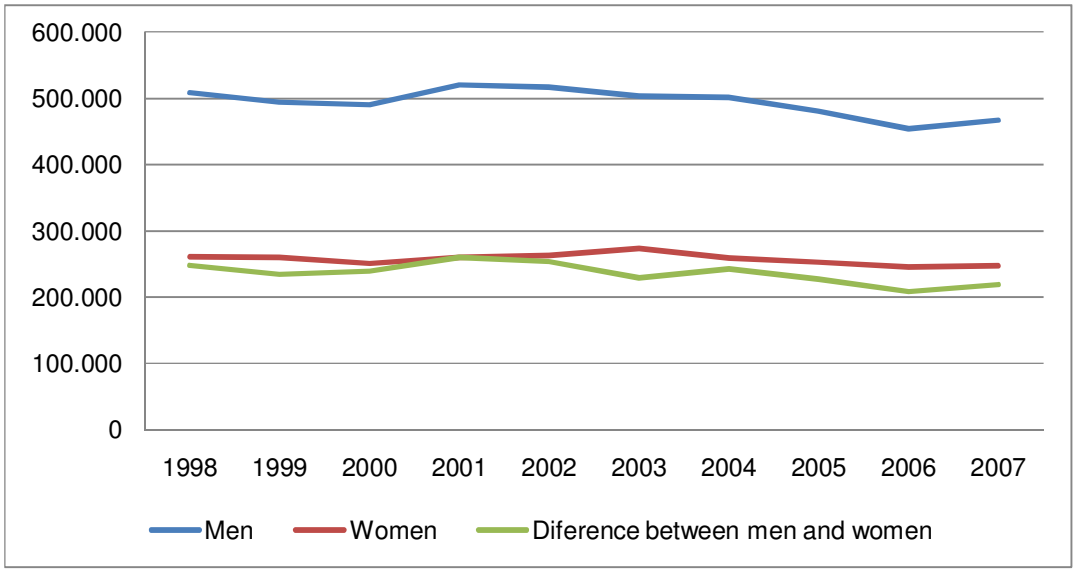

Figure 6: Self-employment participation according to gender

In order to analyze the gender distribution it is interesting to observe the total employment and see how gender is distributed according to the type of occupation. Values in Figure 7 and Figure 8 are thus assessed separately for women and men, respectively.

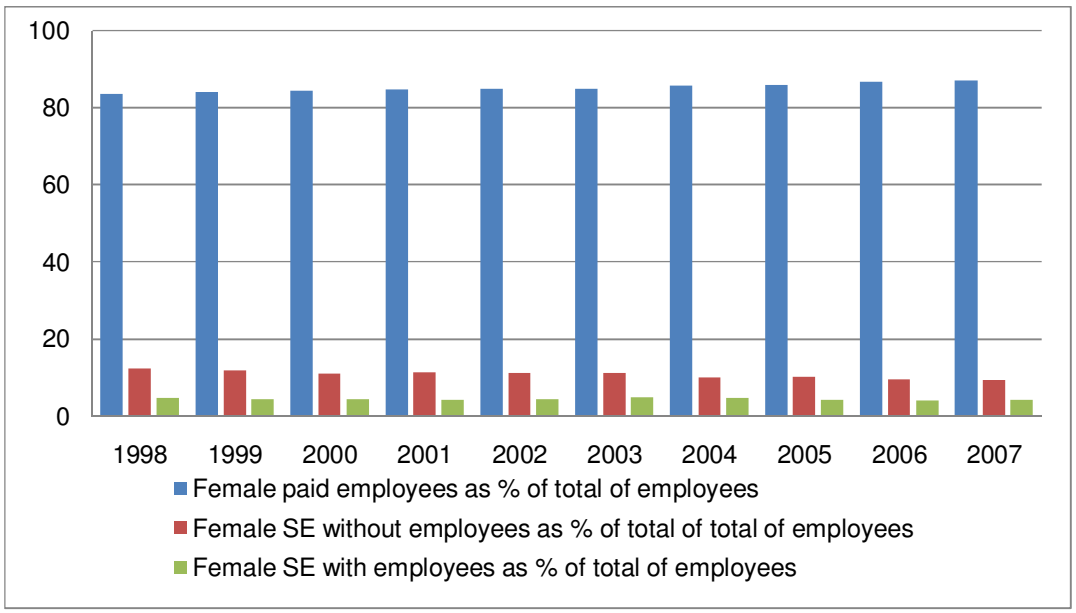

Figure 7: Women distribution as percentage of total of employment

From the total employed women, between 83% and 87% are paid employed; 9% to 13% are self-employed without employees and the remainder are self-employed with employees. Men have a more homogeneous distribution than women, since between 78% and 82% of the total of employed men are paid employed. Employed women are over represented in paid employment than employed men are, in the same occupation. With regard to self-employment without employees, employed women

account for around 12% to 10%. Employed men have a more expressive participation, of approximately 15%.

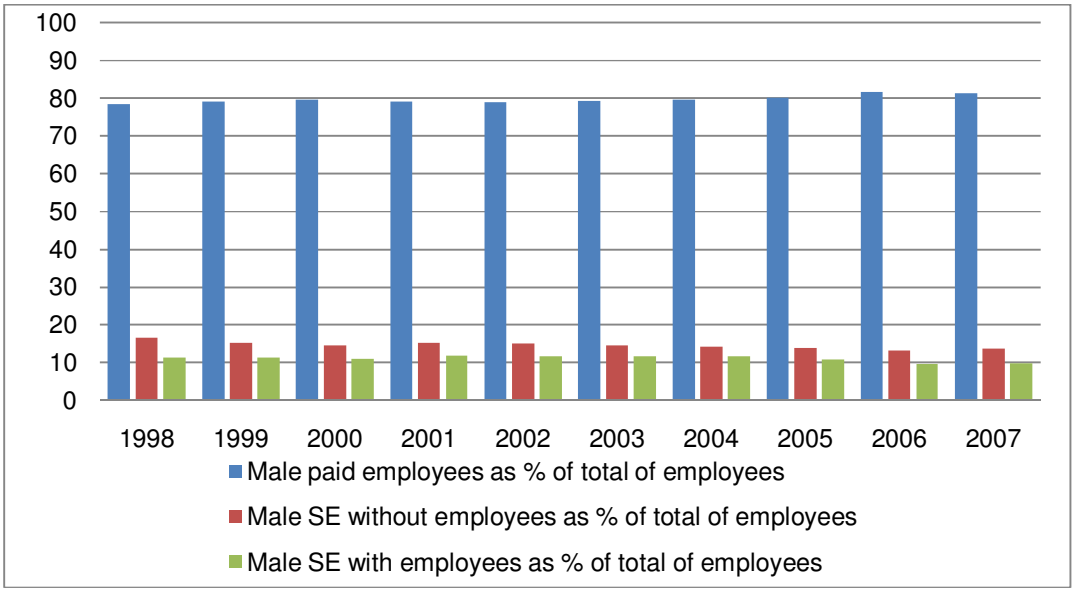

Figure 8: Men distribution as percentage of total of employment

Almost 10% of the total of men employed are self-employed with employees, which means that besides the fact that men tend to prefer self-employment without employees, the difference between the two categories is much smaller among men that women. There is a higher frequency of men self-employed with employees than women, which are about 5% of the workforce.

5.3 AGE

In this section, in order to analyze individuals' age and occupational choice, we opt to break down the variable age into six intervals, following INE's methodology: less than 15 years old, 15 to 24 years old, 25 to 34 years old, 35 to 44 years old, 45 to 64 years old and 65 or more years old. The first interval is not used because the active population has more than 15 years old.

Following the previous findings and arguments discussed in the literature reviewed (see Section 3.1.1), our descriptive assessment of the data provide evidence that older individuals are more likely to be self-employed. Table 3 and Table 4 show the participation rates in SE and PE per age, in 1998—2007.

Table 3: Age participation in Self-employment

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Age of self-employmed	%	%	%	%	%	%	%	%	%	%
15 to 24 years old	4.03	4.12	3.14	3.17	3.24	3.03	1.97	1.63	1.51	1.85
25 to 34 years old	19.74	18.80	19.68	20.04	19.06	18.31	18.55	16.84	17.10	16.13
35 to 44 years old	28.03	27.78	26.61	27.34	26.88	27.47	27.81	27.53	26.86	27.64
45 to 64 years old	42.52	43.12	44.07	43.22	44.05	44.23	44.45	46.91	46.78	46.81
65 years old and over	5.68	6.18	6.50	6.23	6.77	6.98	7.21	7.08	7.76	7.56
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 4: Age participation in paid employment

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Age of paid employed	%	%	%	%	%	%	%	%	%	%
15 to 24 years old	17.08	16.23	15.65	15.54	14.58	13.00	12.08	11.70	11.05	10.39
25 to 34 years old	30.29	30.72	30.73	30.65	30.74	31.24	31.58	31.39	30.86	30.81
35 to 44 years old	25.54	25.83	26.35	26.41	26.47	26.53	26.98	26.98	27.62	27.47
45 to 64 years old	26.07	26.18	26.33	26.50	27.21	28.25	28.36	29.05	29.57	30.54
65 years old and over	1.02	1.03	0.95	0.89	1.00	0.98	0.99	0.89	0.89	0.80
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Self-employed individuals with ages ranging between 45 to 64 years exhibit the highest levels of participation among all the sample. The second group with higher SE participation level corresponds to individuals with 35 to 44 years old. In PE individuals with 25 to 34 years old have the higher frequency, followed by the group of 45 to 64 years old. It is interesting to emphasize the participation of people over 65 years old in SE. In PE older (eventually retired) people have lower levels of participation. This is supported by the literature because, as discusses in Section 3.1.1, several papers claim that self-employment can be seen as an alternative to retirement. Individuals who are retired from their jobs decide to continue their active participation in the labor market by enrolling on self-employment or by starting and owning a business. (Giandrea et al., 2008; Watson and McNaughton, 2007).

In the chart below (Figure 9), it is possible to observe the average age for SE and PE participation in 1997–2007.

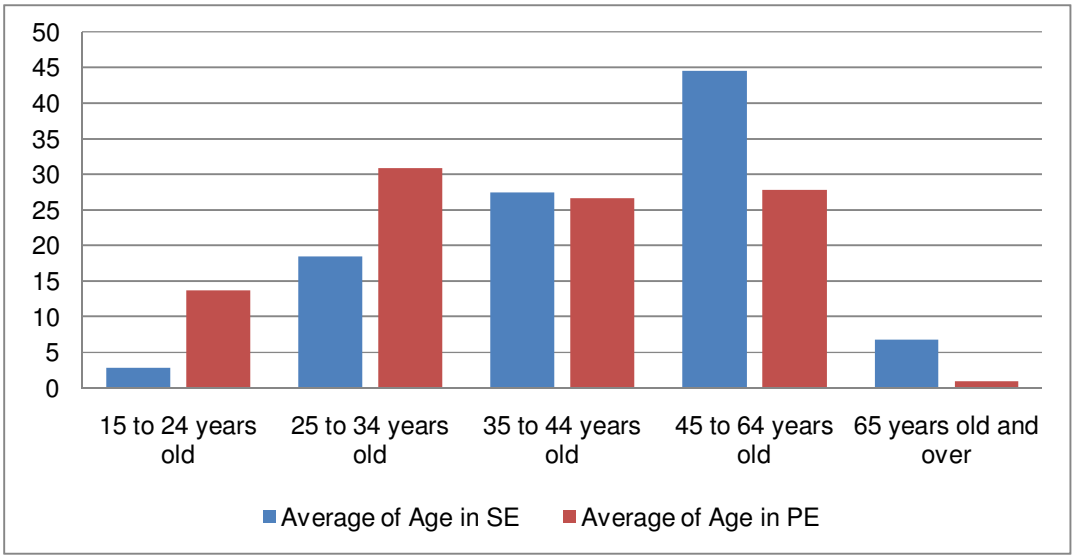

Figure 9: Average of age participation in Self-employment and in Paid employment in 1998-2007

We can observe a growing participation in self-employment among older individuals. There is, however, a break in this trend around the age of 65. People in the middle age show a higher frequency of participation in self-employment. The average age, considering all years under analysis, is around 51 years old. This result is consistent with the literature, which stresses the fact older people have higher probabilities to be self-employed. This phenomenon is often explained by the fact older people have fewer responsibilities than younger one and also because risk averseness. Thus, older people may be less risk averse not only because of their accumulated and available financial and tangible capital but also because of their accumulated experience (Zissimopoulos and Karoly, 2005).

Figure 9 makes clear that the difference between the mean age in SE and in PE, which is in accordance with the literature reviewed in Section 3.1.1 of this dissertation. People in paid employment tend to be younger than the one in SE.

It is known that the average life expectancy in Portugal is increasing over the years.[11] This may be one of the reasons why self-employment is growing amongst older people. Another explanation why older people are more likely to be self-employed is that age may be an indicator of capital accumulation (Kidd, 1993); thus, people with higher levels of wealth may be less risk averse and invest in new ventures. Age is also frequently associated with experience in the literature; therefore despite younger people may aspire to become self-employed, they may face some barriers to entry, due to their general lack of experience and capital.

[11] See data from INE- Statistics Portugal (http://www.ine.pt)

5.4 FAMILY SIZE

This sub-section analyzes the family size among SE individuals. The next chart (Figure 10) compares household average size for SE and PE, for years 1998—2007.

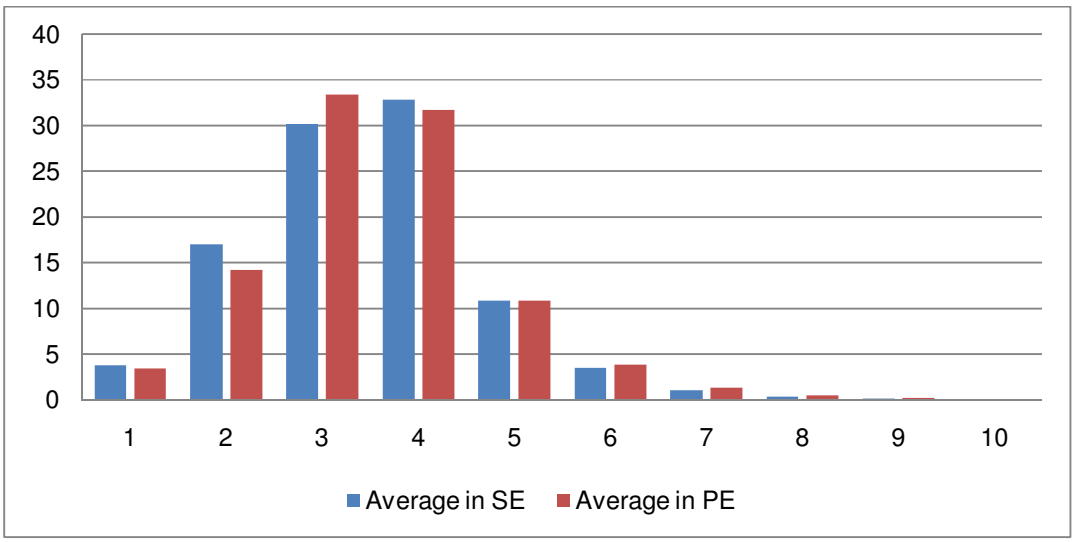

Figure 10: Household average size for self-employment and paid employment in 1998-2007

The majority of self-employed individuals have a small household, with three or four members. There is a small frequency of SE (and also PE) among families with a higher size (with more than four members), which is expectable because it represents the average value for family size in Portugal.

When comparing the average household size among SE and PE, it is observable that for PE there is a high frequency of households with three family members. The biggest difference between SE and PE is that for SE, 17% of people have a household with two members and for PE the percentage is around 14.3%. In general, paid employed people tend to have a higher number of household than self-employed. Self-employment is associated with a higher risk, and if a person has a higher household number, he/she will have higher associated costs, and therefore higher responsibilities. Moreover, self-employment is usually associated with a higher probability of failure (Carroll and Mosakowski,1987 and Anu, 2007); therefore, it is expectable that people with larger family are more cautious in deciding to start a new venture.

5.5 MARITAL STATUS

According to literature review married people are more likely to be self-employed, we obtained the same results in our data. Table 5 presents the values for SE and PE across years.

Table 5: Marital Status in self-employment and in paid employment

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
	%	%	%	%	%	%	%	%	%	%
Marital Status SE										
Single	9.65	9.16	9.69	11.61	11.52	10.84	10.12	9.65	10.13	10.40
Married	84.79	84.87	84.59	82.77	82.54	83.02	83.84	84.04	83.38	83.69
Widowed	2.89	3.26	2.76	2.68	3.07	3.31	3.17	3.00	3.11	2.57
Divorced	2.67	2.71	2.96	2.93	2.87	2.83	2.87	3.31	3.38	3.34
Marital Status PE										
Single	27.77	28.07	27.92	29.06	28.86	27.28	26.57	25.57	25.65	25.95
Married	67.49	66.82	66.82	65.87	65.81	67.42	68.29	68.54	68.28	68.22
Widowed	1.62	1.59	1.55	1.37	1.54	1.40	1.47	1.62	1.70	1.55
Divorced	3.12	3.51	3.71	3.70	3.79	3.90	3.68	4.27	4.36	4.28

As discussed in the literature review section of this dissertation, the majority of self-employed individuals' marital status is "married", followed by the status of "single". The divorced and widowed self employees account for a small share of the sample. Married people are more likely to be self-employed, which may occur mainly because the existence of income from the person who they are married with. On the one hand, it may be related with the fact a higher household income may be important in lowering liquidity constraints usually associated with entrepreneurial entry. On the other hand, if the new business is not successful, there is always the opportunity to use the spouse income, which gives an extra security (Fairlie and Meyer, 1996; Blanchflower, 2000 and Livanos, 2009). The data show the same distribution for PE, except for the last position, which is the widowed status..

In order to provide a better illustration about the dynamics of SE and PE across time, the next two charts (Figure 11 and Figure 12) give us information on individuals' marital status according to the occupations under analysis.

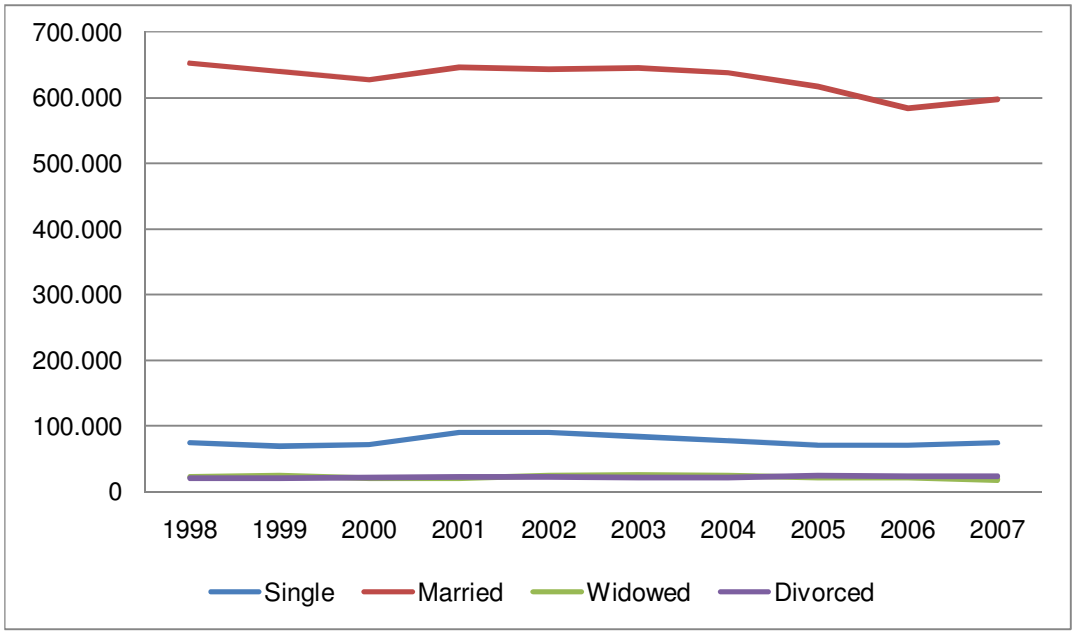

Figure 11: Marital Status in self-employment

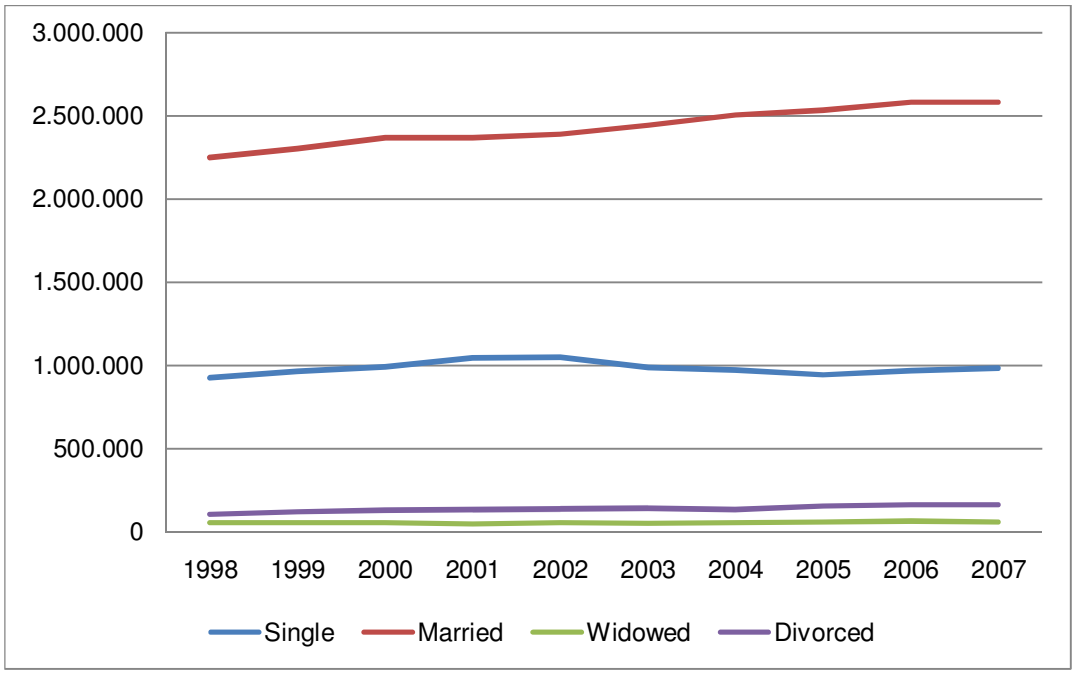

Figure 12: Marital Status in paid employment

In Figure 11 it is easily observable that the number of married self-employed is much higher than the other categories. Married people are more able to start a business venture because of the protection offered by their spouse's income, having less risk (Caputo and Dolinsky, 1998). The marital status with

less self-employed are the divorced and widowed people, which may suggest some heterogeneity among these groups.

We may observe, by comparing Figure 11 and Figure 12, that there are more single people among paid employees than self-employees. The single status is the second one with higher frequency in both SE and PE, however in SE it shows very low percentages similar to widowed and divorced SE people. For widowed people the difference is even higher, widowed ranked third in SE and in the last position as regards to PE.

5.6 EDUCATION

The next table shows the percentages educational levels completed by SE in each year, from 1998 to 2007.

Table 6: Education Attainment in self-employment

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Education level completed in SE	%	%	%	%	%	%	%	%	%	%
None	5.92	5.88	5.40	5.92	5.36	4.43	3.13	2.90	2.65	2.77
Basic 1	46.64	46.67	46.74	45.22	44.60	41.33	39.75	40.78	38.29	37.10
Basic 2	19.23	20.84	20.22	19.83	19.74	20.10	21.04	20.75	20.83	21.18
Basic 3	12.59	11.06	12.06	12.43	13.15	14.86	15.49	15.07	15.15	16.00
Secundary	7.63	7.53	7.31	7.84	8.65	9.10	10.34	10.32	11.36	10.71
Post secundary	1.18	1.58	2.09	2.12	2.17	2.12	0.65	0.60	0.58	0.56
Bachelor	1.71	1.45	1.64	1.49	1.44	1.39	1.65	1.76	2.09	2.01
Degree	4.75	4.58	4.08	4.99	4.65	6.24	7.33	6.68	7.63	8.50
Masters	0.28	0.20	0.31	0.06	0.15	0.38	0.34	0.45	0.42	0.27
PhD	0.07	0.21	0.15	0.11	0.09	0.05	0.01	0.14	0.09	0.08
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

On Table 6, it is possible to observe that, for the period under analysis, individuals with low levels of educational attainment have the higher rates of SE participation. However, it is also observable that the percentage of individuals with higher levels of education is increasing and the percentage of self-employed with four years of education (basic 1) is decreasing over time. By looking at Table 7, one can notice that albeit distribution of education in PE is similar to SE, differences among PE levels of education are smaller than for SE.

Table 7: Education Attainment in paid employment

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Education level completed in PE	%	%	%	%	%	%	%	%	%	%
None	4.77	4.95	4.16	3.58	3.38	3.34	2.67	2.29	2.06	2.06
Basic 1	32.71	30.86	29.91	28.76	28.66	27.19	24.35	23.24	22.59	21.73
Basic 2	22.49	22.42	22.84	22.80	22.25	21.67	21.16	20.60	20.32	20.67
Basic 3	15.78	16.06	16.81	17.83	18.56	18.19	19.47	20.26	20.79	20.95
Secundary	11.04	11.65	11.95	12.51	12.56	12.98	15.59	16.69	17.02	17.07
Post secundary	2.00	2.35	2.56	2.41	2.36	2.67	0.65	0.67	0.81	0.81
Bachelor	3.17	3.31	3.40	3.20	2.55	2.83	2.87	2.71	2.59	2.26
Degree	7.41	7.70	7.67	8.22	8.84	10.14	11.89	11.96	11.83	12.56
Masters	0.45	0.45	0.43	0.44	0.57	0.71	0.57	0.62	0.69	0.67
PhD	0.17	0.24	0.28	0.24	0.26	0.27	0.26	0.29	0.34	0.36
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

People with basic 1 are those with higher participation in PE as in SE. There are more individuals with higher levels of education among PE than SE. Moreover, the data show an increase in the number of PE people with higher levels of education.

In sum, regarding to education, descriptive data show less educated people have higher probability of being self-employed. Several studies addressed in the literature reviewed (Section 3.2.1) find educational attainment to be, in general, positively associated with transitions into self-employment, but not highly statistically significant. These findings for the Portuguese economy go against the stream of the literature suggesting that individuals with higher levels of educational attainment have a higher probability of being self-employed. One explanation may be that individuals with higher levels of education may believe they can earn more money in paid employment and for that reason self-employment is not an option. However it is important to mention that people with higher levels of education are a small minority Portugal, which may influence these results. For example, the total numbers for education in 2007 are described in the Table 8.

Table 8: Education Attainment in Portugal, in 2007

Education level in 2007	Count	%
None	1,520,170	16.11
Basic 1	2,596,816	27.53
Basic 2	1,634,562	17.33
Basic 3	1,532,208	16.24
Secundary	1,177,933	12.49
Post secundary	53,693	0.57
Bachelor	156,813	1.66
Degree	668,855	7.09
Graduate	41,996	0.45
Masters	33,439	0.35
PhD	16,806	0.18
Total	9,433,291	100.00

It is observed that people with high levels of education still are a minority in Portugal, which reinforces the pattern of low education among the Portuguese entrepreneurial class. This may be regarded as a positive perspective to SE, since approximately 10% of people with the "basic education 1" and 11% of all the educated people are self-employed, which may be seen as a good indicator for SE in Portugal.

5.7 OCCUPATIONS

This section describes the specific professional activities that SE and PE undertake in the labor market. The classification of occupations is made according to the National Classification of Occupations. Table 9 and Table 10 show the percentages of types of occupations for SE and PE individuals.

Table 9: Occupations in self-employment

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
SE Occupations	%	%	%	%	%	%	%	%	%	%
1. Senior public administration officials and senior business	3.63	3.36	5.46	5.85	4.32	7.26	9.01	9.94	6.27	5.05
2. Experts in intellectual and scientific professions	7.06	7.70	7.20	7.37	7.76	8.27	9.83	9.27	11.73	11.19
3. Technicians and associate professionals	11.26	8.72	7.22	7.31	7.20	7.66	10.20	11.01	9.24	8.77
4. Clerks	1.84	1.43	1.23	1.16	1.41	1.70	1.55	1.16	1.54	1.39
5. Service workers and vendors	21.10	21.12	21.30	22.38	23.97	22.02	19.39	19.43	20.51	23.22
6. Farmers and skilled agricultural and fishery	0.08	0.32	0.22	0.21	0.08	0.24	0.33	0.22	0.14	0.04
7. Craft and related trades workers	39.25	40.10	40.75	40.77	39.95	38.64	35.81	33.87	35.90	35.27
8. Operators of plant and machinery and assemblers	4.64	5.02	4.61	4.08	4.38	4.93	4.62	4.35	4.12	4.45
9. Unskilled	11.14	12.23	12.02	10.85	10.92	9.26	9.26	10.73	10.56	10.62
10. Military forces	0.01	0.00	0.00	0.03	0.01	0.00	0.00	0.01	0.00	0.00
Total	100	100	100	100	100	100	100	100	100	100

The type of occupation with high number of people in SE is "Craft and related trades workers", "Service workers and vendors" followed by "unskilled", with a meaningful participation. In PE, we have the next values:

Table 10: Occupations in paid employment

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
PE Occupations	%	%	%	%	%	%	%	%	%	%
1. Senior public administration officials and senior business	1.08	1.18	1.08	1.12	1.08	1.63	1.74	1.49	1.82	1.48
2. Experts in intellectual and scientific professions	8.12	8.87	8.71	9.21	8.84	9.42	10.92	11.08	10.76	10.54
3. Technicians and associate professionals	9.73	9.66	10.08	9.87	9.89	10.04	10.62	10.94	11.24	11.18
4. Clerks	13.22	13.44	14.24	14.09	13.82	14.14	14.22	13.88	13.17	12.86
5. Service workers and vendors	15.83	16.35	15.48	15.91	16.05	15.86	16.04	16.67	17.37	17.55
6. Farmers and skilled agricultural and fishery	0.47	0.59	0.56	0.42	0.39	0.41	0.44	0.45	0.42	0.53
7. Craft and related trades workers	27.81	26.87	25.93	25.55	25.48	24.14	22.51	22.62	23.23	23.04
8. Operators of plant and machinery and assemblers	11.74	11.12	11.59	11.23	11.55	11.47	10.89	10.51	10.32	9.86
9. Unskilled	10.84	10.81	11.35	11.57	12.08	11.90	11.61	11.56	10.85	11.99
10. Military forces	1.16	1.09	0.98	1.04	0.83	0.97	1.01	0.80	0.82	0.97
Total	100	100	100	100	100	100	100	100	100	100

In PE, the most common occupation is “Craft and related trades workers”, followed by “Service workers and vendors“. Comparing SE and PE, one may observe that the occupations that have high percentages are common to both. This may suggest that individuals switching to self-employment continue in the some specific profession, but now as his/her own boss and defining its own schedule.

5.8 SECTOR OF ECONOMIC ACTIVITY

This section describes the main economic activity sectors of the firms where SE and PE individuals work. In Table 11 we can observe the main economic activities for SE in 1998-2007.

Table 11: Sectors of economic activity in self-employment

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Sector in SE	%	%	%	%	%	%	%	%	%	%
Manufacturing	18.86	17.01	16.37	17.02	16.10	16.24	16.36	14.45	15.26	14.80
Electricity, gas and water supply	0.44	0.58	0.22	0.17	0.10	0.16	0.17	0.05	0.10	0.31
Construction	17.08	17.63	18.77	18.26	18.78	18.02	18.15	17.93	17.17	17.80
Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods	33.38	34.01	33.87	33.89	32.68	32.17	31.09	32.03	29.54	28.33
Hotels and restaurants	9.32	8.72	9.68	9.17	9.77	10.26	10.35	10.59	10.49	11.13
Transport, storage and communication	3.18	2.77	2.62	2.66	3.22	3.47	3.13	3.22	3.36	3.30
Financial intermediation	0.91	0.86	0.84	0.61	0.56	0.75	0.96	0.89	0.94	0.88
Real estate, renting and business activities	6.43	6.84	6.68	7.05	6.75	7.98	9.25	8.42	9.40	9.47
Public administration and defense; compulsory social security	0.22	0.30	0.30	0.20	0.20	0.18	0.09	0.14	0.18	0.25
Education	0.66	0.59	0.56	0.72	0.93	0.81	0.85	1.07	1.33	0.99
Health and social work	1.19	1.16	1.27	1.58	1.31	1.52	1.87	1.86	2.18	2.72
Other community, social and personal service activities	8.34	9.53	8.83	8.65	9.59	8.45	7.74	9.32	10.06	10.03
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

The sector of economic activity that is more common across the period in analysis is “Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods”, with almost 34% in 1998 and 28% in 2007. The second most common activities are “Manufacturing” and “Construction”. The activity with lower participation in SE is “Public administration and defense; compulsory social security”.

Table 12: Sectors of economic activity in paid-employment

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Sector in PE	%	%	%	%	%	%	%	%	%	%
Manufacturing	29.35	28.03	27.12	26.60	25.28	24.39	23.76	23.08	22.92	22.23
Electricity, gas and water supply	0.88	0.85	0.79	1.02	1.07	0.96	0.81	0.66	0.67	0.83
Construction	11.36	11.53	12.59	11.94	12.72	12.06	11.02	11.29	11.33	11.60
Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods	11.85	12.54	13.13	13.42	13.62	13.89	14.35	14.05	14.00	14.12
Hotels and restaurants	4.93	5.08	4.92	4.89	4.89	4.66	4.74	5.02	5.15	5.27
Transport, storage and communication	4.78	4.44	4.69	5.04	4.93	5.14	5.17	5.30	5.69	5.26
Financial intermediation	2.56	2.39	2.41	2.38	2.18	2.23	2.43	2.39	2.19	2.35
Real estate, renting and business activities	3.95	4.54	4.54	4.83	5.13	5.44	5.93	5.85	5.96	6.73
Public administration and defense; compulsory social security	8.88	8.78	8.90	9.00	9.09	9.02	9.00	9.33	9.28	8.56
Education	8.38	8.27	7.81	8.01	7.80	7.70	8.15	8.26	8.15	7.88
Health and social work	5.90	6.60	6.76	6.81	6.72	7.75	8.10	8.41	8.26	8.43
Other community, social and personal service activities	7.10	6.85	6.28	6.01	6.52	6.70	6.48	6.30	6.34	6.67
Activities of households	0.08	0.10	0.06	0.05	0.04	0.05	0.06	0.06	0.07	0.07
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 12 shows a different scenario for PE, since the most common sector is “Manufacturing” followed by “Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods” and “Construction” with similar percentages of occupations. The rest of percentage is distributed across the other sectors, with a more homogeneous distribution than SE.

It is useful to assess what are the main economic activities among SE with and without employees. To do that, the following analysis (Figure 13) focuses on year 2007.

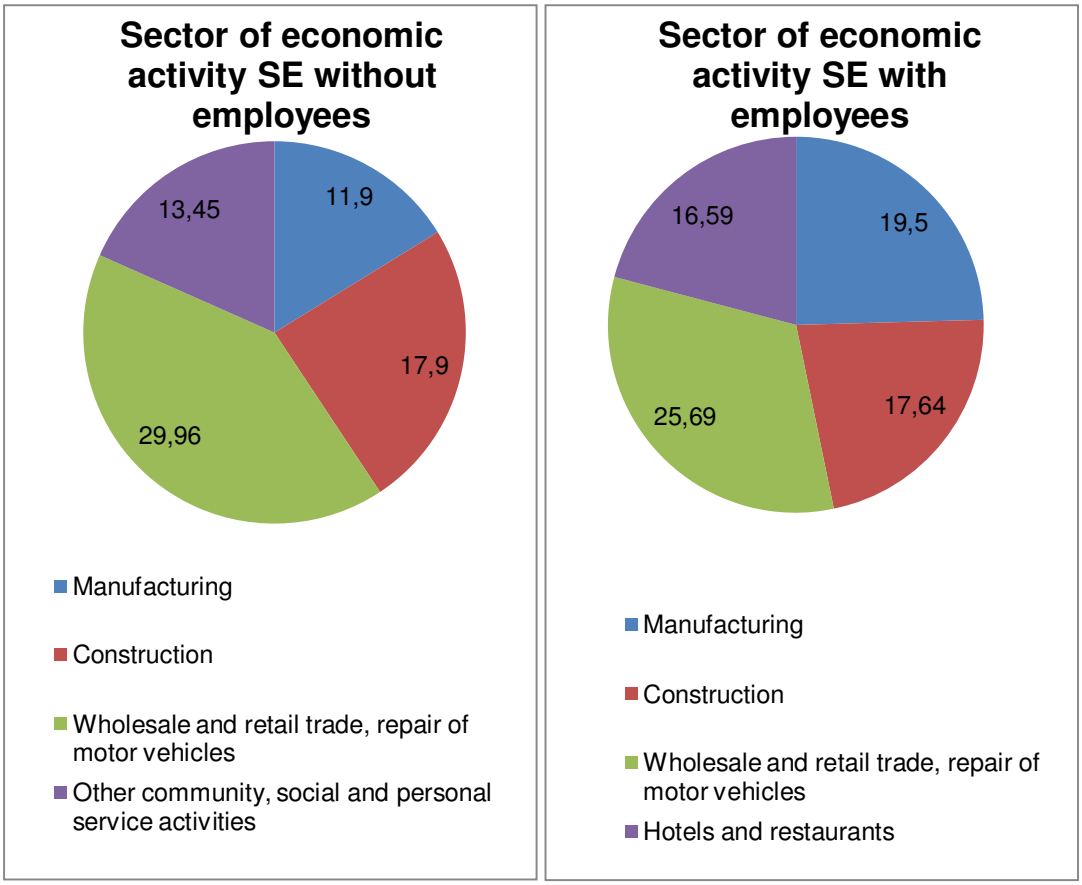

Figure 13: Sectors of Economic activity in self-employment with and without employees for 2007

"Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods" is the most common activity in SE, whether with or without employees. This is expectable since this activity still has a significant impact in the Portuguese economy[12]. The second more participated activity in both SE with and without employees is "Construction" followed by "Other community, social and personal service activities" in SE without employees and "Manufacturing" in SE with employees.

5.9 DESIRE TO JOIN SELF-EMPLOYMENT

Until now, in this descriptive analysis, we just comment results that reflect individuals' effective participation in SE. However, there are individuals who desire to be self-employed but for some reason, they decide not to make that occupational transition and effectively becoming SE. Therefore, this section provides data on individuals' willingness to become SE.

Despite the fact of not being self-employment many people have the intention or the desire to start their own firm and to develop their own business. The percentage of people who aim to be self-employed exceeds 5%, among those who are looking for a job. Many people desire to be their own

[12] See the INE reports in www.ine.pt.

boss, to made their own schedules and start a business they like and feel accomplished but, on the other hand this desire often implies barriers to entry. Next charts (Figure 14 and Figure 15) show the number of people who aim to be self-employed or paid employed.

Figure 14: Desire to be paid employed

Figure 15: Desire to be self-employed

By observing these values, one can see there is a clear difference between the number of people who aim to be paid employed and the number of who aim to be self-employed. It is important to note that only unemployed individuals are taking into account in this desire. Also, it is observable that the desire to be self-employed has same oscillations; we believe that they exist due to external events, such as

periods of more or less incentives from the government to entrepreneurship. In Figure 16, by observing these values and trends, there is a clear difference between the number of people who aim to be paid employed and the number of individuals who are effective SE. Also, it is observable that the desire to be self-employed has similar oscillations; we believe that they exist due to exogenous events, such as periods of more or less incentives from the government to entrepreneurship, or due to periods of macroeconomic expansion (or recession).

5.10 SECONDARY PROFESSION

Self-employment has high levels of participation when talking about secondary profession, indeed work as a self-employed with or without employees represents the majority of answers of secondary profession. See the following Chart, with individuals' distribution of secondary professions.

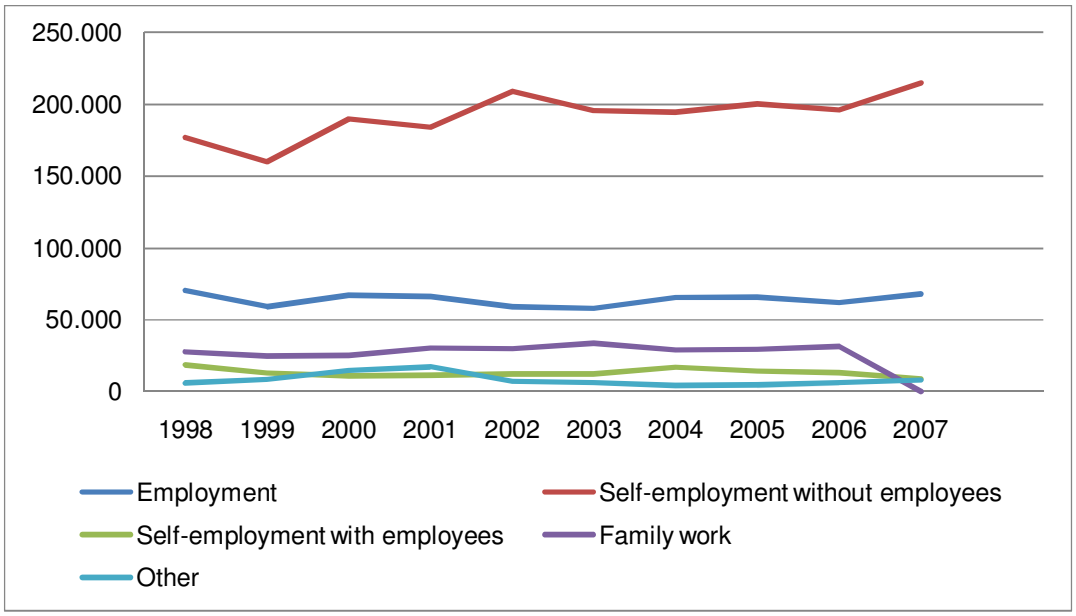

Figure 16: Secondary profession

Most of people with a secondary profession choose to be self-employed without employees. Doing that they are taking fewer risks than if they opt just by SE. They still have more security income from paid employment and have the possibility to be their own bosses in SE.

Chapter 6 - Empirical Analysis

" Realists do not fear the results of their study."
Fyodor Dostoyevsky

6.1. THE MODEL

In this chapter we present an additive random utility model of occupational choice. We follow the lines presented by Parker (2004). This model may have at least three applications. The first focuses on the likelihood of being self-employed rather than paid-employed. The second looks at the determinants of the decision to become self-employed, instead of remaining in paid-employment. The third investigates the decision to leave self-employment, instead of continuing in it.

The individual *i* (*i* = 1,…,*n*) has to choose his occupational status defined by *j*, where *j* = *S* in self-employment and *j* = *E* in paid-employment. The vector of individual observed characteristics is represented by W_i . Individual *i* derives utility $U_{ij} = U(W_{i;}\, j) + u_{ij}$ if works in occupation *j*, where $U(.;.)$ is the observable utility (deterministic component) and u_{ij} is the idiosyncratic unobserved utility (random component).

The individual takes the decision to be self-employed or paid-employed by comparing the utility derived in each occupation. As the utility in each state is not observable, we only look at the outcome of that decision. Define a latent variable y_i^* as the utility in self-employment relative to paid-employment,

$$y_i^* = U(W_i\,; S) - U(W_i\,; E) - u_{iE} + u_{iS} \qquad (1)$$

Assume that $U(.;.)$ is linear and $U(W_{i;}\, j) = W_i \beta_j$ where β_j are vectors of coefficients. If we consider the first column of W_i as containing only ones and assume $E[u_{iS}] = 0$ and $E[u_{iE}] = 0$, then

$$y_i^* = W_i \beta + v_i \qquad (2)$$

where $\beta = \beta_S - \beta_E$ is a vector of coefficients and $v_i = u_{iS} - u_{iE} \sim IID\ (0, \sigma^2)$ is a disturbance term. If $y_i^* > 0$ an individual *i* choose self-employment and paid-employment otherwise.

The observable binary variable y_i is given by

$$y_i = \begin{cases} 1 & \text{if individual } i \text{ is observed in } S, \text{i.e. if } y_i^* > 0 \\ 0 & \text{if individual } i \text{ is observed in } E, \text{i.e. if } y_i^* \leq 0 \end{cases} \quad (3)$$

Hence the probability that an individual with characteristic vector W_i is established as a self-employed from the population and appears in the sample is

$$\begin{aligned} \Pr[y_i = 1|W_i] &= \Pr[y_i z_i^* > 0|W_i] \\ &= \Pr[W_i\beta + v_i > 0] \\ &= \Pr[-v_i < W_i\beta] \\ &= F(W_i\beta) \end{aligned} \quad (4)$$

The function *F* is the cumulative distribution of v_i (if we assume a density symmetric around zero). If the distribution for *v* is the standard normal, then we have the probit model. If the distribution is the logistic, then we have the logit model.

The model is estimated by maximum likelihood estimation given its non-linear nature. The binary model can be extended to the multinomial version, as we can introduce inactivity as an additional choice. Even for certain age groups within the inactive persons, the decision to be a student can also modeled against being a self employed or a paid-employed. For these reasons, we plan to use the logit model, for ease of comparison among the models (binary or multinomial).

As said before, this model has three distinct applications; however, there is no consensus about which is the most appropriate. Evans and Leighton (1989) argue that the second one is better than the first, the odds of being self-employed at time *t* depending on the odds switching into self-employment at a previous time and then surviving until *t*. However, Wellington (2001) believes that the second application excludes people who are already successfully self-employed. The third application has more supporters, as most of studies demonstrate that the probability of departures from self-employment decreases with duration in self-employment (Evans and Leighton, 1989; Carrasco, 1999; and Taylor, 1999).

In the present dissertation the empirical analysis focuses only on the first two applications. Hence, the following subsections investigate the probability of being a SE and the probability of becoming a SE.

6.2. THE PROBABILITY OF BEING SELF-EMPLOYED

In order to investigate the probability of being a self-employee the model described in the last section will be applied. The model defines a binary variable indicating if the individual is paid-employed or self-employed.

In the application of the model we choose not to include the primary sector, namely "Agriculture, hunting forestry, fishing and mining" because according with several authors, farm businesses have very different characteristics to non-farm businesses, which may bias the results and give us a distorted view of self-employment trends (Blanchflower, 2000; Parker, 2004).

We apply three specifications, each one with a set of covariates and analyze the respective coefficients and marginal effects. In the first specification, we considered the specific quarter in which the survey was collected, gender, age (and age squared), marital status, education and region variables. In the second specification, we add the individual's occupation to the first model. Lastly, in the third specification, we add the sector variables. Table 13 presents the results of the model with the three specifications. We opt to present the marginal effects (at survey averages) instead of the coefficients (presented in appendix A.2) in order to analyze the partial effects on the probability of being self-employed. The logit estimation considers the weights of each observation. Therefore, the results obtained can be extrapolated to the population of all Portuguese active working force and not only for the sample surveyed. The estimation is performed for the last year available in the survey, 2007.[13] Overall, the results from the three models show that it matters for the analysis the variables that are included in the specification. In particular, some variables decrease its coefficient (like gender), others increase the coefficient (like education).

[13] The fact that it is the first time the LFS is used in such a manner lead us to first estimate the model without the longitudinal version. The cross section estimates will be a first step in the analysis concerning the self-employed, leaving a more complete specification for future work. The longitudinal approach will have to deal with the economic cycle and with the appropriate estimation model, given the survey characteristics.

Table 13: Self-employment in Portugal, Logit regression results, marginal effects, 2007

Explanatory Variables		Model 1	Model 2	Model 3
Gender	Women	-0.065***	-0.098***	-0.034***
		(0.006)	(0.007)	(0.006)
Age	15 and older	0.001	0.003*	0.004***
		(0.001)	(0.001)	(0.001)
Age^2	15 and older	0.001***	0.000**	-0.000
		(0.000)	(0.000)	(0.000)
Marital Status	Married	0.057***	0.061***	0.032***
		(0.010)	(0.011)	(0.007)
	Widow	0.039*	0.028	0.014
		(0.023)	(0.024)	(0.014)
	Divorced	0.010	0.014	0.013
		(0.017)	(0.019)	(0.012)
Quarter	2nd	-0.001	-0.001	-0.001
		(0.002)	(0.003)	(0.001)
	3rd	0.001	0.001	-0.000
		(0.003)	(0.003)	(0.002)
	4th	0.002	0.002	0.000
		(0.004)	(0.004)	(0.002)
Region	Center	-0.019**	-0.012	-0.004
		(0.008)	(0.009)	(0.005)
	Lisbon	-0.006	-0.017**	-0.015***
		(0.007)	(0.007)	(0.004)
	Alentejo	-0.010	-0.024***	-0.009*
		(0.009)	(0.009)	(0.005)
	Algarve	0.017*	0.001	-0.006
		(0.009)	(0.009)	(0.005)
	Azores	-0.016*	-0.021**	0.001
		(0.009)	(0.009)	(0.006)
	Madeira	-0.061***	-0.069***	-0.036***
		(0.008)	(0.008)	(0.006)
Education	Basic1	0.043***	0.063***	0.042***
		(0.015)	(0.016)	(0.010)
	Basic2	0.055***	0.088***	0.061***
		(0.016)	(0.017)	(0.012)
	Basic3	0.027*	0.076***	0.062***
		(0.016)	(0.017)	(0.012)
	Secundary	0.017	0.093***	0.070***
		(0.017)	(0.019)	(0.013)
	Postsecundary	0.008	0.092**	0.066***
		(0.039)	(0.042)	(0.025)
	Bachelor	0.029	0.096***	0.068***
		(0.023)	(0.027)	(0.017)
	Degree	0.014	0.079***	0.078***
		(0.017)	(0.023)	(0.016)
	Graduate	0.043	0.097**	0.090***
		(0.033)	(0.039)	(0.025)
	Masters	-0.072	-0.039	0.024
		(0.055)	(0.059)	(0.035)
	PhD	-0.185***	-0.145*	0.017
		(0.069)	(0.075)	(0.043)
No. observations		66,671	66,671	66,571
Population		4,513,944	4,513,944	4,511,188
F statistic		53.7	56.3	49.2

(continued): Self-employment in Portugal, Logit regression results, marginal effects ,2007

Explanatory Variables		Model 1	Model 2	Model 3
Occupation	Senior public administration officials and senior business		-0.038**	-0.008
			(0.016)	(0.011)
	Experts in intellectual and scientific professions		-0.097***	-0.028***
			(0.010)	(0.008)
	Technicians and associate professionals		-0.118***	-0.051***
			(0.007)	(0.008)
	Clerks		-0.160***	-0.080***
			(0.008)	(0.012)
	Service workers and vendors		-0.078***	-0.046***
			(0.006)	(0.007)
	Farmers and skilled agricultural and fishery		-0.174***	-0.084***
			(0.008)	(0.012)
	Craft and related trades workers		-0.094***	-0.046***
			(0.007)	(0.007)
	Operators of plant and machinery and assemblers		-0.141***	-0.067***
			(0.007)	(0.010)
Sector	Electricity, gas and water supply			-0.056**
				(0.022)
	Construction			0.073***
				(0.011)
	Wholesale and retail trade, repair of motor vehicles			0.124***
				(0.012)
	Hotels and restaurants			0.124***
				(0.016)
	Transport, storage and communication			0.017
				(0.013)
	Financial intermediation			-0.038***
				(0.014)
	Real estate, renting and business activities			0.053***
				(0.013)
	Public administration and defense; compulsory social security			-0.103***
				(0.007)
	Education			-0.091***
				(0.007)
	Health and social work			-0.057***
				(0.008)
	Other community, social and personal service activities			0.029**
				(0.012)
No. observations		66,671	66,671	66,571
Population		4,513,944	4,513,944	4,511,188
F statistic		53.7	56.3	49.2

Logit, marginal effects. Standard deviations in brackets. * p<0.10, ** p<0.05, *** p<0.01. The dependent variable is one if the individual is self-employed and zero if paid-employed. Age defined in years. The remaining variables are binary (0,1).

The estimated coefficients show that being women decreases in almost 7% the probability of being self-employed. This finding is coherent with the literature review in Section 3.1.2 (Carroll and Mosakowsky, 1987; Brush, 1992; Blanchflower, 2000; Wenger, 2003; Henley, 2009 and Livanos 2009. The fact that women are less likely to be self-employed than men was also showed in the descriptive section (Section 5.2), when analyzing gender.

In Model 1, an increase in age is not significantly related with the probability of being self-employed, but age squared is significant and positive, meaning that as age increases the probability of being self-employed also increases.

Married and widowed individuals have a higher probability of being self-employed than single individuals. More specifically, being married increases the likelihood of being self-employed by 6% when compared to single and being widowed by 3%. Being divorced does not affect the probability of being self-employed. In the descriptive analysis it is possible to observe that the majority of self-employed individuals' marital status is "married", followed by the status of "single". In the model the second more common marital status in SE is single. This may occur because in a model we can observe same facts that are not observable in the descriptive analysis. One possible explanation is that widowed may have more wealth than single and, for that reason, have less capital constraints. Also, the most of widowed people are older than single, and may see SE as an alternative to retirement (Giandrea et al., 2008).

Comparing quarters, when controlling for the characteristics of the individual, we observe that there is no seasonal effect in the probability of being self-employed.

Regarding the region of residence, residing in the Center, Azores and Madeira are factors that influence negatively the individuals' probability of being self-employed when compared to those living in the North. Living in the Algarve region has a positive influence on being a SE. Living in Lisbon or Alentejo does not influence the probability of being self-employed.

Concerning education, the evidence from the first model seems to indicate that there is a positive association with the probability of being self-employed, at least for the three basic levels of primary education. However, the results change as we move to the other two models, as we discuss below.

Concerning the second specification – Model 2 – we can observe that including the individual's occupation alters some of the previous results. Women continue to have a lower probability - less 10% - of being self-employed than man. Comparing to model 1 we observe that the probability is a little bit higher; once again we conclude that women have low probabilities of being self-employed.

Age becomes a significant variable. One more year increases the probability of being self-employed, although this value does not reach 1%. The coefficient on age squared is also significant but the value is too small. However, results show that older people are more able to be self-employed than younger.

We find changes in the widowed category of marital status. While in Model 1 widowed people had higher probabilities to join SE than single people, in Model 2, adding the professions variables, this

marital status does not influence the likelihood of being self-employed. The remaining categories maintained their influence. Married people continue to be those with more self-employed.

Concerning the regional size, results show that living in Algarve is the only factor that does not influence the probability of being self-employed when compared to live in the North. Living in the remaining regions results in having less probabilities of being self-employed. Most self-employed individuals have higher changes of living in the north.

The higher levels of education give a person higher probabilities of being self-employed when compared to have none education as in model 1, but now all the effects are significant and positive with the exception of Masters (not significant) and PhD (negative and significant).

All occupation categories associate with a lower probability of being self-employed, when compared to the "unskilled" occupation. People with no qualifications are more able to be self-employed than the other with specific professions.

Lastly, when adding the industry variable – Model 3 - being women still decreases the probability of being self-employed, but with a lower percentage that occurs in Model 2, more specifically, 4%. One more year of age increases the probability of being self-employed in almost 1%. Bothe results, as discussed above are in line with the literature reviewed and with the descriptive statistics.

Being educated translates in a higher probability of being self-employed when compared to individuals with no formal education. Only the coefficients associated with Masters and PhD are not significant. . These findings are in line with some studies mentioned in the literature review (Bates, 1990; Blanchflower and Meyer, 1994 and Henley, 2009), who argue that the likelihood of becoming self-employed increases with higher levels of education. However, they go against the descriprive statistics showed in the previous chapter. This fact shows the importance of estimating a model to control for a proper set of variables, in order to isolate the relationship of each variable with the probability of being self-employed.

Once again, belonging to a specific quarter is not significant in the probability of being self-employed. Living in the Center, Algarve and Azores does not influence the probability of being self-employed. Although, if a person live in Lisbon, Alentejo or Madeira will have fewer probabilities of being self-employed than those who live in the north of Portugal. Concerning occupations, once again all impact negatively on being self-employed, when compared to the "unskilled". "Senior public administration officials and senior business" is the exception that does not influence the probability of being self-employed.

Regarding the economic sector variables, "Construction", "Other community, social and personal service activities" , "Wholesale and retail trade repair of motor vehicles, motorcycles and personal and household goods" and "Hotels and restaurants" are associated with individuals' higher probability of being self-employed, when compared to belonging to sector "Manufacturing". "Wholesale and retail trade repair of motor vehicles, motorcycles and personal and household goods" and "Hotels and

restaurants" show a 12% probability, demarcating from the remaining sectors. In the sectors "Financial intermediation", "Real estate, renting and business activities", "Public administration and defense; compulsory social security", "Education", "Health and social work" the opposite relationship is found since individuals working on these sectors have a lower likelihood of being self-employed than in sector "Manufacturing". Being in sector "Transport, storage and communication" does not influence the probability of being self-employed.

In the next table (Table 14) we summarize the effects of each variable according to each model in the probability of being self-employed.

Table 14: Summary of effects in the probability of being self-employed

Probability of being SE				
		Model 1	**Model 2**	**Model 3**
Gender	Women	-	-	-
Age	15 and older	0	+	+
Age^2	15 and older	+	+	0
Marital Status	Married	+	+	+
	Widow	+	0	0
	Divorced	0	0	0
Quarter	2nd	0	0	0
	3rd	0	0	0
	4th	0	0	0
Region	Center	-	-	0
	Lisboa e Vale do Tejo	0	-	-
	Alentejo	0	0	-
	Algarve	+	-	0
	Açores	-	-	0
	Madeira	-	-	-
Education	Basic1	+	+	+
	Basic2	+	+	+
	Basic3	+	+	+
	Secundary	+	+	+
	Postsecundary	+	+	+
	Bachelor	+	+	+
	Degree	+	+	+
	Graduate	+	+	+
	Masters	0	0	+
	PhD	-	-	+
Profession	Senior public administration officials and senior business		-	0
	Experts in intellectual and scientific professions		-	-
	Technicians and associate professionals		-	-
	Clerks		-	-
	Service workers and vendors		-	-
	Farmers and skilled agricultural and fishery		-	-
	Craft and related trades workers		-	-
	Operators of plant and machinery and assemblers		-	-
Sector	Electricity, gas and water supply			-
	Construction			+
	Wholesale and retail trade, repair of motor vehicles			+
	Hotels and restaurants			+
	Transport, storage and communication			0
	Financial intermediation			-
	Real estate, renting and business activities			-
	Public administration and defense; compulsory social security			-
	Education			-
	Health and social work			-
	Other community, social and personal service activities			+

Key: " + " means a positive and significant effect was found; " - " means a negative and significant effect was found; " 0 " means no significant effect was found; empty cell means the variable was not included in the estimation.

6.3. TRANSITIONS TO SELF-EMPLOYMENT

After estimating the probability of being self employed, we now move one-step further in the analysis and look at the transitions into self-employment. This analysis uses a temporal perspective by looking at different quarters, within the year of 2007. Thus, we begin with instant *t* (the quarter), where individuals can be unemployed or employed (paid-employment, and will observe what is the employee occupation at instant *t* + 1 (in the subsequent quarter), if self-employed or not (see Figure 17).

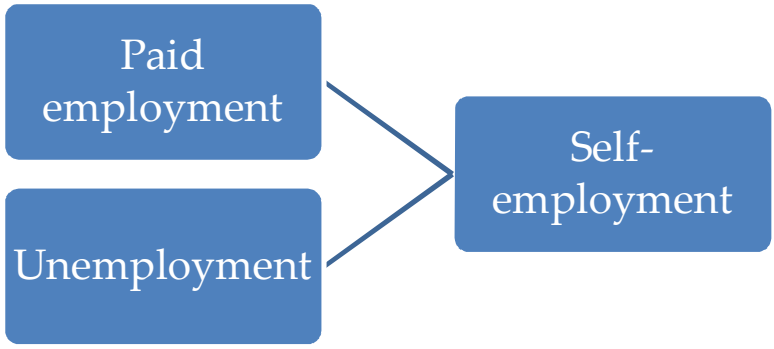

Figure 17: Possible transitions to self-employment

The results discussed in this section should not be considered as structural, as we separate the transitions according to the initial labor market status: paid employment or unemployment. Therefore, we estimate one logit for each type of transition and obtain the influence of each variable on the probability of becoming self-employed, in the sense of a (partial) statistical relationship.[14] The covariates considered are the same as in the more completed model of the previous section (Model 3 in Table 14). The variables are defined to period *t*, that is, the period before the transition (or not) into self-employment. The estimates obtained with the logit for the transitions from paid-employment to self employment are presented in Table 15.

[14] A more completed model can be considered to obtain the casual relationships, as the estimated effects obtained are subject to the influence of the initial labor market status.

Table 15: Transition from paid employed to self-employment in Portugal, Logit regression results, marginal effects, 2007

Explanatory Variables		
Gender	Women	-0.010***
		(0.002)
Age	15 and older	-0.001*
		(0.001)
Age^2	15 and older	0.000***
		(0.000)
Marital Status	Married	-0.020***
		(0.003)
	Widow	-0.019***
		(0.004)
	Divorced	-0.012***
		(0.004)
Quarter	2nd	-0.002
		(0.003)
	3rd	-0.002
		(0.003)
	4th	0.066***
		(0.007)
Region	Center	0.017***
		(0.004)
	Lisboa e Vale do Tejo	-0.007***
		(0.002)
	Alentejo	-0.004
		(0.003)
	Algarve	-0.001
		(0.003)
	Açores	-0.008***
		(0.003)
	Madeira	-0.012***
		(0.003)
Education	Basic1	0.002
		(0.006)
	Basic2	-0.005
		(0.006)
	Basic3	0.001
		(0.006)
	Secundary	0.002
		(0.006)
	Postsecundary	-0.013
		(0.013)
	Bachelor	-0.006
		(0.009)
	Degree	0.010
		(0.008)
	Graduate	-0.005
		(0.015)
	Masters	0.005
		(0.016)
	PhD	0.030**
		(0.013)
No. observations		55,197
Population		3,785,856
F statistic		19.8

(continued): Transition from paid employed to SE in Portugal, Logit regression results, marginal effects, 2007.

Explanatory Variables		
Profession	Senior public administration officials and senior business	0.004
		(0.009)
	Experts in intellectual and scientific professions	-0.008
		(0.005)
	Technicians and associate professionals	-0.005
		(0.004)
	Clerks	-0.006*
		(0.004)
	Service workers and vendors	0.000
		(0.004)
	Farmers and skilled agricultural and fishery	0.016
		(0.015)
	Craft and related trades workers	-0.001
		(0.003)
	Operators of plant and machinery and assemblers	0.002
		(0.004)
	Military Forces	-0.007
		(0.011)
Sector	Electricity, gas and water supply	0.000
		(0.010)
	Construction	0.008**
		(0.004)
	Wholesale and retail trade, repair of motor vehicles	0.004
		(0.004)
	Hotels and restaurants	-0.004
		(0.005)
	Transport, storage and communication	0.008
		(0.006)
	Financial intermediation	0.018*
		(0.010)
	Real estate, renting and business activities	0.006
		(0.006)
	Public administration and defense; compulsory social security	0.001
		(0.004)
	Education	-0.001
		(0.005)
	Health and social work	-0.004
		(0.004)
	Other community, social and personal service activities	0.004
		(0.005)
	Activities of households	0.058
		(0.050)
No. observations		55,197
Population		3,785,856
F statistic		19.8

Logit, marginal effects. Standard deviations in brackets. * p<0.10, ** p<0.05, *** p<0.01. The dependent variable is one if the individual is self-employed and zero if paid-employed. Age defined in years. The remaining variables are binary (0,1).

Considering gender, women have a lower probability of switching from PE to SE (about 1%). This result was expectable because women are less likely to be self-employed than man.

Regarding age, one more year reduces the probability of transit from PE to SE in 0.1 %. In this case we were expecting a different result, if an older people have higher probabilities of being self-employed, one more year should raise the probability of transition from PE to SE.

Married, widowed and divorced have less chances of switching from PE to SE, than do single people.

It is interesting to observe that is just in quarter 4 that people have higher chances of switching from PE to SE, than they have in quarter 1. Being present in quarter 2 and 3 does not influence the probability of switching from PE to SE. In quarter 4 people have a 6.6% higher probability of transiting from PE to SE than in quarter 1.

People living in the center of Portugal have an almost 2% higher probability of transiting from PE to SE than have those who live in the north. Living in Lisbon, Azores and Madeira reduces the likelyhood of becoming SE by about 1%, when compared with those who live in the north. Alentejo and Algarve do not influence the probability of transition.

Having education does not influence the possibility of transition from PE to SE, with the exception of having a PhD, which increases the probability of transition in 3% when compared with individuals with no education level.

“Clerk” is the only occupation that associates with a lower probability of transiting from PE to SE when compared to be “unskilled”. The remaining occupations do not influence the probability of transition.

Finally, regarding the type of economic sector, just for those who belong to the economic sector “Construction” and “Financial intermediation” have more probabilities of transitions than have those who belong to sector “Manufacturing”. The remaining sectors do not influence the probabilities of transit from PE to SE.

The estimates obtained with the logit for the transitions from unemployment to self employment are presented in Table 16.

Table 16: Transition from unemployment to self-employment in Portugal, Logit regression results, marginal effects, 2007

Explanatory Variables		
Gender	Women	-0.004
		(0.005)
Age	15 and older	-0.000
		(0.001)
Age^2	15 and older	0.000
		(0.000)
Marital Status	Married	-0.013*
		(0.007)
	Widow	-0.017**
		(0.008)
	Divorced	-0.014*
		(0.007)
Quarter	2nd	-0.012*
		(0.007)
	3rd	-0.010*
		(0.006)
	4th	0.025**
		(0.012)
Region	Center	0.013
		(0.009)
	Lisboa e Vale do Tejo	-0.005
		(0.005)
	Alentejo	-0.016**
		(0.007)
	Algrave	0.003
		(0.007)
	Açores	-0.008
		(0.008)
	Madeira	-0.007
		(0.006)
Education	Basic1	0.015
		(0.012)
	Basic2	0.018
		(0.012)
	Basic3	0.014
		(0.013)
	Secundary	0.012
		(0.014)
	Postsecundary	0.034
		(0.023)
	Bachelor	0.015
		(0.023)
	Degree	-0.002
		(0.018)
	Graduate	0.054
		(0.036)
	PhD	0.046
		(0.037)
No. observations		5,231
Population		378,544
F statistic		3.5

(continued):Transition from unemployed to self-employment in Portugal, Logit regression results, marginal effects, 2007

Explanatory Variables		
Profession	Senior public administration officials and senior business	-0.017**
		(0.009)
	Experts in intellectual and scientific professions	0.025
		(0.032)
	Technicians and associate professionals	0.006
		(0.012)
	Clerks	0.015
		(0.013)
	Service workers and vendors	0.023
		(0.014)
	Farmers and skilled agricultural and fishery	0.001
		(0.009)
	Craft and related trades workers	-0.000
		(0.010)
	Operators of plant and machinery and assemblers	0.006
		(0.012)
Sector	Construction	0.016
		(0.011)
	Wholesale and retail trade, repair of motor vehicles	0.001
		(0.007)
	Hotels and restaurants	-0.003
		(0.008)
	Transport, storage and communication	0.008
		(0.013)
	Financial intermediation	-0.007
		(0.017)
	Real estate, renting and business activities	-0.006
		(0.009)
	Public administration and defense; compulsory social security	0.013
		(0.022)
	Education	0.012
		(0.017)
	Health and social work	0.001
		(0.012)
	Other community, social and personal service activities	-0.001
		(0.011)
No. observations		5,231
Population		378,544
F statistic		3.5

Logit, marginal effects. Standard deviations in brackets.
* p<0.10, ** p<0.05, *** p<0.01

Beginning with gender, we find that being a woman or a man does not influence the probability of transit from unemployment to SE. The same occur with age variable, as being older or younger does not give to a person more or less likelihood of changing from unemployment to SE. According to marital status, married, widowed and divorced have lower odds, about 1%, of transiting from unemployment to SE than singles do. Is in the fourth quarter that may occur a higher number of transitions from unemployment to SE (2% more), when compared to first quarter. In quarter two and three occurs the opposite, having less chances of transition than in the first quarter. Those who live in Alentejo are those who have fewer probabilities of transition from unemployment to SE when compared to those who live in the North. Living in the remaining regions does not influence the likelihood of transition. Regarding education we find that no level of education influences significantly the likelihood of transition from unemployment to SE. Concerning occupation categories, being “Senior public administration officials and senior business” or “Service workers and vendors” are the only categories that influence the probability of transiting from unemployment to SE; where the former has

a negative influence, and the latter a positive influence (both with 2%). Belonging to a specific sector does not imply that an individual have a higher or lower probability of switching from unemployment to SE. The results from both models are summarized in Table 17.

Table 17: Summary of effects in variables in transition from paid employed to self-employment

		Probability of transition from PE to SE	Probability of transition from unemployed to SE
Gender	Women	-	0
Age	15 and older	-	0
Age^2	15 and older	+	0
Marital Status	Married	-	-
	Widow	-	-
	Divorced	-	-
Quarter	2nd	0	-
	3rd	0	-
	4th	+	+
Region	Center	+	0
	Lisboa e Vale do Tejo	-	0
	Alentejo	0	-
	Algarve	0	0
	Açores	-	0
	Madeira	-	0
Education	Basic1	0	0
	Basic2	0	0
	Basic3	0	0
	Secundary	0	0
	Postsecundary	0	0
	Bachelor	0	0
	Degree	0	0
	Graduate	0	0
	Masters	0	0
	PhD	+	0
Profession	Senior public administration officials and senior business	0	-
	Experts in intellectual and scientific professions	0	0
	Technicians and associate professionals	0	0
	Clerks	-	0
	Service workers and vendors	0	+
	Farmers and skilled agricultural and fishery	0	0
	Craft and related trades workers	0	0
	Operators of plant and machinery and assemblers	0	0
Sector	Electricity, gas and water supply	0	0
	Construction	+	0
	Wholesale and retail trade, repair of motor vehicles	0	0
	Hotels and restaurants	0	0
	Transport, storage and communication	0	0
	Financial intermediation	+	0
	Real estate, renting and business activities	0	0
	Public administration and defense; compulsory social security	0	0
	Education	0	0
	Health and social work	0	0
	Other community, social and personal service activities	0	0

Key: " + " means a positive and significant effect was found; " - " means a negative and significant effect was found; " 0 " means no significant effect was found.

Chapter 7- Conclusion

"Appreciation can make a day, even change a life. Your willingness to put it into words is all that is necessary."
Margaret Cousins

Self-employment is becoming recognized as an important source of economic development to countries. Moreover, the entrepreneurial rates in Portugal have been rising. In order to analyze self-employment in the Portuguese labor market and to investigate the reasons underlying the self-employment occupation, the present study have reviewed previous relevant studies, and models of occupational choice, discussed the Labour Force Survey as the main data source for the analysis and, finally, developed an empirical econometric analysis for Portugal.

The main determinants considered when choosing to be/become self-employed that we theoretically analyze in this dissertation are demographic traits, human capital and experience, and the macroeconomic context.

Despite entrepreneurship and self-employment is subject of interest and research in many countries and by diverse authors, some of the studies reviewed show mixed evidence on the role played by some of the determinants under analysis. However, it is possible to synthesize the main findings in the literature: as far as age is concerned, most evidence indicates that the probability of being self-employed is higher for older people. Concerning the gender variable, men are more likely to become self-employed; however, women's participation in self-employment is increasing. The family background also influences self-employment: married people have a higher propensity to become self-employed; as do women with young children. Individuals with higher levels of education have greater chances of becoming self-employed, but these results are not highly statistically significant. Concerning past experience, individuals with past experience in self-employment are more likely to transit into self-employment than those who have never been self-employed. Lastly, the influence of the macroeconomic context is expressed through the unemployment push and pull theories. According to these theories, unemployment rates act as a key factor in encouraging or deterring people from becoming self-employed.

Using the available data from the Labour Force Survey statistical analyses concerning the self-employment choice are performed in this dissertation. The data analysis shed some light on the main characteristics of self-employed individuals in Portugal.

Concerning demographic traits and beginning with gender, self-employed have higher percentages among men although, as said before, it is observable that the difference of participation in self-employment among men and women is narrowing.

Analyzing all the years from our data, it is possible to observe that self-employment has a higher incidence among individuals aged between 45-64 years old; which means that self-employed tend to have high levels of participation at an older age. These findings strengthen the idea that self-employment may be an alternative to retirement. Self-employed tend to have a small number of household, with four members.

Concerning marital status, the bigger incidence of self-employed individuals is among married people. If an individual has a partner with whom to share debts, he or she has a lower risk to fail if the venture does not succeed; being married represents an extra security.

Most of self-employed have a low level of education followed by those with no education at all; however, it is important to mention that people with higher levels of education are a small minority Portugal.

The type of profession with high number of people in SE is “Craft and related trades workers”, “Service workers and vendors” followed by “unskilled”. The sector of economic activity that is more common across the period in analysis is “Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods”

Using the model and after doing cross section estimations we could confirm and/or find same differences comparing to the descriptive section of our analysis. We could assert that men have more probability of being self-employed than women. Being older, indeed, increase the odds of being self-employed. A self-employed person has more chances of living in the north of Portugal. Concerning education attainment, having a higher level of education give to an individual greater odds of being self-employed than not having any, contrary of what happen in the descriptive analyses. Regarding profession, the probability of being self-employed increase if a person is unskilled. Comparing with sector of activity “Manufacturing” being in “Construction”, “Wholesale and retail trade, repair of motor vehicles” and “Hotels and restaurants” are more likely to impact on individuals’ decision to participate in self-employment.

Lastly, concerning transitions from paid employment and unemployment to self-employment we obtained many variables which were not statistically relevant in the transition into self-employment. It is desirable that, in a further work, more variables that are considered relevant in the literature to observe those transitions, should be included in the econometric model. Moreover, the model applied in this analysis uses cross section data, instead of a longitudinal approach. In future work, appropriate data can be used to perform a longitudinal study dealing with the economic cycle and individuals’ occupational paths through a longer period.

Many researches authors such as Pietrobelli et al. (2004), Parker (2004) and Anu (2007) confirm self-employment and entrepreneurship as being a major means for development. For that reason any policy that wants to promote economic development will probably tend to do so by encouraging self-employment and entrepreneurship, because this is a potential way of increasing job generation, productivity and growth. Therefore, this dissertation contributes for a better understanding and

knowledge about the self-employed characteristics and processes of occupational choice, and the mechanisms that underpin those processes. Insight on the self-employment phenomenon is needed, so that decision-makers can successfully promote adequate policies and incentive schemes towards self-employment and entrepreneurship.

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Appendixes

TABLE A.1: STUDIES ON SELF-EMPLOYMENT

Paper Title	Author(s)	Country	Date of analysis	Base	1	2
Self-employment in the midst of unemployment: The case of Spain and the United States.	Alba-Ramirez (1994)	Spain and US	1976-1988	Working and Living Conditions Survey (ECVT) and Displaced Worker Survey (DWS)		x
Health insurance and job creation by the self-employed.	Bartelsmann et al (2005)	US	1993-1995	Survey of Income and Program Participation (SIPP)		x
Self-employment entry across industry groups.	Bates (1995)	US	1984	SIPP		x
Self-employment in OCDE countries.	Blanchflower (2000)	OCDE countries	1966-1996	Various Eurobarometer Surveys conducted by the European Commission	x	
A Longitudinal analysis of the young self-Employed in Australia and the United States.	Blanchflower and Meyer (1994)	Australia and US	1983-1988	Australian Longitudinal Survey (ALS) and SIPP		x
Do husbands matter? Married women entering self-employment.	Bruce (1999)	US	1970-1991	Panel Study of Income Dynamics (PSID)		x
Women's choice to pursue self-employment: The role of financial and human capital of household members.	Caputo and Dolinsky (1998)	US	1988	National Longitudinal Study of Labor Market Experience (NLSLME)	x	
Transitions to and from self-employment in Spain:an empirical analysis.	Carrasco (1999)	Spain	1985-1991	Spanish Continuous Family Expenditure Survey (ECPF)		x
The career dynamics of self-mployment.	Carroll and Mosakowski (1987)	Germany	1979-1984	West German Life History Study		x
Job creators.	Cowling et al (2004)	Britain	1997-1999	British Household Panel Survey (BHPS)	x	

Paper Title	Author(s)	Country	Date of analysis	Base	1	2
Pushed out or pulled in? Self-employment among ethnic minorities in England and Wales.	Clark and Drinkwater (2000)	England and Wales	1993-1994	Fourth National Survey of Ethnic Minorities	x	
An empirical analysis of self-employment in the Netherlands.	DeWit and Winden (1989)	Netherlands	1983	Various		x
Gender differences in self-employment.	Georgellis and Wall (2005)	Germany	1984-1997	German Socio-Economic Panel (GSOEP)		x
Self-employment as a step in the retirement process.	Giandrea et al (2008)	US	1992-2004	Social Security Administration's Health and Retirement Study (HRS)		x
Entrepreneurial aspiration and transition into self-employment: Evidence from British longitudinal data.	Henley (2007)	Britain	1998-2002	BHPS		x
Switching costs and occupational transition into self-employment.	Henley (2009)	Britain	1998-2006	BHPS		x
Entrepreneurial decisions and liquidity constraints.	Holtz-Eakin et al (1994)	US	1982-1983	various federal individual income tax returns		x
Self-employment and liquidity constraints: Evidence from Finland.	Johansson (2000)	Finland	1987-1995	Longitudinal Employment Statistics (LES)		x
The origins of self-employment.	Kunt et al (2007)	Bosnia and Herzegovina	2001-2004	World Bank Living Standards Measurement Study (LSMS)		x
What determines self-employment? A comparative study.	Livanos (2009)	Greece and UK	2000-2001	Labour Force Surveys (LFS)	x	
Why are there so few black entrepreneurs?	Meyer (1990)	US	1983-1986	SIPP and Characteristics of Business Owners (CBO)	x	
The transition from paid to selfemployment in Canada: the importance of push factors.	Moore and Muller (2002)	Canada	1988-1990	Labour Market Activity Survey (LMAS)		x

Paper Title	Author(s)	Country	Date of analysis	Base	1	2
An empirical study of the determinants of self-employment in developing countries.	Pietrobelli et al (2004)	83 countries	1960-1990	Various	x	
Taxes, economic conditions and recent trends in male self-employment: A Canada-U.S. comparison.	Schuetze (2000)	Canada	1983-1994	Surveys of Consumer Finances (SCF) and Current Population Surveys (CPS)	x	
Econometric analysis of Canadian self-employment using SLID.	Simpson and Sproule (1998)	Canada	1986-1990	Survey of Labour and Income Dynamics (SLID)	x	
Does self-employment reduce unemployment?	Thurik et al, (2008)	OECD countries	1974-2002	Various		x
COMPENDIA: Harmonizing business ownership data across countries and over time.	Van Stel (2005)	OECD countries	1972-2002	COMPENDIA (COMParative ENtrepreneurship Data for International Analysis)	x	
Transitions to self-employment at older ages: The role of wealth, health, health insurance and other factors.	Zissimopoulos and Karoly (2005)	US	1992-2000	HRS		x

Notes:
1- Comparison between self-employed and other workers (be self-employed).
2- Comparison between reasons to move into self-employment (become self-employed).

TABLE A.2: SELF-EMPLOYMENT IN PORTUGAL, LOGIT REGRESSION RESULTS, WITHOUT MARGIN, 2007

Explanatory Variables		Model 1	Model 2	Model 3
Gender	Women	-0.533***	-0.773***	-0.503***
		(0.045)	(0.050)	(0.059)
Age	15 and older	0.011	0.022*	0.063***
		(0.012)	(0.012)	(0.013)
Age^2	15 and older	0.004***	0.003**	-0.000
		(0.001)	(0.001)	(0.001)
Marital Status	Married	0.478***	0.495***	0.473***
		(0.081)	(0.086)	(0.088)
	Widow	0.296*	0.210	0.192
		(0.161)	(0.167)	(0.173)
	Divorced	0.084	0.108	0.179
		(0.136)	(0.144)	(0.147)
Quarter	2nd	-0.005	-0.005	-0.010
		(0.019)	(0.020)	(0.021)
	3rd	0.008	0.008	-0.002
		(0.025)	(0.026)	(0.028)
	4th	0.012	0.016	0.004
		(0.029)	(0.031)	(0.032)
Region	Center	-0.163**	-0.095	-0.066
		(0.070)	(0.074)	(0.076)
	Lisboa e Vale do Tejo	-0.054	-0.135**	-0.227***
		(0.055)	(0.057)	(0.061)
	Alentejo	-0.089	-0.206***	-0.136*
		(0.077)	(0.078)	(0.082)
	Algrave	0.138**	0.010	-0.097
		(0.068)	(0.071)	(0.076)
	Açores	-0.140*	-0.174**	0.012
		(0.078)	(0.080)	(0.084)
	Madeira	-0.626***	-0.702***	-0.715***
		(0.093)	(0.097)	(0.101)
Education	Basic1	0.353***	0.500***	0.616***
		(0.125)	(0.131)	(0.135)
	Basic2	0.456***	0.700***	0.904***
		(0.134)	(0.140)	(0.145)
	Basic3	0.221	0.606***	0.918***
		(0.134)	(0.143)	(0.149)
	Secundary	0.142	0.744***	1.035***
		(0.141)	(0.152)	(0.159)
	Postsecundary	0.063	0.733**	0.984***
		(0.321)	(0.340)	(0.353)
	Bachelor	0.238	0.768***	1.009***
		(0.192)	(0.218)	(0.232)
	Degree	0.112	0.631***	1.150***
		(0.144)	(0.187)	(0.196)
	Graduate	0.355	0.772**	1.338***
		(0.274)	(0.311)	(0.335)
	Masters	-0.596	-0.307	0.353
		(0.457)	(0.469)	(0.526)
	PhD	-1.533***	-1.155*	0.257
		(0.567)	(0.590)	(0.629)

(CONTINUED): SELF-EMPLOYMENT IN PORTUGAL, LOGIT REGRESSION RESULTS, WITHOUT MARGIN, 2007

Explanatory Variables		Model 1	Model 2	Model 3
Profession	Senior public administration officials and senior business		-0.346**	-0.124
			(0.165)	(0.179)
	Experts in intellectual and scientific professions		-1.118***	-0.495***
			(0.150)	(0.156)
	Technicians and associate professionals		-1.546***	-1.156***
			(0.108)	(0.116)
	Clerks		-3.356***	-3.288***
			(0.203)	(0.206)
	Service workers and vendors		-0.793***	-0.936***
			(0.064)	(0.078)
	Farmers and skilled agricultural and fishery		-4.219***	-3.581***
			(0.501)	(0.516)
	Craft and related trades workers		-1.004***	-0.929***
			(0.063)	(0.074)
	Operators of plant and machinery and assemblers		-2.336***	-2.052***
			(0.119)	(0.118)
Sector	Sector E			-0.915*
				(0.556)
	Sector F			0.657***
				(0.084)
	Sector G			1.005***
				(0.079)
	Sector H			0.985***
				(0.102)
	Sector I			0.180
				(0.134)
	Sector J			-0.545**
				(0.247)
	Sector K			0.505***
				(0.106)
	Sector L			-3.490***
				(0.417)
	Sector M			-2.243***
				(0.213)
	Sector N			-0.905***
				(0.149)
	Sector O			0.296***
				(0.111)
Constant		-3.361***	-2.872***	-4.592***
		(0.264)	(0.282)	(0.307)
No. observations		66,671	66,671	66,571
Population		4513944	4,513944	4,511,188
F statistic		53.7	56.3	49.2

Standard deviations in brackets. * p<0.10, ** p<0.05, *** p<0.01. The dependent variable is one if the individual is self-employed and zero if paid-employed. Age defined in years. The remaining variables are binary (0,1).

TABLE 18: TRANSITION FROM PAID EMPLOYED TO SELF-EMPLOYMENT IN PORTUGAL, LOGIT REGRESSION RESULTS, WITHOUT MARGIN, 2007

Explanatory Variables		
Gender	Women	-0.318***
		(0.075)
Age	15 and older	-0.035**
		(0.016)
Age^2	15 and older	0.006***
		(0.002)
Marital Status	Married	-0.646***
		(0.094)
	Widow	-0.867***
		(0.267)
	Divorced	-0.480***
		(0.182)
Quarter	2nd	-0.070
		(0.109)
	3rd	-0.073
		(0.115)
	4th	1.444***
		(0.088)
Region	Center	0.480***
		(0.082)
	Lisboa e Vale do Tejo	-0.220***
		(0.083)
	Alentejo	-0.144
		(0.115)
	Algrave	-0.024
		(0.102)
	Açores	-0.298***
		(0.115)
	Madeira	-0.486***
		(0.120)
Education	Basic1	0.069
		(0.181)
	Basic2	-0.148
		(0.196)
	Basic3	0.040
		(0.197)
	Secundary	0.073
		(0.208)
	Postsecundary	-0.434
		(0.433)
	Bachelor	-0.199
		(0.308)
	Degree	0.316
		(0.248)
	Graduate	-0.173
		(0.489)
	Masters	0.167
		(0.513)
	PhD	0.978**
		(0.436)

(CONTINUED):TRANSITION FROM PAID EMPLOYED TO SELF-EMPLOYMENT IN PORTUGAL, LOGIT REGRESSION RESULTS, WITHOUT MARGIN, 2007

Explanatory Variables		
Profession	Senior public administration officials and senior business	0.123
		(0.276)
	Experts in intellectual and scientific professions	-0.284
		(0.201)
	Technicians and associate professionals	-0.165
		(0.149)
	Clerks	-0.226
		(0.138)
	Service workers and vendors	0.009
		(0.124)
	Farmers and skilled agricultural and fishery	0.427
		(0.340)
	Craft and related trades workers	-0.030
		(0.115)
	Operators of plant and machinery and assemblers	0.057
		(0.130)
	Military Forces	-0.264
		(0.438)
Sector	Sector E	0.014
		(0.328)
	Sector F	0.249**
		(0.110)
	Sector G	0.134
		(0.119)
	Sector H	-0.150
		(0.192)
	Sector I	0.242
		(0.152)
	Sector J	0.466**
		(0.221)
	Sector K	0.189
		(0.159)
	Sector L	0.028
		(0.143)
	Sector M	-0.017
		(0.155)
	Sector N	-0.154
		(0.163)
	Sector O	0.134
		(0.153)
	Sector P	1.100*
		(0.624)
Constant		-3.097***
		(0.384)
No. observations		55,197
Population		3,785,856
F statistic		19.8

Standard deviations in brackets. * p<0.10, ** p<0.05, *** p<0.01. The dependent variable is one if the individual is self-employed and zero if paid-employed. Age defined in years. The remaining variables are binary (0,1).

TABLE 19: TRANSITION FROM UNEMPLOYED TO SELF-EMPLOYMENT IN PORTUGAL, LOGIT REGRESSION RESULTS, WITHOUT MARGIN, 2007

Explanatory Variables		
Gender	Women	-0.195
		(0.204)
Age	15 and older	-0.021
		(0.052)
Age^2	15 and older	0.006
		(0.006)
Marital Status	Married	-0.579***
		(0.220)
	Widow	-1.188*
		(0.716)
	Divorced	-0.910*
		(0.497)
Quarter	2nd	-0.627**
		(0.308)
	3rd	-0.526*
		(0.290)
	4th	0.885***
		(0.225)
Region	Center	0.482*
		(0.267)
	Lisboa e Vale do Tejo	-0.253
		(0.232)
	Alentejo	-1.091**
		(0.440)
	Algrave	0.147
		(0.293)
	Açores	-0.451
		(0.483)
	Madeira	-0.383
		(0.370)
Education	Basic1	0.699
		(0.555)
	Basic2	0.824
		(0.566)
	Basic3	0.643
		(0.605)
	Secundary	0.551
		(0.628)
	Postsecundary	1.540
		(0.985)
	Bachelor	0.666
		(1.037)
	Degree	-0.094
		(0.802)
	Graduate	2.436*
		(1.425)
	PhD	2.064
		(1.548)

(CONTINUED):TRANSITION FROM PAID UNEMPLOYED TO SELF-EMPLOYMENT IN PORTUGAL, LOGIT REGRESSION RESULTS, WITHOUT MARGIN, 2007

Explanatory Variables		
Profession	Senior public administration officials and senior business	-1.472
		(0.902)
	Experts in intellectual and scientific professions	0.774
		(0.721)
	Technicians and associate professionals	0.230
		(0.463)
	Clerks	0.540
		(0.410)
	Service workers and vendors	0.743**
		(0.367)
	Farmers and skilled agricultural and fishery	0.037
		(0.390)
	Craft and related trades workers	-0.011
		(0.440)
	Operators of plant and machinery and assemblers	0.238
		(0.463)
Sector	Sector F	0.556*
		(0.290)
	Sector G	0.038
		(0.315)
	Sector H	-0.128
		(0.417)
	Sector I	0.308
		(0.464)
	Sector J	-0.383
		(1.083)
	Sector K	-0.307
		(0.521)
	Sector L	0.458
		(0.684)
	Sector M	0.438
		(0.538)
	Sector N	0.064
		(0.532)
	Sector O	-0.040
		(0.525)
Constante		-4.088***
		(1.244)
No. observations		5,231
Population		378,544
F statistic		3.5

Standard deviations in brackets. * p<0.10, ** p<0.05, *** p<0.01. The dependent variable is one if the individual is self-employed and zero if paid-employed. Age defined in years. The remaining variables are binary (0,1).