

**LATENT ENTREPRENEURSHIP:
THE EFFECTS OF THE TYPE OF FORMAL EDUCATION ON
YOUTH SELF-EMPLOYMENT**

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To my grandfather

His passion for knowledge and his tenacity are values I always carry with me

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Abstract

Entrepreneurship and its drivers analysis has been a hot topic in recent economic literature. Using theoretical concepts of the individual factors impacting the probability of individual's occupational choice decision, this study aims to examine whether the type of education impacts the probability of an individual to be willing to pursue self-employment. Through the development of a comprehensive survey, this study uses its own data set to understand whether entrepreneurial training and experience influence individual's entrepreneurial intentions.

A Survey inspired in the Flash Barometer 2000/2004 was constructed to develop our data set including 521 students from all four schools within ISCTE-IUL (Instituto Superior de Ciências do Trabalho e da Empresa – Instituto Universitário de Lisboa). The data set is used to test three models under three different hypothesis. The first model is generated under the hypothesis of whether students from different schools have different entrepreneurial intentions. The second and third, under the hypothesis of whether previous entrepreneurial subjects and entrepreneurial experience impacts student's entrepreneurial intentions, respectively.

Binary logistic regressions are used to perform the analysis of these models. The study does not find support for any of the hypotheses. Such results highlight the need to further develop the literature on this topic, complementing it with different variables and testing it with innovative econometric methods. In addition, to remove possible biases giving our narrow sample and its characteristics, one must suggest the need to test these findings for a more broad data with cross-country analysis.

Keywords: Latent Entrepreneurship, Youth Self-employment, Type of Education, Formal Education.

JEL classification: J23, J24.

Resumo

O empreendedorismo e a análise dos seus motivadores tem sido um tema em voga na literatura econômica recente. Através do uso de conceitos teóricos sobre os fatores individuais que afetam a probabilidade da decisão na escolha ocupacional, este estudo pretende analisar se o tipo de educação terá influência na probabilidade de um indivíduo estar disposto a trabalhar por conta própria. Através da criação de um questionário, este estudo faz uso da sua própria base de dados para compreender se as disciplinas assim como a experiência em empreendedorismo influenciam as escolhas ocupacionais dos indivíduos.

Um questionário inspirado no *Flash Barometer* 2000/2004 foi construído para desenvolver uma base de dados, incluindo 521 alunos das quatro escolas do ISCTE-IUL. A base de dados é usada para testar três modelos que assumem três hipóteses distintas. A primeira hipótese é se os estudantes das diferentes escolas têm diferentes intenções no que diz respeito ao autoemprego. A segunda e a terceira são se os alunos que tiveram disciplinas e experiência profissional em empreendedorismo têm diferentes intenções no que diz respeito ao autoemprego, respetivamente.

Estes modelos são analisados através de regressões logísticas binárias. Este estudo não evidencia suporte para nenhuma das hipóteses. Tais resultados destacam a necessidade de desenvolver a literatura sobre este tema, complementando-a com diferentes variáveis e testando-as, posteriormente, com métodos econométricos inovadores. Por fim, de forma a remover possíveis imparcialidades resultantes de uma amostra limitada e com características restritas, sugere-se o teste destes resultados para bases de dados mais amplas, comparando os resultados para diversos países.

Palavras-chave: Empreendedorismo Latente, Autoemprego Jovem, Tipo de Educação, Educação Formal.

Sistema de classificação JEL: J23, J24.

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List of Acronyms

ISCTE	Instituto Superior de Ciências do Trabalho e da Empresa
ISCTE-IUL	Instituto Superior de Ciências do Trabalho e da Empresa - Instituto Universitário de Lisboa
EU	European Union
US	United States
GEM	Global Entrepreneurship Monitor
UK	United Kingdom
Labs Lisboa	Vodafone Labs Lisboa
IBS	ISCTE Business School
BET	Bring Entrepreneurs Together
Tec Labs	Tec Labs – Centro de inovação
ECSH	Escola de Ciências Sociais e Humanas (School of Social and Human Sciences)
ESPP	Escola de Sociologia e Políticas Públicas (School of Sociology and Public Policy)
ISTA	ISCTE-IUL School of Technology and Architecture
AACSB	Association to Advance Collegiate Schools of Business
AUDAX	AUDAX-ISCTE
INDEG	INDEG ISCTE Executive Education
COTEC Portugal	COTEC Portugal - Associação Empresarial para a Inovação (Entreprise Association for Innovation)
MIT	Massachusetts Institute of Technology
NLSY	National Longitudinal Survey Youth
CPS	Current Population Surveys
BLS	Bureau of Labor Statistics
ISPP	International Social Survey Program
NSGD	National Survey of Graduates and Diplomates
EMRU	Employment Market Research Unit
ALS	Australian Longitudinal Surveys
SIPP	Survey of Income and Program Participation
GSOEP	German Socio Economic Panel

LES	Labour Employment Statistics
NSGD	National Survey of Graduates and Diplomates
INE	Instituto Nacional de Estatística – Portuguese Statistics Bureau
LAT	Latent Entrepreneurship
PS	Perception of Security
PEE	Perception of Entrepreneurial Experience
PFO	Perception of Financial Obstacles
PAO	Perception of Administrative Obstacles
PIO	Perception of Information Obstacles
RT	Risk Tolerance
PES 1	Perception of Entrepreneurial Skills 1
PES 2	Perception of Entrepreneurial Skills 2
PES 3	Perception of Entrepreneurial Skills 3
ERM	Entrepreneurial Role Models
EIN	Entrepreneurial Internships
SCH	School
SCH1	School 1
SCH2	School 2
SCH3	School 3
SCH4	School 4
LEV	Level of Education
STATA/MP	Stata for multiprocessor computers
UN	United Nations
OLS	Ordinary Least Squares
GDP	Gross Domestic Product

Chapter 1. Introduction

This chapter provides an overview, motivation and content of the Thesis. First, section 1.1 provides the scope, a brief literature review, motivation and main goals of this study. Secondly, section 1.2 covers the Thesis structure and content.

1.1 Overview and Motivation

Literature regarding entrepreneurship takes us back to 1942, when Schumpeter (1942) argued that entrepreneurship skills enables the conversion of new ideas or inventions into successful innovation, which is largely accountable for long-term economic growth. Since then, especially through the last decade, research focus on entrepreneurship, its drivers, its impact on economic growth and its role on labour market choice have arisen.

The complexity of entrepreneurship as labour market choice is, perhaps, the reason of the exponential attention and the emergent of the empirical literature on this topic. Furthermore, the changes in social and economic trends in the last decades have only increase the attention on this subject. For instance, the entry of women in the labour market (Georgellis and Wall, 2002; Georgellis *et al.*, 2005a; Georgellis *et al.*, 2005b), the ageing of populations (Evans and Leighton, 1989a; Evans and Leighton, 1989b; Kim and Deltas, 2002) and the increase of unemployment rates have demand new understanding of the determinants of self-employment and the barriers to entry into self-employment.

One of the determinants of self-employment is education, which have been discussed in recent research as by Borjas and Bronars (1989), Poschke (2013), Robinson and Sexton (1994). Given the need for not only policy makers to efficiently allocate public resources, but also for educators to provide efficient training for youth population to entry into the labour market, literature has great impact in explaining the impact of education on self-employment entry.

The present research explores the effects of the type of formal education on youth self-employment intention focusing on students from Portuguese University ISCTE-IUL in 2017, using longitudinal analysis of a sample of 521 students.

The main goal of this work is to understand if the different types of education, in this case, if the students from the four different ISCTE's schools have different entrepreneurial intentions. ISCTE's four schools focus on different area of studies, one in Business and Economics sciences, other in Social and Human sciences, other in Sociology and Public Policy and the other in Technology and Architecture studies. Moreover, our study intend to comprehend if

students who had entrepreneurial courses have different intentions concerning a career path as self-employed. Finally, it also aims to understand if students who had internships within an entrepreneurial area during their academia path have different intentions to pursue an entrepreneurial career.

While the results obtained are not conclusive, it is clear that this work expands the existing literature by focusing on the type of education as a factor influencing youth self-employment intentions. However, the development of more studies is needed, which may combine the arguments presented in this work with other variables, not included in our study's scope, as well as with advanced econometrical techniques.

1.2 Content

This thesis covers 5 chapters, including this introduction, followed by the bibliography and annexes.

Chapter 2 provides an overview of the literature on latent entrepreneurship, from a more broad perspective to a narrower one. In this chapter, we discuss the literature on self-employment as a labour market choice and its drivers, focusing on the role of education on youth self-employment entry.

In Chapter 3, a description of the data set built and used is given and so as its characteristics. Afterwards, we described the survey's main questions and how it was construct followed by a brief definition of the variables and its features. The chapter continues with the econometric model, hypothesis and models definition. Finally, the sample selection is explained, followed by a specific analysis of the dependent, independent and control variables.

Chapter 4 begins with the definition of the model, its main equations used to perform the econometric analysis, the hypothesis and consequently models definition. Following this, we begin to expose the results of the econometric test of the basic model, the schools impact model, the entrepreneurial courses model and the entrepreneurial internships model. Finally, we present a discussion of the results obtained.

Chapter 5 finalises the thesis, where we present the main conclusions, followed by the theoretical and practical implications of our findings. The chapter ends with suggestions for future research.

A set of annexes with auxiliary information and results is also included in the end of this thesis. Annex A presents the structure of the survey constructed to develop our dataset. Annexe B

present complementary results of the regression analysis and the predictive margin results regarding the basic model, the schools impact model, the entrepreneurial courses model and the entrepreneurial internships model.

Chapter 2. Literature Review

This chapter provides an overview of the most important concepts to better understand the dissertation's subject and the most significant literature review about this topic. The discussion starts with a small overview of the main drivers of entrepreneurship which have been studied by different authors and it continues to the literature on the definition of the main concepts, latent entrepreneurship and self-employment. The literature will continue with the relationship between age, gender, race and self-employment. The chapter continues with the literature on the definition of youth self-employment so as its relationship with unemployment and economic growth. Finally, ending the discussion, the chapter will focus on the literature on the relationship between self-employment and education, previous experience and specifically, impact of the type of education on youth self-employment.

Finding what drives people to choose to be an entrepreneur or self-employed rather than other forms of employment has been a struggle to many authors. Some focus their efforts on individual traits as entrepreneurial drivers such as age (Evans and Leighton, 1989a; Evans and Leighton 1989b; Kim and Deltas, 2002), race (Kawaguchi, 2003; Lofstrom and Bates, 2007), gender (Georgellis and Wall, 2002; Georgellis *et al.*, 2005a; Georgellis *et al.*, 2005b), education (Borjas and Bronars, 1989; Poschke, 2013; Robinson and Sexton, 1994) and attitude towards risk (Blanchflower and Meyer, 1994; Kilhstrom and Laffort, 1979). Others try to find a correlation between entrepreneurship and macroeconomics drivers as unemployment (Blanchflower and Meyer, 1994; Evans and Jovanovic, 1989b; Evans and Leighton, 1989b) and economic expansion (Reynolds *et al.*, 1999; Zacharakis *et al.*, 2000). There are also several studies about the relationship between entrepreneurship and regional factors (Fairchild, 2007; Moro *et al.*, 2003) and economic policies or social factors (Blau, 1987; Lalumia, 2009). This research will focus on education as an entrepreneurial driver, however, in this chapter there will be an overview of the main drivers, stated above, to provide a clear and complete outline about the subject of study.

To conduct a study aiming to better understand the drivers of entrepreneurship, all authors need to clarify and define the main concepts of the research. When it comes to latent entrepreneurship, in his paper, Masuda (2006) defines it in two ways: (1) people merely wishing to be a self-employed workers, and (2) people preparing to be a self-employed. For this dissertation, a simpler definition is necessary. Grilo and Irigoyen (2006) in their paper, where they used 2000 survey data from 15 EU (European Union) member states and the US (United States) to establish the effect of demographic and other variables on latent and actual

entrepreneurship, measured latent entrepreneurship by the probability of a declared preference for self-employment over employment. This dissertation will use this definition of latent entrepreneurship, which covers every declared intention and desire towards self-employment.

As Krueger (2000) discussed, the more accurate way of studying entrepreneurial activity is by studying “intention” rather than “personality traits”, “demographic characteristics” or “situational factors”. This is, the links and relationship between intentions and actual behaviour should be fairly strong (Ajzen, 1991; Sheppard, 1988). Several authors (Reynolds, 1991; Stanworth, 1989) have emphasized the greater and more reliable impact of personal background characteristics on the decision to pursue self-employment than psychological traits.

Giving Krueger (2000) research results, the study conduct in this work will follow the main concept of latent entrepreneurship and its previous definition to better analyse the impact of students’ course type on youth self-employment.

Although Katz (1990) came to the conclusion that “latent entrepreneurship” is probably only “cheap talk”, stating that indeed much lower rates of serious entrepreneurial intention emerge from longitudinal analyses of wage and salary workers. This has not stopped some researchers studying its determinants (Grilo and Irigoyen, 2006; Masuda, 2006) and concluding that latent entrepreneurship can be measured by the probability of a declared preference for self-employment over employment itself (Grilo and Irigoyen, 2006).

Regarding the definition of self-employment, Blanchflower *et al.* (2001) defined self-employment as being the simplest form of entrepreneurial activity. In this study, self-employment is defined as previously defined by Blanchflower *et al.* (2001), setting self-employment and entrepreneurship as being the same concept. Consequently, youth self-employment or youth entrepreneurship will be discussed as being the same concept. Although Eurostat defines youth unemployment age gap between 15 and 24 years old, in this research youth is defined as people with an age between 18 and 30 years old as Undergraduates have ages starting at 18 and ending at 30 years old. In this context, there is evidence that in general terms, age has a positive impact on entering into self-employment (Blanchflower, 2004), however in more recent studies, there’s evidence of a U-shaped relationship between age and self-employment (Lévesque and Minniti, 2006). This is, a threshold above which the influence of this variable is reverse, although the peak age varies between authors (Georgellis *et al.*, 2005a; Georgellis *et al.*, 2005b; Parker, 2009).

Since entrepreneurial drivers such as age are generally linked to others as gender and race, as they fall in the category of individual's basic characteristics, it is important, for further purposes, to discuss the literature on these other drivers. Concerning gender, Georgellis and Wall (2002), focusing on the German case, found that men have usually more access to better paid jobs and value more salaries and liquidity, when choosing self-employment. Contrarily, women value more time and flexibility when choosing self-employment by appreciating a greater work-life balance. Later, Georgellis *et al.* (2005a), focusing on the British case, found that both men and women choose self-employment when facing unemployment situation, although when they are employed, women tend to be more reluctant to choose self-employment instead of other forms of employment.

Regarding race as an entrepreneurial driver, in accordance to Blanchflower *et al.* (1998), Borjas and Bonars (1989) and Kawaguchi (2003), who studied the African-American situation in the U.S., there is an existence of a certain discrimination by consumers and credit market that explain the lower rate of self-employment among this group, when compared to Caucasian Americans. Later, Lofstrom and Bates (2007), also using data from the U.S., reached to the conclusion that the probability of self-employment entry is always higher among Caucasian individuals than among African-American individuals, regardless of the entering market.

Still on the literature over the different entrepreneurial drivers, the chapter will continue examining age influence on self-employment, in this case analysing literature on youth self-employment, youth unemployment and its role on driving economic growth as well.

In the last decade, we can observe high youth unemployment rates within the EU 28 members, mainly after the economic crisis of 2008 having reach the 23.9% in the first quarter of 2013 (European Commission, 2009). Several studies have been conducted to explain the effect of self-employment in reducing unemployment rate as the case of Blanchflower and Meyer (1994), Evans and Jovanovic (1989), Evans and Leighton (1989b), among others. In these studies, two phenomenon have been discovered, the unemployment push (when unemployment increases, the opportunity cost of starting a business decreases, which justifies the increase in the number of entrepreneurs) and the entrepreneurial effect (the increase in the number of entrepreneurs leads to the reduction of unemployment in subsequent periods). Later, Thurik and Carree (2008) developed a study where they found evidence of some effect of self-employment reducing the unemployment rate.

Giving the high unemployment among youth, recognition of entrepreneurship or self-employment as a source of job creation is increasing and that it may improve youth livelihood and economic independence in developing countries like Portugal. Kelley *et al.* (2012) in the GEM (Global Entrepreneurship Monitor) report 2011 highlights a number of additional positive advantages to stimulate youth entrepreneurship. According to the report, youth entrepreneurship can be an option to surpass youth unemployment and can be an important driver for economies, stating that youth entrepreneurs are more likely to hire fellow youths, are particularly responsive to new economic opportunities and trends, are more innovative and often create new forms of independent work and those who follow self-employment would have higher life satisfaction (Kelley *et al.*, 2012).

One of the major contributions to this research rely on the entrepreneurial experience and/or education that will help youth to develop new skills that can be applied to other challenges in life, as the entrepreneurial skills developed will make young individuals better employees and non-cognitive skills, such as opportunity recognition, innovation, critical thinking, resilience, decision making, teamwork, and leadership will benefit all young individuals whether or not they intend to become or continue as entrepreneurs (Kelley *et al.*, 2012).

However, many researches on graduate skills have been focusing on the companies' point of view regarding its requirements rather than on graduates' perception of the skills they acquire during their degree and courses, and how useful and adequate these are in their subsequent careers. Contrarily, this research intends to explore how graduates value their skills acquired throughout their courses and degrees and how can it improve or not their career choices towards self-employment. About this topic, Gavron *et al.* (1998), through a review of the UK business start-up policy, concluded that it is important to expose students to business experience and to the relevance of commercial skills for whatever career they pursue.

This research will also try to understand if there is a link between the type of guidance available to graduates through their courses and their career choices. Gibb (1997), for instance, suggested that UK graduates choosing to follow a career in large companies rather than in small medium enterprises or in their own businesses, do it partly for status purposes. This is, Gibb (1997) underlines that the higher education system in general and the careers services do not offer clear gateways into the self-employment and small business sector. Nevertheless, as it will be further discussed, there is a clear change in this matter, in the last decade, since Universities and its career services have been focusing on promoting entrepreneurship and self-employment.

Literature on self-employment has been growing through the last decade, with several arguments and discussions concerning female and youth increasing participation in labour force, education and the importance of entrepreneurial skills so as the increasing of deeper and complete databases. Youth self-employment is picking up fast in developed countries as Portugal. The Portuguese state government together with Universities has developed programs through financial assistance and specialized training, to foster entrepreneurship amongst the youth. The creation of start-up hubs within Lisbon, Porto and Aveiro have picked up the interest of many foreign investment as well as foreign start-ups and it is highly correlated with the investment on entrepreneurship among young students of Universities within those cities. This study will attempt to understand how the type of university courses can affect the preferred career choice decision of young students on becoming an entrepreneur or self-employed.

Finding which and how the field of study might rise youth self-employment would be an interesting finding not only as contribute to youth self-employment increasing literature but also to governments to increase the rate of entrepreneurship and, according to the literature previously discuss, to decrease youth unemployment rates and to educators to better prepare students to entry into self-employment. Some studies argue that large amount of expenditures on youth entrepreneurship does not seem to have had a statistical impact in the overall rate of youth entrepreneurship (Sobel and King, 2008). However, previous research has also contributed to demonstrate entrepreneurship's significant contribution to economic growth as it show evidence of a positive correlation between higher rates of entrepreneurship with higher rates of economic growth. Reynolds *et al.* (1999) show that different rates of entrepreneurship account for up to one-third of the difference in country economic growth rates, while Zacharakis *et al.* (2000) find that it can explain nearly half of the difference.

Based on the increasing awareness of entrepreneurship as a driving force behind economic growth, the States' economic development efforts have been more heavily directed toward promoting entrepreneurship in recent decades, especially in Portugal. Not only state programs sponsored by the government have been created to provide funding to start-up companies, but also resources have been devoted to creating youth entrepreneurship programs across the country as these efforts may push more graduates to take up self-employment and, therefore, need to be prepared for it.

In the case of Portugal, there has been a greater interest in promoting entrepreneurship by Universities across the country, sometimes sponsored together with private funds or companies.

We have seen a rise in venture companies within Universities, as the case of Labs Lisboa (Vodafone Labs Lisboa) from IBS (ISCTE Business School), BET (Bring Entrepreneurs Together) from Católica School of Business and Economics and Tec Labs from Lisbon University. However, there's evidence of more ventures within both Universities fields of Business & Economics and Engineering & Technology. Nevertheless, evidence that these programs actually increase entrepreneurial activity in several countries has been unclear. More recently, authors such as Kreft and Sobel (2005) as for Ovaska and Sobel (2005) have found that the best way to foster entrepreneurship is through better institutions as Universities, rather than government programs.

A review of the literature shows that the higher the level of education, the higher the probability of self-employment entry (Borjas and Bronars, 1989; Robinson and Sexton, 1994; Zissimopoulos *et al.*, 2009), although conclusions are not yet consensual. There's clear evidence of divergent arguments and conclusions within this topic of research. While Van der Sluis *et al.* (2008) argues that individuals with lower levels of education see self-employment as a solution giving a situation of unemployment, while Poschke (2013) states the existence of a U-shaped relationship between education and self-employment entry. Evidence supporting the opposite conclusion is discussed by Clark and Drinkwater (2000).

Within education driving individual career choice for entrepreneurship, there is several discussion points as for entrepreneurial exposure. As the literature demonstrates, obtaining high levels of education is not enough for individuals to follow self-employment. Casson (2003) points out for crucial skills to succeed on being self-employed as it differs from the ones to succeed in other forms of employment. As Lucas (1978) had concluded earlier, this is the case of attitude towards risk, managerial skills, previous working experience or entrepreneurial role models.

In the literature regarding the impact of individual's attitude towards risk on choosing an entrepreneurial career has been consensual. Kihlstrom and Laffort (1979) considered risk as one of the most influence driver on choosing self-employment as they found that the more risk taker the individual is, the higher probability of him/her becoming self-employed. Following this research, Parker (2009), distinguish this study in gender terms, concluding that women are more risk averse than men.

Collins and Moore (1970) as for Cooper and Dunkelberg (1984) have shown evidence that individuals who have family members or close friends who are entrepreneurs are more likely

to start their own business than those individuals who do not have experienced the same level of exposure to entrepreneurship. Taylor and Thorpe (2004) also claimed the importance of previous exposure to business, role models and networks on individuals who become entrepreneurs. So as Georgellis and Wall (2002) who had previously found evidence that having a role model seems to be more relevant to men than to women, when it comes to choose an entrepreneurial career.

An important issue of research concerning education impact on self-employment is the individual's previous experience, whether in entrepreneurial area or in general working experience. In this matter, literature is fairly conclusive as almost researches agree about the existence of positive impact of previous experience in driving self-employment.

Several researchers (Evans and Leighton, 1989b; Evans and Leighton, 1989b; Poschke, 2013; Robinson and Sexton (1994); Shapero and Sokol, 1982) have found positive evidence between studied entrepreneurship education, prior entrepreneurial experience and individual's entrepreneurial intentions. Shapero and Sokol (1982) suggested that experience gained in entrepreneurship enhance recognition of an opportunity which they consider to be necessary conditions for self-employment to occur. Evans and Leighton (1989b) found that the return of previous wage-employment work experience is higher for wage-employed men than for self-employed men. However, in the case of returns of self-employment work experience, they found to be about the same. Robinson and Sexton (1994) concluded that overall entrepreneurs with a good general education tend to be more successful when general education is combined with experience. Lastly, Poschke (2013) identify that previous self-employment experience can increase probability of entry into self-employment between 0.031 and 0.036.

While there are authors stating the greater impact of previous work experience as an important driver of enhancing individual's skills to better recognize business opportunities (Krueger and Brazeal, 1994), others argue that those skills largely depend on the level of the individual's formal education and prior managerial experience (Maxwell and Westerfield, 2002).

Finally, the main driver for this research is the impact of educational background, specifically the field of degree and entrepreneurial courses, on entry into self-employment. Within this subject, the literature is less developed. This sparked the need to further study the effects of specific types of education as opposed to general levels of education in enhancing entrepreneurial intentions.

Despite Robinson and Sexton (1994) concluded that general education has a positive impact on small business, there is evidence of criticism concerning the role of entrepreneurial courses and programs towards the development of self-employment intentions. While Souitaris and Al-Laham (2007) emphasized how critical entrepreneurial education can be to raise entrepreneurial intentions, Sobel and King (2008) suggest, concerning voucher programs in the U.S., that is not through specific programs designed to teach students entrepreneurship that students are more likely to become entrepreneurs, but rather the constant competition they experience within their own school and with other schools. Whether the field of education background impacts the entry on self-employment can also be related to the kind of business to start as Brockhaus and Horwitz's (1986) studies showed that different characteristics of business founders including educational background are associated with what kind of business to start.

Ultimately, as some authors suggest, is important to consider the fields of study when studying the impact of education on self-employment (Falk and Leoni, 2009) and there are clear signs that education programs can significantly impact students' intentions to become entrepreneurs (Peterman and Kennedy, 2003).

Therefore, this research aims to shape the still small existing literature on latent entrepreneurship, specially focusing on the impact of students' field of degree, by mapping the level, nature and patterns of self-employment intentions among students, and any disparities among different groups. It then aims to assess which students are keener to follow a self-employment career and what factors influence their decision. For this, the insights and perceptions from current graduates on issues as skills acquired, opportunities, fears and preferences are particularly important, as it could help Universities and educators to identify the courses which enhance the skills required for self-employment, and the gaps in the provision of the support necessary to guide students' preferences. In addition, it will likely highlight the need for more specific career advice and guidance for students contemplating a career in self-employment. Furthermore, it will provide ISCTE, as all students in this research are from ISCTE university, and its students, important issues to reflect and consider regarding, for instance, the knowledge required to provide and enhance entrepreneurial skills and which courses should it marketing as best for those who seek for an entrepreneurial career.

Chapter 3. Data and Methodology

This Chapter provides a description of the construction of our data set, from the question's inspiration to the framework used. Moreover, it offers a description of the data set and its characteristics so as a brief definition of the variables and its features. The Chapter continues with the definition of the econometric model, the hypothesis and the models under those hypothesis. The Chapter ends with the explanation of the sample selection, followed by a detailed analysis of the dependent, independent and control variables.

3.1 Data Source and Sample description

As discussed in the previous chapter, latent entrepreneurship and particularly, the impact of education on youth latent entrepreneurship is not only a relatively new subject of study but also an uncharted field. Meaning, there is a gap to fill, an opportunity to further develop this subject. The intention and goal of this research is to explore that opportunity by reaching a conclusion whether the type of formal education impacts the intention of students to pursue an entrepreneurial career path. This section describes the data set used and its construction, the selection of the sample, and a description of the variables.

A survey was developed and used as the main data gathering instrument of this research. The survey's target were the all students within all ISCTE schools, IBS, ESPP (School of Sociology and Public Policy), ECSH (School of Social and Human Sciences) and ISTA (ISCTE-IUL School of Technology and Architecture). Thus, they had a different educational base and relatively limited employment experience, allowing focus on their intentions and their abilities.

ISCTE-IUL is a Portuguese public university institute, located in the centre of Lisbon in the University City campus. ISCTE-IUL is one of the most prestigious Universities in Portugal with around 9,000 students and 600 faculty and professional staff. ISCTE-IUL is made up of four schools: IBS, ECSH, ESPP and ISTA. INDEG (INDEG ISCTE Executive Education) is ISCTE's institute dedicated to executive education. IBS is fully accredited by the AACSB (Association to Advance Collegiate Schools of Business) and was awarded 3 palms in the Eduniversal ranking (Excellent Business School).

ISCTE-IUL is a research university, with nine research centres evaluated by the Foundation for Science and Technology (4 qualified as excellent, 3 as very good and 2 as good). In the domain of entrepreneurship, the research centre AUDAX (AUDAX ISCTE) is nowadays a national reference as it has developed partnerships with various local authorities, business associations,

COTEC Portugal (COTEC Portugal – Enterprise Association for Innovation) and the MIT (Massachusetts Institute of Technology).

As it is stated in the beginning of this chapter, supported by the previous chapter, entrepreneurship is a relatively new subject of study, hence there are still a small number of available data sets concerning, specifically, youth entrepreneurship in order to perform a robust analysis on this topic.

The National Longitudinal Survey of Young Men cohort (NLSY) is one of the most used data sets for Entrepreneurship research. The NLSY includes 5,225 men who were ages 14-24 when first interviewed in 1966, with data available through 1981, when active surveying was discontinued. Evans and Jovanovic (1989b) used this data set so as Williams (2004) who also used the NLSY although for 1979–90. The main advantage of this data set is its large sample, however it only includes individuals who are white men.

The Current Population Surveys (CPS) is a survey of about 60,000 U.S. households conducted monthly by the United States Census Bureau for the Bureau of Labor Statistics (BLS). It was also used by Evans and Leighton (1989b) and Williams (2004) used the CPS for 1995.

The International Social Survey Program (ISSP) data set has a sample size of approximately 52,000 individuals across 45 members and has information from the late 1980s until 2015. Blanchflower *et al.* (2000) looked at related international self-employment statistics for 1997 and 1998.

There are already available several surveys for specific countries as for UK, the National Survey of Graduates and Diplomates (NSGD) from 1980, undertaken on behalf of the Employment Market Research Unit (EMRU) at the Department of Employment used by Dolton and Makepeace (1990).

The Australian Longitudinal Surveys (ALS) and U.S. - the Survey of Income and Program Participation (SIPP) were used by Blanchflower and Meyer (1994). So as the German Socio-Economic Panel (GSOEP), a longitudinal household survey, conducted since 1984, of approximately 6,000 households in the first year and nowadays it gathers around 11,000 private households. This survey gathers individual-level personal, job, family background, and household characteristics annually for each individual in the sample used by Williams (2002).

Finally, a sample of rich longitudinal data from Labour Employment Statistics (LES) in Finland that includes a sample of individuals who have been self-employed either in 1990 or 1993 or

both used by Kangasharju and Pekkala (2001) or the US county-level data on youth self-employment from the 2000 US Census obtained from the Census Bureau used by Sobel and King (2008).

LES is one of the most recent data sets available so as the Flash Eurobarometer survey on Entrepreneurship conducted during September and October of 2000 on a random sample from the 15 Member States and the US, covering roughly 8500 respondents used by Grilo and Irigoyen (2006) in their research study. Table 3.1 displays an overview of the existing entrepreneurial surveys, previously discussed.

To the best of our knowledge a robust survey regarding Portugal's youth entrepreneurship is not yet available. There are data available regarding self-employed population in INE (Instituto Nacional de Estatística - Portuguese Statistics Bureau) as in the Eurostat website. The Flash Barometer, which we used to compute the survey's questions, is the most robust data set regarding entrepreneurship in Portugal. However, it is not possible to distinguish the respondent's age, making it impossible to perform a study about youth entrepreneurship, whether it is related to latent or nascent entrepreneurship.

Furthermore, as we can see from the examples stated below, most of the available data sets are outdated, being the most recent ones from at least seventeen years ago. This largely contributed to our decision of computing a survey regarding youth entrepreneurship. In addition, as ISCTE is known for its entrepreneurial contribution through its research centre AUDAX, Labs Lisbon venture, and its entrepreneurship courses and Master programs, we took this opportunity to also contribute to ISCTE's success concerning entrepreneurship initiatives. With the research's results, we expect to be able to better understand if ISCTE's entrepreneurial courses can impact ISCTE's student's intentions to pursue an entrepreneurial career path.

All undergraduate and master students were considered for the survey so as students of all races and genders. The total universe of the target respondents was nearly 9,000. 548 individuals completed the survey, for a response rate of approximately 6.089%.

Table 3.1 Overview of the Existing Entrepreneurial Data Sets Examples

Country	Survey Name	Used by Authors	Sample Composition
Australia	ALS	Blanchflower and Meyer (1994)	For 1985, 8,998 individuals. For 1986, 7,871 individuals. For 1987, 7,110 individuals. For 1988, 6,151 individuals. All individuals with ages between 16 and 25 years old.
Finland	LES	Kangasharju and Pekkala (2001)	Individuals self-employed either in 1990 and 1993 or both.
Germany	GSOEP	Williams (2002)	The sample used was only for West German and West German foreigners who were present in the sample in every year (1984-1998), who were 25 to 60 years old in 1997 and who were employed in 1997. The final sample is 1907 individuals.
UK	NSGD	Dolton and Makepeace (1990)	Data from the 1980 NSGD with a sample of 8,934 individuals with labour market experience in the six years since leaving higher education.
US	NLSY	Evans and Jovanovic (1989b); Williams (2004)	Evans and Jovanovic (1989b) used data of 1,500 white males who were workers in 1976 and either workers or self-employed in 1978. Williams (2004) used data of 12,686 white men with ages between 14 and 24 years old.
	CPS	Evans and Leighton (1989b); Williams (2004)	Evans and Leighton (1989b) used data for 1968 to 1987 and Williams (2004) used data from 1995 for 60,000 U.S. households conducted monthly by the US Census Bureau for the Bureau of Labor Statistics.
	SIPP	Blanchflower and Meyer (1994)	Data from SIPP of 1983-1986. Throughout the three years the sample was composed by 20,000 households with ages between 17 and 28 years old.
	2000 US Census	Sobel and King (2008)	2000 US county-level data on youth self-employment. 2,171 individuals with ages between 16 and 25 and 2,543 with ages between 16 and 30 years old.
US & EU	Flash Eurobarometer	Grilo and Irigoyen (2006)	Data from the 2000 Flash Eurobarometer with a sample of 8,500 respondents from 15 EU Members and the US.
23 Countries	ISSP	Blanchflower <i>et al.</i> (2000)	Data from 1997-1998 with 25,000 individuals with age greater than 18 years old.

The percentage of undergraduate students was approximately 41.606% and the percentage of master students was approximately 58.394% accordingly for a size of population which falls in the range of 548. Accordingly, the sample size taken for this research is 548. However, only students with ages between 18 and 30 years old were considered for the study, which caused a loss of 27 answers, resulting in a sample of students of 521. Table 3.2 contains our sample of 521 students' characteristics.

Table 3.2. Sample Characteristics

Characteristics		Frequency	Percentage	Cumulative
Gender	Female	306	58.733%	58.733%
	Male	215	41.267%	100.000%
Race	Caucasian	445	85.413%	85.413%
	Black	63	12.092%	97.505%
	Asian	13	2.495%	100.000%
Age	18-20	111	21.305%	21.305%
	21-23	208	39.923%	61.228%
	24-26	122	23.416%	84.645%
	27-30	80	15.355%	100.000%
Education	Master	312	59.885%	59.885%
	Undergraduate	209	40.115%	100.000%
School	IBS	235	45.106%	45.106%
	ECSH	106	20.345%	65.451%
	ESPP	90	17.274%	82.726%
	ISTA	90	17.274%	100.000%

Concerning student's age, the definition of "Youth" in "youth entrepreneurship" is not clear, being defined differently by several authors as Chigunta (2002) defines 'youth' as any person

aged between 15-35 years of age, United Nations (UN) and Eurostat define “youth” as people with age gap between 15 and 24 years old, Jakubaz (2002) defines “Youth” as individuals with ages below 30 years old so as Sobel and King (2008), using data from 2000 Census, defined their primary variable of interest as the rate of self-employment among those aged 16 to 30 years old. Tam (2000) also defined “youth” as people with ages up to 30 years old. In addition, Ernst and Young in 2000 found that as many as 5.6 million Americans younger than age 34 are actively trying to start their own businesses today. One-third of new entrepreneurs are younger than age 30, more than 60 percent of 18 to 29 years olds say they want to own their own businesses, and nearly 80 percent of would-be entrepreneurs in the US are between the ages of 18 and 34.

The main constraint in defining our sample’s age gap is the fact that only students older than 18 years can be admitted into University, meaning our age gap as to be defined for people older than 18 years old. To define the upper limit for our sample’s age gap we will use Jakubaz (2002), Sobel and King (2008) as well as Tam (2000) definitions of “youth” as people younger than 30 years old. Only students with ages between 18 and 30 years old were considered for the study. This restraint resulted in the loss of 27 answers, resulting in a sample of students of 521.

Questions may arise regarding the generalization of the results from this sample to other populations. Do ISCTE students have similar intention as those students from other Universities in Portugal? Do Portuguese students have similar intention as those from students in the US, Europe, China, India, or elsewhere? Is the intention to be an entrepreneur affected by the difference in cultures? These empirical questions are already present in some research studies such as Blanchflower and Meyer (1999), Grilo and Irigoyen (2006) and Lee *et al.* (2005). While this study does not have any theoretical expectation of generalizing its results to these cultures, we must be cautious in generalizing these findings beyond the ISCTE and Portuguese context. Furthermore, the sample consists in students with at least one degree and at most a year of work experience. This also raises the question whether the findings can be generalized to students with lesser formal education and/or more years of work experience. By concluding that superior and formal education positively or negatively impacts entrepreneurial intention, our results may not be generalizable to those without such education.

The survey was published in several ISCTE’s online channels and through email to ISCTE’s students. The survey was available in Portuguese only.

To compute the survey used to perform this study's analysis, previous computed surveys were considered. This was the case of the Flash Barometer 2004/2000 and 2010 Entrepreneurship in the EU and beyond: A survey in the EU, EFTA countries, Croatia, Turkey, the US, Japan, South Korea and China analytical report was also used to compute this study's survey. Many of the questions in the Flash Barometer are present in Grilo and Irigoyen (2006) research.

The survey computed gathers information about the student's age, gender, race, degree of study, School of study within ISCTE's Schools, entrepreneurial course experience and professional experience. It also includes questions that will be used to capture risk tolerance and the perception of the role of financial support and administrative procedures on entrepreneurial activity.

This research only uses an indicator of entrepreneurship, latent entrepreneurship, which aims to capture the population's entrepreneurial drive. This indicator is assessed through the following question, which provides the basis for our measure of entrepreneurial drive:

“Suppose you were working and could choose between different kinds of jobs. Which would you prefer: being an employee or being self-employed?”

Although, it is a simplified concept of entrepreneurship, this question is asked in the International Social Survey Program data set and in the Flash Barometer. The answer to this question can express a value judgment over the attractiveness associated with self-employment as independence, higher income and self-recognition, leading to a misleading idea. Additionally, the answer can hide a preference for self-employment within a specific type of business as some business can be more profitable than others. It would be best to have an indicator that captures these hidden preferences, although the usefulness of this question in evaluating the impact of the different explanatory variables on latent entrepreneurship remains unaffected.

The answers to the question will compute our dependent variable, Latent Entrepreneurship (LAT). LAT will be a binary dependent variable where “1” is equal to the students who chose the answer “being self-employed” and equal to “0”, when students answer “being an employee”. Table 3.3 shows the composition of the variable Latent Entrepreneurship (LAT).

Table 3.3. Binary Dependent Variable Latent Entrepreneurship

Variable		Frequency	Percentage
Latent Entrepreneurship	Being self-employed	299	57.390%
	Being an employee	222	42.610%
TOTAL		521	100.000%

In order to overcome the constraints of the question above, several questions were also taken from the Flash Eurobarometer and introduced in this study's survey regarding the reasons why the students answered "employee" or "self-employed". The purpose to add these questions was, mainly, to better comprehend the constraints perceived by the students in becoming self-employed whether they were related to financial security, employment stability, lack of entrepreneurial skills or lack of entrepreneurial role models, for instance.

Furthermore, it was important to understand, if the constraints of becoming self-employed could be overcome in the future, for instance in the next 5 years. Thus, other questions were taken from the Flash Eurobarometer to not only help us to better understand the student's perceptions of the constraints of becoming self-employed, but also to assess what limitations remain after the students, hypothetically, have gained work experience and some financial security.

In order to further explore the student's intentions to become entrepreneurs and its fears and degree of risk aversion, the survey intends to assess which are the main two risks or limitations students fear if they set up a business today. Student's perception regarding job security, lack of experience, financial and administrative constraints were also captured, by the following questions computed in scale (strongly agree, agree, disagree, and strongly disagree):

"Do you strongly agree, agree, disagree or strongly disagree with the following statements?"

- An employee has more job security than a self-employed.
- Being self-employed demands more professional experience than being an employee.
- It is difficult to start one's own business due to a lack of available financial support.
- It is difficult to start one's own business due to the complex administrative procedures.
- It is difficult to obtain sufficient information on how to start a business.

- One should not start a business if there is a risk it might fail.

As Grilo and Irigoyen (2006) did in their research, we also construct a dummy variable for each statement. The dummy variables will take the value “1” in the case of “strongly agree” or “agree” for the third, fourth and fifth statements. These variables intend to capture the perception students have of the existence of barriers regarding professional experience, job security, financial or administrative. To a large extent, the perception by students of these barriers are probably more influential in determining an individual’s willingness to become self-employed than the actual existence of such barriers. For the last statement, the risk tolerance dummy takes the value “1” if “disagree” or “strongly disagree”. In the absence of a robust measure, within this research, this variable will give useful information on how students perceived taking risks.

The answers to these six question will compute six of our control Variables, Perception of Security (PS), Perception of Entrepreneurial Experience (PEE), Perception of Financial Obstacles (PFO), Perception of Administrative Obstacles (PAO), Perception of Information Obstacles (PIO) and Risk Tolerance (RT). All six control variables will be binary variables. The first described five binary control variables are equal to “1”, when students answer “Agree” and “Strongly Agree” to the first five questions stated above and equal to “0”, otherwise. For RT, the variable is equal to “1”, when students answer “Disagree” or “Strongly disagree” to the last question stated above and equal to “0”, otherwise. Table 3.4 shows the composition of the variables Perception of Security, Perception of Entrepreneurial Experience, Perception of Financial Obstacles, Perception of Administrative Obstacles, Perception of Information Obstacles and Risk Tolerance.

Table 3.4. Binary Control Variables: Perception of Security, Perception of Entrepreneurial Experience, Perception of Financial Obstacles, Perception of Administrative Obstacles, Perception of Information Obstacles and Risk Tolerance

Variable		Frequency	Percentage
Perception of Security: "An employee has more job security than a self-employed"	Agree or Strongly Agree	417	80.038%
	Otherwise	104	19.962%
TOTAL		521	100.000%
Perception of Entrepreneurial Experience: "Being self-employed demands more professional experience than being an employee"	Agree or Strongly Agree	333	63.916%
	Otherwise	188	36.084%
TOTAL		521	100.000%
Perception of Financial Obstacles: "It is difficult to start one's own business due to lack of available financial support"	Agree or Strongly Agree	431	82.726%
	Otherwise	90	17.274%
TOTAL		521	100.000%
Perception of Administrative Obstacles: "It is difficult to start one's own business due to complex administrative procedures"	Agree or Strongly Agree	385	73.896%
	Otherwise	136	26.104%
TOTAL		521	100.000%
Perception of Information Obstacles: "It is difficult to obtain sufficient information on how to start a business"	Agree or Strongly Agree	210	40.307%
	Otherwise	311	59.693%
TOTAL		521	100.000%
Risk Tolerance: "One should not start a business if there is a risk it might fail"	Disagree or Strongly Disagree	399	76.583%
	Otherwise	122	23.417%
TOTAL		521	100.000%

One way to assess if specific courses will impact their entrepreneurial intentions is to understand if student's feel they have the primary skills and know-how needed to pursue such career and if it helped sparked their interest in pursuing self-employment. In studies such as Lucas (1978) is clear that managerial ability and a sense of initiative, a sort of entrepreneurial

attitude, is a crucial entrepreneurial precondition to succeed as an entrepreneur. Student's perception regarding the development of entrepreneurial skills, its role in spark an interest in pursuing a self-employed career and to succeed at it, were captured, by the following questions computed in scale (strongly agree, agree, disagree, strongly disagree) also present in Flash Eurobarometer Survey:

“Do you strongly agree, agree, disagree or strongly disagree with the following statements?”

- My school education helped me to develop my sense of initiative – a sort of entrepreneurial attitude.
- My school education made me interested to become an entrepreneur.
- My school education gave me skills and know-how that enable me to run a business.

As for the statements above, a control dummy variable was constructed for each statement. These variables intend to capture the perception students have of the effectiveness of their courses in their intention to pursue an entrepreneurial career path. The answers to these three question will compute three more control variables for our model, Perception of Entrepreneurial Skills 1 (PES1), Perception of Entrepreneurial Skills 2 (PES2) and Perception of Entrepreneurial Skills 3 (PES3). The PES dummy variables take the value “1” in the case of “strongly agree” or “agree” for each statement (For PES1, the first statement; For PES”, the second statement; and for PES3, the third statement) and equal to “0”, otherwise. Table 3.5 shows the composition of the PES1, PES2 and PES3 variables.

Table 3.5. Binary Control Variables: Perception of Entrepreneurial Skills 1, Perception of Entrepreneurial Skills 2 and Perception of Entrepreneurial Skills 3

Variable		Frequency	Percentage
Perception of Entrepreneurial Skills 1: "My school education helped me to develop my sense of initiative"	Agree or Strongly Agree	360	69.098%
	Otherwise	161	30.902%
TOTAL		521	100.000%
Perception of Entrepreneurial Skills 2: "My school education made me interested to become an entrepreneur"	Agree or Strongly Agree	221	42.418%
	Otherwise	300	57.582%
TOTAL		521	100.000%
Perception of Entrepreneurial Skills 3: "My school education gave me skills and know-how that enable me to run a business"	Agree or Strongly Agree	213	40.883%
	Otherwise	308	59.117%
TOTAL		521	100.000%

The questions regarding having a family member or friend who is an entrepreneur was inspired in several studies, which have shown that individuals who have family members or close friends who are entrepreneurs tend to be more likely to start their own business than those individuals who have not experienced the same level of exposure to entrepreneurship (Collins and Moore, 1970; Cooper and Dunkelberg, 1984).

The answers to the question regarding student's entrepreneurial role models will derive one more control variable, Entrepreneurial Role Models (ERM). ERM will be a binary dependent variable where "1" is equal to the students who have friends or family who are entrepreneurs and equal to "0", otherwise. Table 3.6 shows the composition of the Entrepreneurial Role Model variable.

Table 3.6. Binary Control Variable Entrepreneurial Role Model

Variable		Frequency	Percentage
Entrepreneurial Role Models	Yes	263	50.480%
	No	258	49.520%
TOTAL		521	100.000%

Regarding the question about past entrepreneurial experience through internships and entrepreneurial knowledge through courses, it were inspired in several previous researches (Krueger and Carsrud, 1993; McMullen and Shepherd, 2006; Shapero and Sokol, 1982), which studied entrepreneurship education and previous entrepreneurial experience together and found both as important motivators and contributors to the formation of entrepreneurial intentions.

The answers to the question concerning students past entrepreneurial experience through internships will originate one independent variable, Entrepreneurial Internships (EIN). EIN will be a binary dependent variable where “1” is equal to the students who completed internships in an entrepreneurial area whether during his/her master or undergraduate degree and equal to “0”, otherwise. Table 3.7 shows the composition of the Entrepreneurial Internships variable.

Table 3.7. Binary Independent Variable Entrepreneurial Internships

Variable		Frequency	Percentage
Entrepreneurial Internships	Yes	52	9.981%
	No	469	90.019%
TOTAL		521	100.000%

The answers to the question regarding student’s entrepreneurial knowledge gain through entrepreneurial courses will originate one independent variable, Entrepreneurial Courses (ECO). ECO will be a binary dependent variable where “1” is equal to the students who had entrepreneurial courses during his/her master or undergraduate degree and equal to “0”, otherwise. Table 3.8 shows the composition of the Entrepreneurial Courses variable.

Table 3.8. Binary Independent Variable Entrepreneurial Courses

Variable		Frequency	Percentage
Entrepreneurial Courses	Yes	217	41.651%
	No	304	58.349%
TOTAL		521	100.000%

3.2 Econometric Model

To pursue our goal, in this study, we will use a quantitative research method to determine the impact of formal education on youth latent entrepreneurship. Quantitative research method has been used in many studies of decision making (Blanchflower and Meyer, 1999; Lee *et al.*, 2005; Tackey and Perryman, 1999). These studies vary from research into student's entrepreneurship intentions (Grilo and Irigoyen, 2006), impact of type of school on youth entrepreneurship (Sobel and King, 2008) and the role of education in self-employment success (Kangasharju and Pekkala, 2001). Quantitative research method emphasizes objective measurements and the statistical, mathematical, or numerical analysis of data collected through polls, questionnaires, and surveys, or by manipulating pre-existing statistical data using computational techniques. It provides the researcher an opportunity to investigate the underlying structure of the decisions.

To perform our quantitative research, we used an econometric analysis using a Logit Model, a probabilistic model where the dependent variable is the probability of a student wanting to be self-employed.

Logistic regression is a variant of the regression model used for predicting the outcome of a categorical dependent variable (a dependent variable that takes on a limited number of categories) based on one or more predictor variables. As other forms of regression, logistic regression uses one or more predictor variables, which may be continuous or categorical. Logistic regression makes no assumptions about the distribution of the independent variables. Furthermore, independent variables do not have to be normally distributed, linearly related, or of equal variance within. In the case of this research, the independent variables are categorical, so they do not take on the normal characteristics of distribution, linearity or variance.

The logistic regression has two main uses. It can be used to predict group membership. The logistic regression is used to calculate the probability of success over the probability of failure,

which the results of the analysis are in the form of an odds ratio. In addition, it provides knowledge of the relationships and strengths among the variables.

In this research, logistic regression provides information about the probability of an individual pursuing self-employment given the field of studies and the degree of education, testing which type of education is more likely to lead to self-employment. In addition, logistic regression provides valuable knowledge about the impact on being self-employed when controlling for race, gender, age, their attitude towards risk, the entrepreneurial experience and their connection with friends or family who are entrepreneurs.

The methodology used in the next sections is the estimation of a logit equation relating the probability of revealing a preference for self-employment to various explanatory variables as estimated by Equation (3.1).

$$P(y = 1|X) = F(X) \quad (3.1)$$

Where $y = 1$ if the individual prefers self-employment and $= 0$ if the individual prefers employment and $X = (1, \text{gender, age, race, level of education, school, entrepreneurial courses, entrepreneurial internships, entrepreneurial role models, risk tolerance, perception of security, experience, financial, administrative, information obstacles and perception of entrepreneurial skills})$.

Blanchflower *et al.* (2001) provide a study using a similar approach which can be later compared with the results in this study. The main difference between the two models is that Blanchflower *et al.* (2001) estimate a preference and an actual status equation. Grilo and Irigoyen (2006) also estimated two equations, one regarding latent entrepreneurship and other regarding nascent entrepreneurship.

To conduct a robust analysis, we developed several hypotheses, which will be further transform in three models. The main goal of this research is to study the impact of entrepreneurial education on student's entrepreneurial intentions. Furthermore, as previous discussed, it would be interesting to better understand if entrepreneurial experience also impacts student's entrepreneurial intentions so as if students studying in different courses have different entrepreneurial intentions.

The following models and hypothesis were computed and analysed:

Schools impact model: Students studying in different courses have different entrepreneurial intentions.

Entrepreneurial courses model: Previous entrepreneurial courses impacts student's entrepreneurial intentions.

Entrepreneurial internships model: Previous entrepreneurial experience impacts student's entrepreneurial intentions.

Each of the models generated has been individually tested using various analytical tools through STATA/MP 2014 (Stata for multiprocessor computers) software.

3.3 Sample Selection

3.3.1 Dependent Variables

For this study, a dependent variable is identified including information relating to the respondent's intention to pursue a career in self-employment. The data set contains information about the individuals who intend to be self-employed. A total of 299 (57.390%) respondents indicate they want to be self-employed and a total of 222 (42.610%) respondents indicate they want to work as an employee.

As the dependent variable, we use a dummy variable named Latent Entrepreneurship (LAT), which represents the entrepreneurial intention. This variable is equal to "1", when a student intent to pursue an entrepreneurial career path and equal to "0", when a student does not intend to pursue an entrepreneurial career path. In order to better understand our research regarding the dependent variable, an overview description the variable used to perform our analysis is presented in Table 3.9, as well as its interpretation and how it will be introduced in the model.

Table 3.9. Dependent Variables

Variable Name	Description
Latent Entrepreneurship (LAT)	Dummy variable that is equal to "1", when a student intent to pursue an entrepreneurial career path and equal to "0", when a student does not intend to pursue an entrepreneurial career path.

3.3.2 Independent Variables

The data set contains information about the respondent's type of education, respondent's entrepreneurial education and their previous entrepreneurial experience. For a sample of 521 respondents, a total of total of 235 (45.106%) respondents indicate they are studying in ISCTE Business School (IBS), 106 (20.345%) in School of Social and Human Sciences (ECSH), 90

(17.274%) in School of Sociology and Public Policy (ESPP) and 90 (17.274%) in School of Technology and Architecture (ISTA).

To obtain the complete information, variables are transformed and combined into dummy variables. School (SCH) describes the school in which the individuals currently study. Entrepreneurial courses (ECO) is a dummy variable which defines if a student has had entrepreneurial courses in his/her degree path (when it is equal to “1”) or not (when it is equal to “0”). Entrepreneurial Internships (EIN) aims to define if the students have entrepreneurial experience (when it is equal to “1”) or not (when it is equal to “0”).

All independent variables used to perform our analysis are described in Table 3.10, as well as its interpretation and how they will be introduced in the model.

Table 3.10. Independent Variables

Variable Name		Description
Educational Characteristics	School (SCH)	Four dummy variables (SCH1, SCH2, SCH3 and SCH4). SCH1 is equal to “1”, when a student is a student of ECSH and otherwise equal to “0”. SCH2 is equal to “1”, when a student is a student of ESPP and otherwise equal to “0”. SCH3 is equal to “1”, when a student is a student of ISTA and otherwise equal to “0”. SCH4 is equal to “1”, when a student is a student of IBS and otherwise equal to “0”.
	Entrepreneurial courses (ECO)	Dummy variable that is equal to “1”, when a student has had entrepreneurial courses and to “0”, when a student did not had entrepreneurial courses during its master/undergraduate degree.
Professional Background	Entrepreneurial Internships (EIN)	Dummy variable that is equal to “1”, when a student has pursued an internship on entrepreneurship and to “0”, when a student did not pursue an internship on entrepreneurship during its master/undergraduate degree.

3.3.3 Control Variables

As other studies, in this research, twelve generic control variables are included for this study: gender, race, age, level of education, entrepreneurial role models, perception of security,

perception of entrepreneurial experience, perception of financial obstacles, perceptions of administrative obstacles, perceptions of information obstacles, risk tolerance and perception of entrepreneurial skills 1, 2 and 3.

Race is recoded to create a categorical variable defining white and not white. Gender is recoded to create a categorical variable defining male or female. Age is also a control variable, the only one which was not recoded, describing the student's age, in years, between 18 and 30 years old.

A fourth control variable, level of education, is included to control for the effects of the level of education. The data originally identified each level of education, from a master to an undergraduate degree. A dummy variable titled 'LEV' is recoded as follows: students who are master students (when it is equal to "1") or undergraduate students (when it is equal to "0"). A fifth control variable, Entrepreneurial Role Models (ERM), was recoded to create a categorical variable defining students who have entrepreneurial family members or friends (when it is equal to "1") or those who do not have entrepreneurial family members or friends (when it is equal to "0"). Level of education and Entrepreneurial Role Models are key variables for this study, therefore, it is appropriate to control for these variables to look for influence in the regression outputs.

In addition, Perception of Security (PS) is recoded to create a categorical variable defining the student's perception of security by asking a question regarding the difference of job security on employees and self-employed individuals. Perception of Entrepreneurial Experience (PEE) is also recoded to generate a categorical variable concerning student's perception of the role of entrepreneurial experience in becoming self-employed. Perception of Financial Obstacles (PFO), Perception of Administrative Obstacles (PAO) and Perception of Information Obstacles (PIO) are recoded to develop three categorical variables regarding student's perception of the difficulty to start a business given the lack of financial support, complex administrative procedures and the lack of information available about starting a business.

Furthermore, Risk Tolerance (RT) is also recoded to create a categorical variable defining the student's attitude towards risk by asking a question regarding the risk of starting a business that might fail.

Finally, Perception of Entrepreneurial Skills (PES) is recoded to create a categorical variable defining the student's perception of entrepreneurial skills and its value regarding their development, interest in an entrepreneurial career and capacity to run a business.

All independent variables, used to perform our analysis, are described in Table 3.11, as well as its interpretation and how they will be introduced in the model.

Table 3.11 Control Variables

Variable Name		Description
Individual Characteristics	Gender	Dummy variable that is equal to “1”, when a student is a male student and to “0”, when a student is a female student.
	Race	Dummy variable that is equal to “1”, when a student is Caucasian, “0” when a student is not Caucasia.
	Age	Variable describing the student’s age, in years, between 18 and 30 years old.
Educational Characteristics	Level of education (LEV)	Dummy variable that is equal to “1”, when a student is a master student and to “0”, when a student is an undergraduate student.
Aggregate Characteristics	Entrepreneurial Role Models (ERM)	Dummy variable that is equal to “1”, when a student has friends or family who are entrepreneurs and to “0”, when a student does not have friends or family who are entrepreneurs.
	Perception of Security (PS)	Dummy variable that is equal to “1”, when a student has respond “Agree” or “Strongly Agree” to the question: “An employee has more job security than a self-employed”. Otherwise, is equal to “0”.
	Perception of Entrepreneurial Experience (PEE)	Dummy variable that is equal to “1”, when a student has respond “Agree” or “Strongly Agree” to the question: “Being self-employed demands more professional experience than being an employee”. Otherwise, is equal to “0”.
	Perception of Financial Obstacles (PFO)	Dummy variable that is equal to “1”, when a student has respond “Agree” or “Strongly Agree” to the question: “It is difficult to start one’s own business due to a lack of available financial support”. Otherwise, is equal to “0”.

	Perception of Administrative Obstacles (PAO)	Dummy variable that is equal to “1”, when a student has respond “Agree” or “Strongly Agree” to the question: “It is difficult to start one’s own business due to the complex administrative procedures”. Otherwise, is equal to “0”.
	Perception of Information Obstacles (PIO)	Dummy variable that is equal to “1”, when a student has respond “Agree” or “Strongly Agree” to the question: “It is difficult to obtain sufficient information on how to start a business”. Otherwise, is equal to “0”.
	Risk Tolerance (RT)	Dummy variable that is equal to “1”, when a student has respond “Disagree” or “Strongly Disagree” to the questions: “One should not start a business if there is a risk it might fail”. Otherwise, is equal to “0”.
	Perception of Entrepreneurial Skills (PES)	Three dummy variables (PES1, PES2 and PES3). PES1 is equal to “1”, when a student has respond “Agree” or “Strongly Agree” to the questions: “My school education helped me to develop my sense of initiative.” (a sort of entrepreneurial attitude), otherwise is equal to “0”. PES2 is equal to “1”, when a student has respond “Agree” or “Strongly Agree” to the question: “My school education made me interested to become an entrepreneur.”, otherwise equal to “0”. PES3 is equal to “1”, when a student has respond “Agree” or “Strongly Agree” to the questions: “My school education gave me skills and know-how that enable me to run a business.”, otherwise is equal to “0”.

Chapter 4. Result Analysis

In this chapter, we will present and analyse the scenarios and models discussed in the previous chapter. Both simulation and practical results are analysed and the resulting models are defined. The models and its results are compared with data from theoretical framework presented in the literature review, and the values obtained are presented.

4.1 Model Definition

In order to design a model for the evaluation of the described hypothesis, one has to define the adequacy of an econometric model to provide a ground for comparison with theoretical results obtain with previous researches described in Chapter 2.

As Parker (2009) states, “binary limited dependent models are especially widely used in entrepreneurship research”, being the two most common binary models, the probit and logit regressions. Binary models are often used to model entrepreneurship as a professional choice, such as in our model. If we consider our two occupations denoted by j : self-employment, E , and paid employment, P and its vector of observed characteristics W_i , we can derive an utility $U_{ij} = U(W_{i,j}) + u_{i,j}$ if they work in occupation j , where U is the utility and u_{ij} is the idiosyncratic unobserved utility. If we denote by z_i the latent variable which measures the utility benefit to i of being in occupation E relative to P . That is,

$$z_i = U(W_i, E) - U(W_i, P) + u_{iE} - u_{iP}, \quad i = 1, \dots, n \quad (4.1)$$

Assuming that U is linear, taking the form $U(W_i, j) = \beta'_j W_i$, where β_j are vectors of coefficients, then we can write in matrix forma as

$$z_i = \alpha + \beta' W_i + v_i, \quad i = 1, \dots, n \quad (4.2)$$

where $\beta' = \beta'_E - \beta'_P$ is another vector of coefficients; $\alpha = E[u_{iE} - u_{iP}]$ is an intercept and $v_i = u_{iE} - u_{iP} - \alpha \sim IIN(0, \sigma^2)$ is a disturbance term. Thereby, the intercept term is incorporated in W_i as a column of ones, so β will be treated as the complete set of coefficients.

Individual i chooses self-employment over paid employment if $z_i \geq 0$. Hence, defining the observable binary professional indicator variable as

$$Z_i = \begin{cases} 1 & \text{if individual } i \text{ is observed in } E, \text{ i.e., if } z_i \geq 0 \\ 0 & \text{if individual } i \text{ is observed in } P, \text{ i.e., if } z_i < 0 \end{cases}$$

Therefore the probability that an individual is observed to be a self-employed in a representative sample, with characteristic vector W_i , is

$$Pr(Z_i = 1) = Pr(z_i \geq 0) \quad (4.3)$$

The logit model arises if the distribution function of v_i is assumed to be that of the logistic distribution, in which case (4.3) becomes

$$Pr(Z_i = 1) = \frac{\exp\{\beta'W_i\}}{1+\exp\{\beta'W_i\}} \quad (4.4)$$

Both logit and probit dominate OLS estimation of $Z_i = \beta'W_i + v_i$, since OLS (ordinary least squares) is an inefficient and heteroscedastic estimator in this context, and problematically can predict probabilities outside the unit interval. Such models are often estimated by OLS, however, if the dependent variable, independent and control variables are binary variables, such models must be estimated by Logit regression or Probit regression.

Thus, our logit model written in matrix form, taking the form of equation (4.2) becomes

$$\begin{aligned} LAT_i = & \alpha + \beta(Gender_i + Race_i + Age_i + SCH1_i + SCH2_i + SCH3_i + SCH4_i + ECO_i + \\ & EIN_i + LEV_i + ERM_i + PS_i + PEE_i + PFO_i + PAO_i + PIO_i + RT_i + PES1_i + PES2_i + \\ & PES3_i) + v_i \quad i = 1, \dots, 521 \end{aligned} \quad (4.5)$$

where LAT_i is the binary continuous variable, X_i is our set of regressors (including a column of ones for an intercept), α is our constant variable, β is a vector of parameters to be estimated, and v_i is a random disturbance, assumed to be normally distributed. Each observation is denoted by i the sample size is n (which in our case is 521).

4.2 Hypothesis Definition

The main purpose of this research is to study the impact of different education backgrounds on student's entrepreneurial intentions. Additionally, as discussed in the previous chapter, given the data we gathered, we intent to better understand if having previous entrepreneurial experience and if having entrepreneurial courses during their undergraduate or master degree impact student's entrepreneurial intentions. To conduct these analysis, several models were

developed. Each of the models generated has been individually tested using various analytical tools through STATA/MP 2014 software.

The following models and its hypothesis were generated, computed and analysed:

School impact model: Students studying in different courses have different entrepreneurial intentions.

The school impact model written in matrix form, taking the form of equation 4.5 becomes

$$LAT_i = \alpha + \beta(Gender_i + Race_i + Age_i + SCH1_i + SCH2_i + SCH4_i + LEV_i + ERM_i + PS_i + PEE_i + PFO_i + PAO_i + PIO_i + RT_i + PES1_i + PES2_i + PES3_i) + v_i \quad i = 1, \dots, 521 \quad (4.6)$$

where LAT_i is the binary continuous variable, X_i is our set of regressors (including a column of ones for an intercept), α is our constant variable, β is a vector of parameters to be estimated, and v_i is a random disturbance, assumed to be normally distributed. Each observation is denoted by i the sample size is n (which in our case is 521).

The school impact model represents our main purpose of study in this research, analysing if different educational backgrounds originate different entrepreneurial intentions in the case of our sample of students from ISCTE. In this model, the dependent variable is LAT (latent entrepreneurship), a binary variable which represents our sample's intention of being entrepreneur (when equal to "1") or not (when equal to "0"). The explanatory variables used in the analysis of this model are SCH1, SCH2, SCH3 and SCH4. Each of these binary variables represent the ISCTE's schools, ECSH for SCH1, ESPP in the case of SCH2 and IBS in the case of SCH4. The variable School 3 (ISTA) was omitted because of collinearity. Finally, as control variables we use Gender, Race, Age, LEV (Level of Education), ERM (Entrepreneurial Role Models), PS (Perception of Security), PEE (Perception of Entrepreneurial Experience), PFO (Perception of Financial Obstacles), PAO (Perception of Administrative Obstacles), PIO (Perception of Information Obstacles, RT (Risk Tolerance), PES1 (Perception of Entrepreneurial Skills – Sense of Initiative), PES2 (Perception of Entrepreneurial Skills – Become Entrepreneur) and PES3 (Perception of Entrepreneurial Skills – Know-how).

Entrepreneurial courses model: Previous entrepreneurial courses impacts student's entrepreneurial intentions.

The entrepreneurial courses model written in matrix form, taking the form of equation 4.5 becomes

$$LAT_i = \alpha + \beta(Gender_i + Race_i + Age_i + ECO_i + LEV_i + ERM_i + PS_i + PEE_i + PFO_i + PAO_i + PIO_i + RT_i + PES1_i + PES2_i + PES3_i) + v_i \quad i = 1, \dots, 521 \quad (4.7)$$

where LAT_i is the binary continuous variable, X_i is our set of regressors (including a column of ones for an intercept), α is our constant variable, β is a vector of parameters to be estimated, and v_i is a random disturbance, assumed to be normally distributed. Each observation is denoted by i the sample size is n (which in our case is 521).

The entrepreneurial courses model was generated in order to analyse if having entrepreneurial courses during student's undergraduate or master degree affects their entrepreneurial intentions. To perform this analysis we also use the binary dependent variable LAT. The explanatory variable used in the analysis of this model is ECO (Entrepreneurial Courses), a binary variable that is equal to "1", when a student has had entrepreneurial courses and to "0", when a student did not had entrepreneurial courses during its master/undergraduate degree. In this case, the control variables are the same as in the previous analysis as we use Gender, Race, Age, LEV, ERM, PS, PEE, PFO, PAO, PIO, RT, PES1, PES2 and PES3.

Entrepreneurial internships model: Previous entrepreneurial experience impacts student's entrepreneurial intentions.

The entrepreneurial internships model written in matrix form, taking the form of equation 4.5 becomes

$$LAT_i = \alpha + \beta(Gender_i + Race_i + Age_i + EIN_i + LEV_i + ERM_i + PS_i + PEE_i + PFO_i + PAO_i + PIO_i + RT_i + PES1_i + PES2_i + PES3_i) + v_i \quad i = 1, \dots, 521 \quad (4.8)$$

where LAT_i is the binary continuous variable, X_i is our set of regressors (including a column of ones for an intercept), α is our constant variable, β is a vector of parameters to be estimated, and v_i is a random disturbance, assumed to be normally distributed. Each observation is denoted by i the sample size is n (which in our case is 521).

By computing entrepreneurial internships model, our goal was to study the impact of previous entrepreneurial experience on our sample's entrepreneurial intentions. To perform this analysis

we once again use the binary dependent variable LAT. The explanatory variable used in the analysis of this model is EIN (Entrepreneurial Internships), a binary variable that is equal to “1”, when a student has pursued an internship on entrepreneurship and to “0”, when a student did not pursue an internship on entrepreneurship during its master/undergraduate degree. In this case, the control variables are the same as in the previous analysis as we use Gender, Race, Age, LEV, ERM, PS, PEE, PFO, PAO, PIO, RT, PES1, PES2 and PES3.

Table 4.1, below, was created to better understand the three models present in our research describing its main characteristics.

Table 4.1. Models' Characteristics

Models	Dependent Variables	Explanatory Variables	Control Variables
Schools impact model: Students studying in different courses have different entrepreneurial intentions	LAT	SCH1, SCH2, SCH3 and SCH4	Gender, Race, Age, LEV, ERM, PS, PEE, PFO, PAO, PIO, RT, PES1, PES2 and PES3
Entrepreneurial courses model: Previous entrepreneurial courses impacts student's entrepreneurial intentions.	LAT	ECO	Gender, Race, Age, LEV, ERM, PS, PEE, PFO, PAO, PIO, RT, PES1, PES2 and PES3
Entrepreneurial internships model: Previous entrepreneurial experience impacts student's entrepreneurial intentions.	LAT	EIN	Gender, Race, Age, LEV, ERM, PS, PEE, PFO, PAO, PIO, RT, PES1, PES2 and PES3

4.3 Results

4.3.1 Basic Model

For the purpose of this work, and taking the characteristics of our variables into account, one has considered the regression model (4.5) and estimated by Logit regression. Its results are present in Table 4.2.

Table 4.2. Binary logistic Regression Results for Basic Model

Variable	P-Value	Std. Err.	Odds Ratio	Predictive Margin ¹
Cons.	0.000	0.017	0.014	-
Gender	0.039**	0.367	1.605	0.620
Race	0.669	0.275	0.873	0.571
Age	0.000***	0.059	1.191	-
Entrepreneurial Courses	0.030**	0.147	0.575	0.518
Entrepreneurial Internships	0.654	0.490	1.201	0.601
School 1	0.932	0.366	0.968	0.570
School 2	0.076*	0.194	0.508	0.479
School 4	0.481	0.435	1.272	0.596
Level of Education	0.355	0.222	0.764	0.556
Entrepreneurial Role Models	0.483	0.271	1.176	0.587
Perception of Security	0.000***	0.086	0.278	0.533
Perception of Entrepreneurial Experience	0.000***	0.629	2.604	0.630
Perception of Financial Obstacles	0.932	0.355	1.030	0.575
Perception of Administrative Obstacles	0.213	0.416	1.434	0.589
Perception of Information Obstacles	0.001***	0.109	0.418	0.484
Risk Tolerance	0.000***	0.938	3.434	0.625
Perception of Entrepreneurial Skills 1	0.048**	0.162	0.569	0.542
Perception of Entrepreneurial Skills 2	0.000***	2.944	9.758	0.795
Perception of Entrepreneurial Skills 3	0.112	0.186	0.622	0.526
No. Observation	521			
Log-likelihood	-261.671			
Pseudo R2	0.264			

Notes: (1) The reference category is: female, non-Caucasian, age lower than 18 and higher than 30, students who did not had courses related to Entrepreneurship, students who did not had internships related to entrepreneurship, students from ISTA, undergraduates, who do not have friends or family who are entrepreneurs, who “Disagree” or “Strongly disagree” with the sentences “An employee has more job security than a self-employed”, “Being self-employed demands more professional experience than being an employee”, “It is difficult to start a business due to lack of available information”, “It is difficult to start a business due to complex administrative procedures”, “It is difficult to obtain sufficient information on how to start a business”, “My school education helped me developing my sense of initiative”, “My school education made me interested in becoming self-employed”, “My school education gave me skills and know-how that enable me to run a business” and who “Agree” or “Strongly Agree”

¹ Predictive Margin for binary variables, when equal to 1.

with the sentence “One should not start a business if there is a risk it might fail”. (2) *, **, *** significant at 10%, 5% and 1%, respectively. (3) For more detail see Annex B1 and B2.

For the basic model the dependent variable is whether a student intends to become self-employed or not. The following control variables are used for testing: Gender, Race, Age, Level of Education, Entrepreneurial Role Models, Perception of Security, Perception of Entrepreneurial Experience, Perception of Financial Obstacles, Perception of Administrative Obstacles, Perception of Information Obstacles, Risk Tolerance, Perception of Entrepreneurial Skills 1 (if the student’s school education developed a sense of initiative), Perception of Entrepreneurial Skills 2 (if the student’s school education has sparked him/her the interest in becoming entrepreneur) and Perception of Entrepreneurial Skills 3 (if the student’s school education contributed to his/her know-how to run a business). The independent variables are three binary variable, the type of School enrolled: ECSH, ESPP, or IBS (once again the variable SCH3 was omitted due to collinearity); the variable Entrepreneurial Courses: whether the students had or not entrepreneurial courses and the variable Entrepreneurial Internships: whether the students took or not internships in the entrepreneurial area.

The logistic regression analysis is carried out by the binary logistic procedure in Stata. In the analysis of the basic model, one found the need to analyse the results regarding values from the independent variable and control variables.

The independent variable, Entrepreneurial Courses, represent two groups of students within the variable: 1- Students who had entrepreneurial courses during their Master/Undergraduate degree and 0-Students who had not entrepreneurial courses during their Master/Undergraduate degree. According to our results, a student who had not entrepreneurial courses has a higher probability than a student who had entrepreneurial courses of wanting to pursue self-employment. The odds of students who had entrepreneurial courses wanting to become self-employed are 0.575 times greater than the odds for students who hadn’t entrepreneurial courses wanting to become self-employed. These findings for this variable are statistically significant ($p < 0.05$). The odds ratio for Entrepreneurial Internships indicates that the odds of the students who had internships within an entrepreneurial area to wish to become self-employed are 1.201 greater than for students who do not had entrepreneurial internships during their academia path. However, the findings for this variable are not statistically significant ($p > 0.05$). For the all independent variable, School 1, School 2 and School 4, we can conclude that the odds of students from ISCTE Business School to wish to become self-employed are 1.272 times greater

than students from all other Schools. However, these findings are only statistically significant ($p < 0.10$) for variable School 2.

Controlling for other variables, male students have a 62.028 percent probability of wanting to become self-employed versus females with a 54.176 percent probability of intending to become self-employed, and is statistically significant ($p < 0.05$). Meaning, the odds of male students preferring to be self-employed are 1.605 times greater than the odds for women students preferring to become self-employed. For the variable Age, one can conclude that for a one unit increase in Age, the odds of a student wanting to be self-employed increase by a factor of 1.191 ($p < 0.05$). Regarding the variable Perception of Security, one can conclude that students who believe that employees have more job security than self-employed people have a probability of 53.275 percent of wishing to pursue a career in entrepreneurship against a 73.136 percent probability for students who do not agree that employees have more job security compared with self-employed people. The results for this variable are statistically significant ($p < 0.05$). Students who believe that professional experience is more crucial for self-employers to succeed than for employees are 63.038 percent more likely to pursue a self-employed career, against a 46.615 percent chance for those students who disagree with the importance of professional experience for self-employers and employees ($p < 0.05$). Regarding the difficulty of starting a business due to lack of information (Perception of Information Obstacles), the findings reveal that students who disagree with this struggle are 63.536 percent willing to pursue an entrepreneur career against a 48.388 percent for those who agree. The conclusions for this variable are statistically significant ($p < 0.05$). Analysing the control variable, Risk Tolerance, the odds of those students who disagreed or strongly disagreed about one should not starting a business if there is a risk it might fail wishing a career in self-employment are 3.434 times greater than those who did not disagree or strongly disagree of one should not starting a business if there is a risk it might fail wishing a career in self-employment. These findings for this variable are statistically significant ($p < 0.05$). Concerning the variable Perception of Entrepreneurial Skills 1, those students who agree to have developed a sense of initiative during their academia path are 54.192 percent willing to be self-employed versus a 63.431 percent chance of wanting to become self-employed for those who disagree. This result is statistically significant ($p < 0.05$), which conclude that sense of initiative may not be so important for the intention of a student to become self-employed. When analysing the control variable, Perception of Entrepreneurial Skills 2, we conclude that the odds of the students who believe that their educational background made them interested in becoming self-employed actually

wish to become self-employed are 9.758 times greater than the students who do not believe that their educational background made them interested in becoming self-employed actually wish to become self-employed.

Regarding the variables that are not statistically significant, one might highlight the findings of the variables Race, Level of Education, Perception of Entrepreneurial Skills 3 and Entrepreneurial Role Models. Concerning the variable Race, a Caucasian student has around 57.064 percent chance of wanting to pursue a career, while a non-Caucasian student has about 59.296 percent probability to want to become self-employed. These outcomes are not what we expected from the literature, however this variable's results are not statistically significant ($p > 0.05$). The same happened with the results concerning the Level of Education as master students have a 55.563 percent chance of intending to become self-employed versus a 59.943 percent chance for undergraduate students. Although the literature on this subject is not yet settled, it was expected that master students had a higher probability to be willing to be self-employed. However, these results are not statistically significant ($p > 0.05$). Regarding the control variable Perception of Skills 3, students who agree that their school education gave them skills and know-how that enable them to run a business have a 52.588 percent chance to be willing to be self-employed. In this case, the students who disagreed, have a higher probability, 60.230 percent, to be willing to be self-employed. These results do not represent what one might expect as students with higher know-how and skills to run a business should be the ones to be willing to do it. However, these findings are not statistically significant ($p > 0.05$). The odds ratio for Entrepreneurial Role Models indicates that the odds of the students who have entrepreneurial models to wish to become self-employed are 1.176 greater than for students who do not have entrepreneurial friends or family. These findings are exactly what we expected, however, the findings for this variable are not statistically significant ($p > 0.05$).

4.3.2 Schools Impact Model

For the purpose of this work, and taking the characteristics of our variables into account, one has considered the regression model (4.6) and estimated by Logit regression. Its results are present in Table 4.3.

Table 4.3. Binary logistic Regression Results for the Schools Impact Model

Variables	P-Value	Std. Err.	Odds Ratio	Predictive Margin ²
Cons.	0.000	0.016	0.014	-
Gender	0.051*	0.354	1.558	0.618
Race	0.617	0.271	0.853	0.570
Age	0.000***	0.058	1.189	-
School 1	0.792	0.341	0.905	0.561
School 2	0.084*	0.197	0.521	0.483
School 4	0.611	0.404	1.189	0.590
Level of Education	0.255	0.207	0.721	0.551
Entrepreneurial Role Models	0.620	0.255	1.120	0.583
Perception of Security	0.000***	0.090	0.294	0.534
Perception of Entrepreneurial Experience	0.000***	0.638	2.647	0.632
Perception of Financial Obstacles	0.800	0.366	1.089	0.576
Perception of Administrative Obstacles	0.178	0.422	1.471	0.591
Perception of Information Obstacles	0.001**	0.107	0.411	0.481
Risk Tolerance	0.000***	0.927	3.425	0.626
Perception of Entrepreneurial Skills 1	0.030**	0.153	0.541	0.538
Perception of Entrepreneurial Skills 2	0.000***	2.611	8.878	0.791
Perception of Entrepreneurial Skills 3	0.084	0.177	0.602	0.522
No of Observations	521			
Log-likelihood	-264.081			
Pseudo R2	0.257			

Notes: (1) The reference category is female, non-Caucasian, age lower than 18 and higher than 30, student from ISTA, undergraduate, who do not have friends or family who are entrepreneurs, who answered “Disagree” or “Strongly Disagree” to the sentences “An employee has more job security than a self-employed”, “Being self-employed demands more professional experience than being an employee”, “It is difficult to start a business due to lack of available information”, “It is difficult to start a business due to complex administrative procedures”, “It is difficult to obtain sufficient information on how to start a business”, “My school education helped me developing my sense of initiative”, “My school education made me interested in becoming self-employed” and “My school education gave me skills and know-how that enable me to run a business” and who answered “Agree” or “Strongly Agree” with the sentence “One should not start a business if there is a risk it might fail”. (2) *, **, *** significant at 10%, 5% and 1%, respectively. (3) For more details see Annex B3 and B4.

² Predictive Margin for binary variables, when equal to 1.

For the schools impact model, the dependent variable is also whether students have different intention to become self-employed or not. The model predicts whether students studying in different courses have different entrepreneurial intentions. The following control variables are used for testing the school impact model: Gender, Race, Age, Level of Education, Entrepreneurial Role Models, Perception of Security, Perception of Entrepreneurial Experience, Perception of Financial Obstacles, Perception of Administrative Obstacles, Perception of Information Obstacles, Risk Tolerance, Perception of Entrepreneurial Skills 1 (if the student's school education developed a sense of initiative), Perception of Entrepreneurial Skills 2 (if the student's school education developed interest in becoming entrepreneur) and Perception of Entrepreneurial Skills 3 (if the student's school education developed know-how to run a business). The independent variables are three binary variable, the type of School enrolled: School 1 (ECSH), School 2 (ESPP) and School 4 (IBS). The variable School 3 (ISTA) was omitted because of collinearity. A seventeen predictor logistic model is fitted to the data to test the school impact model. The logistic regression analysis is carried out by the binary logistic procedure in Stata.

According to the model, the probability of an IBS student wishing to become self-employed is 59.020 percent versus a 56.096 percent probability of student from other school wanting to grow into self-employed. Nevertheless, this outcomes are not statistically significant ($p > 0.05$). Although the probability of a student from ECSH intending to be self-employed is lower than students from the other ISCTE's schools, which are in accordance with the outcome for IBS students above, they are also not statistically significant ($p > 0.05$). Although the probability of a student from ESPP to intend to be self-employed is less than for students from the other schools, this result is only statistically significant at 10%. These results show that different schools have different intentions when it comes to be self-employed, however it does not support the hypothesis of the schools impact model since the outcomes are not statistically significant ($p > 0.05$).

Considering the discrete variable Age, the model predicts that for a one unit increase in Age, the odds of a student wanting to be self-employed increase by a factor of 1.189 ($p < 0.05$). For the variable Perception of Security, the outcome specify that students who believe that employees have more job security than self-employed people have a probability of 53.437 percent of wishing to pursue a career in entrepreneurship against a 72.726 percent probability for students who do not agree that employees have more job security compared with self-employed people. These results are statistically significant ($p < 0.05$). The outcome for the

variable Perception of Entrepreneurial Experience reveal that the odds for students who believe that professional experience is more crucial for self-employers to succeed than for employees to pursue a self-employed career are 2.647 times greater than for those students who disagree with the importance of professional experience for self-employers and employees ($p < 0.05$). Concerning the difficulty of starting a business due to lack of information (Perception of Information Obstacles), students who disagree with this struggle are 48.084 percent willing to pursue an entrepreneur career against a 63.716 percent for those who agree. This variable's outputs are statistically significant ($p < 0.05$). For the control variable, Risk Tolerance, the odds of those students who disagreed or strongly disagreed about one should not starting a business if there is a risk it might fail wishing a career in self-employment are 3.425 times greater than those who did not disagree or strongly disagree of one should not starting a business if there is a risk it might fail wishing a career in self-employment. These findings for this variable are statistically significant ($p < 0.05$). One can conclude about the Perception of Entrepreneurial Skills 1, that those students who agree to have developed a sense of initiative during their academia path are 53.849 percent willing to be self-employed versus a 63.973 percent chance for those who disagree. This result is statistically significant ($p < 0.05$). By analysing the control variable, Perception of Entrepreneurial Skills 2, the output shows that the odds of the students who believe that their educational background made them interested in becoming self-employed actually wish to become self-employed are 8.878 times greater than the students who do not believe that their educational background made them interested in becoming self-employed actually wish to become self-employed ($p < 0.05$).

Regarding the variables that are not statistically significant, one might highlight the findings of the variables Gender, Entrepreneurial Role Model, Race, Level of Education and Perception of Entrepreneurial Skills 3. Controlling for other variables, the odds of male students preferring to be self-employed are 1.558 times greater than the odds for women students preferring to become self-employed. However these results were the expected ones according to the literature, they are only statistically significant at 10%, not for 5% ($p > 0.05$). The odds ratio for Entrepreneurial Role Models indicate that the odds for students who have entrepreneurial role models to wish to be self-employed are 1.120 greater than for students who do not have entrepreneurial friends or family. As in the basic model, these results were expected, however in this case, they are not statistically significant ($p > 0.05$). For the variable Race, a Caucasia student has around 57.014 percent chance of wanting to pursue an entrepreneurial career, while a non-Caucasian student has about 59.659 percent probability to intend to be self-employed. As

in the basic model, higher probability for Caucasian students were expected, nonetheless, this variable's output are not statistically significant ($p > 0.05$). Regarding the Level of Education, the results are similar to the basic model. A master students have a 55.144 percent chance of intending to pursue a career as self-employed versus a 60.505 percent chance for undergraduate students. Higher probability for master students were expected, even though the literature is not solid on this subject. Nevertheless, these results are not statistically significant ($p > 0.05$). For the control variable Perception of Skills 3, students who agree that their school education gave them skills and know-how that enable them to run a business have a 52.212 percent chance to intend to be self-employed. In this case, the students who disagreed, have a higher probability, 60.446 percent, to be willing to be self-employed. As previously discussed, this results do not make much sense, since students with a perceptions of entrepreneurial skills would be more willing to be entrepreneurs, this might explain the fact that these results are not statistically significant ($p > 0.05$).

4.3.3 Entrepreneurial Courses Model

For the purpose of this work, and taking the characteristics of our variables into account, one has considered the regression model (4.7) and estimated by Logit regression. Its results are present in Table 4.4.

Table 4.4. Binary logistic Regression Results for Entrepreneurial Courses Model

Variables	P-Value	Std. Err.	Odds Ratio	Predictive Margin ³
Cons.	0.001	0.021	0.018	-
Gender	0.042**	0.353	1.577	0.619
Race	0.692	0.277	0.883	0.571
Age	0.001**	0.055	1.168	-
Entrepreneurial Courses	0.073*	0.158	0.645	0.529
Level of Education	0.952	0.267	0.984	0.573
Entrepreneurial Role Models	0.473	0.268	1.177	0.588
Perception of Security	0.000***	0.089	0.299	0.534
Perception of Entrepreneurial Experience	0.000***	0.600	2.529	0.630
Perception of Financial Obstacles	0.872	0.348	1.054	0.575
Perception of Administrative Obstacles	0.203	0.409	1.437	0.590
Perception of Information Obstacles	0.000***	0.101	0.400	0.476
Risk Tolerance	0.000***	0.924	3.410	0.625
Perception of Entrepreneurial Skills 1	0.024**	0.149	0.530	0.538
Perception of Entrepreneurial Skills 2	0.000***	2.986	10.012	0.800
Perception of Entrepreneurial Skills 3	0.170	0.195	0.670	0.533
No of observations	521			
Log-likelihood	-265.880			
Pseudo R2	0.252			

Notes: (1) The reference category is female, non-Caucasian, age lower than 18 and higher than 30, who do not have courses related to Entrepreneurship, undergraduate, who do not have friends or family who are entrepreneurs, who answered “Disagree” or “Strongly Disagree” to the sentences “An employee has more job security than a self-employed”, “Being self-employed demands more professional experience than being an employee”, “It is difficult to start a business due to lack of available information”, “It is difficult to start a business due to complex administrative procedures”, “It is difficult to obtain sufficient information on how to start a business”, “My school education helped me developing my sense of initiative”, “My school education made me interested in becoming self-employed”, “My school education gave me skills and know-how that enable me to run a business” and who answered “Agree” or “Strongly Agree” to the sentence “One should not start a business if there is a risk it might fail”. (2) *, **, *** significant at 10%, 5% and 1%, respectively. (3) For more details see Annex B5 and B6.

³ Predictive Margin for binary variables, when equal to 1.

For the entrepreneurial courses model the dependent variable is, as in the previous models, whether students have different intention to become self-employed or not. The model predicts whether students who had entrepreneurial courses during their undergraduate or master degree have different entrepreneurial intentions. The following control variables are used for testing the entrepreneurial courses model: Gender, Race, Age, Level of Education, Entrepreneurial Role Models, Perception of Security, Perception of Entrepreneurial Experience, Perception of Financial Obstacles, Perception of Administrative Obstacles, Perception of Information Obstacles, Risk Tolerance, Perception of Entrepreneurial Skills 1 (if the student's school education developed a sense of initiative), Perception of Entrepreneurial Skills 2 (if the student's school education developed interest in becoming entrepreneur) and Perception of Entrepreneurial Skills 3 (if the student's school education developed know-how to run a business). The independent variable is a binary variable, Entrepreneurial Courses, concerning if the students had entrepreneurial courses during their academia path. A fifteen predictor logistic model is fitted to the data to test the entrepreneurial courses model. The logistic regression analysis is carried out by the binary logistic procedure in Stata.

According to the model, a student who had entrepreneurial courses during his/hers undergraduate or master degree is 52.945 percent willing to become self-employed versus a 60.257 percent probability to be self-employed for a student who did not had entrepreneurial courses. As previously discussed, this outcome is different from expected. Even though, literature is not yet clear in this topic, these results might explain why they are not statistically significant ($p > 0.05$), thus they do not support the hypothesis of the entrepreneurial courses model.

Controlling for other variables, the model predicts that the odds for male students to intend to become self-employed are 1.577 times greater than for females, being the outcome statistically significant ($p < 0.05$). Taking into account the outputs for the variable Age, one can conclude that for a one unit increase in Age, the odds of a student wanting to be self-employed increase by a factor of 1.168 ($p < 0.05$). For the variable Perception of Security, the model predicts that students who believe that employees have more job security than self-employed have a probability of 53.376 percent of wishing to pursue a career in entrepreneurship against a 72.542 percent probability for students who do not agree that employees have more job security compared with self-employed people. The outputs for this variable are statistically significant ($p < 0.05$). Concerning the variable Perception of Entrepreneurial Experience, one can conclude that the odds for students who believe that professional experience is more crucial for self-

employers to succeed than for employees to pursue a self-employed career are 2.529 times greater than for those students who disagree with the importance of professional experience for self-employers and employees ($p < 0.05$). For the control variable Perception of Information Obstacles, the results reveal that students who agree with the difficulty of starting a business due to lack of information are 47.635 percent willing to be self-employed against a 63.922 percent for those who disagree. The findings for this variable are statistically significant ($p < 0.05$). Regarding the variable Risk Tolerance, the odds of those students who disagreed with one should not starting a business if there is a risk it might fail wishing a career in self-employment are 3.410 times greater than those who agreed. These results are statistically significant ($p < 0.05$). For the variable Perception of Entrepreneurial Skills 1, students who agree to have developed a sense of initiative during their academia path are 53.751 percent willing to be self-employed versus a 64.283 percent chance of wanting to be self-employed for those who disagree. These outcomes are statistically significant ($p < 0.05$). For the variable Perception of Entrepreneurial Skills 2, one can conclude that the odds of the students who believe that their educational background made them interested in becoming self-employed be willing to become self-employed are 10.012 times greater than the students who do not believe that their educational background made them interested in becoming self-employed intending to become self-employed ($p < 0.05$).

Regarding the variables that are not statistically significant, one might highlight the findings of the variables Race, Entrepreneurial Role Model, Level of Education and Perception of Entrepreneurial Skills 3. Analysing for the variable Race, a Caucasia student has around 57.087 percent chance of wanting to pursue a career, while a non-Caucasian student has about 59.175 percent probability to want to become self-employed. As previously analysed, the outcomes expected were a higher probability for Caucasian students to be willing to pursue self-employment, which might explain why these findings are not statistically significant ($p > 0.05$). The odds for students who have entrepreneurial role models, variable Entrepreneurial Role Models, to intend to pursue a career as self-employed are 1.177 times greater than for students who do not have entrepreneurial friends or family. These results are align with the literature and what we expected them to be, however they are not statistically significant ($p > 0.05$). For the control variable, Level of Education, master students have a 57.276 percent chance of intending to become self-employed versus a 57.551 percent chance for undergraduate students. Although the difference on these results are not significant and however literature on this matter is not clear, we expected higher probability for master students to wanting to become self-

employed, which might explained why these results are not statistically significant ($p > 0.05$). Finally, for the control variable Perception of Skills 3, the model predicts that students who agree that their school education gave them skills and know-how that enable them to run a business have a 53.255 percent chance to be willing to be self-employed. In this case, the students who disagreed, have a higher probability, 59.851 percent, to be willing to be self-employed. These results are not align with our expectations, which might explain why they are not statistically significant ($p > 0.05$).

4.3.4 Entrepreneurial Internships Model

For the purpose of this work, and taking the characteristics of our variables into account, one has considered the regression model (4.8) and estimated by Logit regression. Its results are present in Table 4.5.

Table 4.5. Binary logistic Regression Results for the Entrepreneurial Internships Model

Variables	P-Value	Std. Err.	Odds Ratio	Predictive Margins ⁴
Cons.	0.001	0.021	0.018	-
Gender	0.046**	0.350	1.562	0.619
Race	0.639	0.272	0.863	0.570
Age	0.001**	0.055	1.161	-
Entrepreneurial Internships	0.774	0.442	1.120	0.591
Level of Education	0.733	0.244	0.913	0.567
Entrepreneurial Role Models	0.617	0.253	1.120	0.583
Perception of Security	0.000***	0.091	0.307	0.534
Perception of Entrepreneurial Experience	0.000***	0.615	2.587	0.631
Perception of Financial Obstacles	0.690	0.381	1.142	0.578
Perception of Administrative Obstacles	0.198	0.409	1.441	0.590
Perception of Information Obstacles	0.000***	0.098	0.391	0.473
Risk Tolerance	0.000***	0.919	3.419	0.626
Perception of Entrepreneurial Skills 1	0.017**	0.144	0.515	0.535
Perception of Entrepreneurial Skills 2	0.000***	2.675	9.109	0.794
Perception of Entrepreneurial Skills 3	0.115	0.184	0.633	0.526
No of observations	521			
Log-likelihood	-267.467			
Pseudo R2	0.248			

Notes: (1) The reference category is: female, non-Caucasian, age lower than 18 and higher than 30, who did not had internships related to entrepreneurship, undergraduate, who do not have friends or family who are entrepreneurs, who answered “Disagree” or “Strongly Disagree” to the sentences “An employee has more job security than a self-employed”, “Being self-employed demands more professional experience than being an employee”, “It is difficult to start a business due to lack of available information”, “It is difficult to start a business due to complex administrative procedures”, “It is difficult to obtain sufficient information on how to start a business”, “My school education helped me developing my sense of initiative”, “My school education made me interested in becoming self-employed”, “My school education gave me skills and know-how that enable me to run a business” and who answered “Agree” or “Strongly Agree” to the sentence “One should not start a business if there is a risk it might fail”. (2) *, **, *** significant at 10%, 5% and 1%, respectively. (3) For more details see Annex B7 and B8.

For the entrepreneurial internships model, the dependent variable is once again whether students have different intention to become self-employed or not. The model predicts whether students who had entrepreneurial internships during their academia path have different entrepreneurial intentions. The following control variables are used for testing the

⁴ Predictive Margin for binary variables, when equal to 1.

entrepreneurial internships model: Gender, Race, Age, Level of Education, Entrepreneurial Role Models, Perception of Security, Perception of Entrepreneurial Experience, Perception of Financial Obstacles, Perception of Administrative Obstacles, Perception of Information Obstacles, Risk Tolerance, Perception of Entrepreneurial Skills 1 (if the student's school education developed a sense of initiative), Perception of Entrepreneurial Skills 2 (if the student's school education developed interest in becoming entrepreneur) and Perception of Entrepreneurial Skills 3 (if the student's school education developed know-how to run a business). The independent variable is the binary variable Entrepreneurial Internships. A fifteen predictor logistic model is fitted to the data to test the entrepreneurial internships model. The logistic regression analysis is carried out by the binary logistic procedure in Stata.

As the model predicts, the odds of a student who had entrepreneurial internships in their academic background to intend to be self-employed are 1.120 times greater than for those students who had not done internships related to entrepreneurship. Thus, one can conclude that students with entrepreneurial internships have a 59.134 percent chance to be willing to become self-employed versus 57.209 percent probability for those who do not have entrepreneurial internships. However, these results are not statistically significant ($p > 0.05$), meaning that these findings do not support the hypothesis of the entrepreneurial internships model.

Controlling for the variable Gender, the model predicts that the odds of male students preferring to be self-employed are 1.562 times greater than the odds for female students preferring to become self-employed ($p < 0.05$). Concerning the results for the discrete variable Age, the model predicts that for a one unit increase in Age, the odds of a student wanting to be self-employed increase by a factor of 1.161 ($p < 0.05$). The model predicts that for the variable Perception of Security, students who believe that employees have more job security than self-employed people have a 53.437 percent chance of being willing to be self-employed against a 72.347 percent probability for students who do not agree ($p < 0.05$). For those students who believe that professional experience is more crucial for self-employers to succeed than for employees, regarding the variable Perception of Entrepreneurial Experience, the odds of intending to be self-employed are 2.587 times greater than for those students who disagree ($p < 0.05$). The model predicts for the variable Perception of Information Obstacles, students who agree with the difficulty of starting a business due to lack of information are 47.230 percent willing to pursue an entrepreneur career versus a 64.126 percent chance for those who agree. The outcomes for this variable are statistically significant ($p < 0.05$). Analysing the variable Risk Tolerance, the odds of those students who disagreed with one should not starting a business

if there is a risk it might fail wishing a career in self-employment are 3.419 times greater than those who did not disagree ($p < 0.05$). For the control variable Perception of Entrepreneurial Skills 1, those students who agree to have developed a sense of initiative during their academia path 53.521 percent willing to be self-employed versus a 64.587 percent chance of aiming to be self-employed for those who disagree. This result is statistically significant ($p < 0.05$). The outcomes for variable Perception of Entrepreneurial Skills 2, show that the odds for the students who believe that their educational background made them interested in becoming self-employed actually wish to become self-employed are 9.110 times greater than the students who do not believe that their educational background made them interested in becoming self-employed actually wish to become self-employed ($p < 0.05$).

Regarding the variables that are not statistically significant, one might highlight the findings of the variables Race, Entrepreneurial Role Model, Level of Education and Perception of Entrepreneurial Skills 3. Regarding Race, one can conclude that a Caucasia student has 57.035 percent chance of intending to pursue an entrepreneurial career, while a non-Caucasian student has 59.533 percent probability to want to become self-employed. Once more, these results are not according to what was expected taking into account the literature on this matter, which may explain why these are not statistically significant ($p > 0.05$). The results regarding the variable Entrepreneurial Role Models indicate that the odds of the students who have entrepreneurial models to wish to become self-employed are 1.112 times greater than for those students who do not have entrepreneurial friends or family. Although these finding are in accordance to the literature, they are not statistically significant ($p > 0.05$). For the variable Level of Education, master students have a 56.748 percent probability of wishing to become self-employed vis-a-vis 58.291 percent chance for undergraduate students. The literature on this subject is not yet settled, however higher probability for master students were expected, which might clarify these results are not statistically significant ($p > 0.05$). Finally, the model predicts for the control variable Perception of Skills 3, that students who agree that their school education gave them skills and know-how that enable them to run a business have a 52.633 percent probability to be willing to be self-employed vis-à-vis a 60.189 percent chance for those who disagree. These results do not make sense, since students with higher perception of entrepreneurial skills would have higher probabilities to pursue an entrepreneurial career, which might explain why these finding are not statistically significant ($p > 0.05$).

4.4 Discussion

As discussed previously, the main purpose of our research is to understand the impact of the different field of education in ISCTE's student's intention to pursue a professional careers in self-employment. In addition, our work intends to make a contribution into clarify the impact of entrepreneurial courses during the student's academia path in their willingness to be self-employed.

Previous studies regarding entrepreneurial occupation have been focused on the impact of the level of education as Borjas and Bronars (1989), as Evans and Leighton (1989a) and as Evans and Leighton (1989b) or in the type of education as vocational/technical education and college education in the case of Edenborg (2013). Regarding entrepreneurial experience, several authors focus their research on professional entrepreneurial experience as Peterman and Kennedy (2003). Finally, concerning the impact of entrepreneurial courses in latent entrepreneurship, there are very few authors exploiting such subject, such as Falk and Leoni (2009).

Due to the lack of research about these topics, this work contributes to the study of latent entrepreneurship by focusing on the differences in four diverse fields of education, social and human sciences, public policy and sociology, architecture and technology and business sciences, and tests if either of these four fields of education are more likely to lead to self-employment. Specifically, this paper aims to create value to the field of latent entrepreneurship by distinguish difference in the fields of education and by hypothesizing about which might be more probable to predict entry into self-employment.

For our research, one use data from a survey constructed, specifically, to estimate our regression model. The survey created measures several characteristics (education information, experience information, risk attitude, among others features) of ISCTE's students from four different schools, with ages between 18 and 30 years old. With the selection of specific data captured by our survey, it was possible to use the information collected to run logistic regression aiming to understand whether it supports the hypothesis of the models developed.

In this discussion, is important to take into account several limitation of our regression model. Table 4.6 outlines these limitations, being characteristics of the students present in our sample or other features that were left out of our study, which can possible impact the student's decision to become self-employed. For instance, our study only considers students from ISCTE University. We cannot conclude that these findings would be the same for students from other

universities. Moreover, our model does not consider students from other countries' universities as we cannot assume that the same results can be replicated considering other students from a foreign university.

Other characteristics related to the national political and economic situation were also not included in our model. For example, the country's employment situation was not taken into account, however as we can conclude from other studies, it can impact one's professional occupancy.

Table 4.6. Characteristics That May Impact Occupational Choice

Characteristics Not Studied	Impact on Probability to pursue self-employment
University of studies	If students from other universities were included it might have changed our outcome.
Nationality	If students from other university's nationality were included it might impact our findings.
National political and economic situation	If the country's political and economic situation were considered as unemployment rate or GDP, it might change our results.
Attitude towards employment	People who prefer a higher work-life balance might be more willing to choose self-employment.
Marital status and children	Married individuals with kids are more willing to entry into self-employment.
Access to financial resources	There is a positive relationship between household wealth and self-employment choice.

Considering the students characteristics, our research does not consider their attitude towards employment as, for instance, the importance of work-life balance for students. For example, students who prefer a job with more flexible hours may be more willing towards a self-employment job. Family effect was also not taken into account in our study. The fact that students might be married or have children was not considered, although the correlation between marital status and probability of being self-employed has been proved to be positive (Brown *et al.*, 2011). The same happens in the relationship between children and the probability of pursuing self-employment (Brown *et al.*, 2011; Wellington, 2006). Finally, the access to financial resources was also left out of the scope of this study. The positive correlation between

household wealth and entry into self-employment has been proved by author such as Evans and Jovanovic (1989) and as Evans and Leighton (1989b).

Regarding the schools impact model, the regression model do not supports the hypothesis. While not being statistically significant, the model point out that students from IBS are more likely to be entrepreneurs as the model probability calculated by the test is 59 percent. This finding may indicate more complex events and a need for additional analysis. For instance, our dataset do not have the same number of students from each school. The sample gathers information from 521 students, 106 from Social and Human Sciences Schools, 90 from Public Policy and Sociology School, 90 from Architecture and Technology School and 235 from ISCTE Business School. Other limitation of these findings can be related to the fact that our research focus only on ISCTE's students and not from other universities.

An analysis of the literature shows that education and transition into self-employment have a positive correlation (Van der Sluis *et al.*, 2008). More specifically, Falk and Leoni (2009) stated the importance of the fields of study when analysing the impact of education on self-employment, which can robust our finding regarding the difference in latent entrepreneurship among the different ISCTE's schools. Furthermore, one cannot disregard the fact that students included in our dataset may be more interested in entrepreneurship as they were more willing to respond to a survey about this topic. So as the fact that students who are more fascinated about entrepreneurship may be the ones who decided to pursue a track more related to it, as in the case of ISCTE Business School. Although we cannot be sure about the veracity of these assumptions, it might contribute to understand not the only the higher number of students from ISCTE Business School present in our sample but also the higher propensity for these students to be willing to be self-employed.

For the entrepreneurial courses model, the regression model does not find statistically significant support of the impact entrepreneurial courses on the decision to become self-employed. While not being statistically significant, the model indicates that students who had entrepreneurial courses are negatively related to choose an entrepreneurial career path. Predictions point out that students who did not had entrepreneurial courses through their academia background have a 60 percent chance of wanting to become self-employed versus a 53 percent for those who had entrepreneurial courses. Therefore, one cannot conclude that entrepreneurial courses have an impact on latent entrepreneurship. However, these outcomes

seem to indicate a need for further examination as for example, what other authors found about this relationship and what limitations can we be facing within this hypothesis.

An examination of the literature shows that some studies have concluded that training and coaching delivered as part of an entrepreneurship track increase self-employment among graduates (Premand *et al.*, 2012). Unlike our outcomes, Premand *et al.* (2012) research, which uses data from the applied university students in Tunisia, identify an entrepreneurship training as a motive for choosing self-employment. More specifically, authors such as Souitaris and Al-Laham (2007) found a positive impacts of entrepreneurial education on the development of self-employment intentions. Literature shows us that there are clear signs that education programs can significantly impact students' intentions to become entrepreneurs (Peterman and Kennedy, 2003).

The fact that the majority (56.221%) of students who had entrepreneurial courses are from ISCTE Business School, in which many degrees have entrepreneurial subjects as mandatory, it might explain the dubious findings related to entrepreneurial courses model. The same happen regarding other schools as ECSH or ISTA. Although students have entrepreneurial courses, it might not mean that they're willing to pursue self-employment since many students have entrepreneurial courses has part of the compulsory curriculum within the degree. For further studies, it might be useful to use a variable related to students who chose to have entrepreneurial courses.

Regarding the outcomes of the entrepreneurial internships model, the regression model does not find statistically significant support of the impact entrepreneurial internships on the entry into on self-employment. Although not being statistically significant, the model indicates that students who had entrepreneurial internships are positively related to choose an entrepreneurial career path. Findings evidence that students who did internships in the entrepreneurial area through their academia path have a 59.134 percent chance of entry into self-employment against a 57.209 percent for those who did not experience an entrepreneurial internship. While one cannot conclude that entrepreneurial experience through internships have an impact on latent entrepreneurship, the outcomes of the entrepreneurial internships model seems to in accordance with the literature.

Previous research is nearly consensual concerning the positive impact of experience as factor of self-employment entry (Evans and Leighton, 1989b; Georgellis *et al.*, 2005b; Lin *et al.*, 2000; Poschke, 2013; Taylor, 2001). Several research (Poschke, 2013; Robinson and Sexton, 1994;

Shapero and Sokol, 1982) points to a positive relationship between prior entrepreneurial experience and individual's entrepreneurial intentions. Shapero and Sokol (1982) stated that experience gained in entrepreneurship enhance disposition and recognition of an opportunity which is considered to be necessary conditions for self-employment choice. In addition, Poschke (2013) identify that previous self-employment experience can increase probability of entry into self-employment. Lastly, Robinson and Sexton (1994) concluded that overall entrepreneurs with a good general education tend to be more successful when general education is combined with experience.

Chapter 5. Conclusion

Chapter 5 finalises the thesis, where we present the main conclusions, followed by the theoretical and practical implications of our findings. The chapter ends with a suggestion for future research.

5.1 Theoretical Implications

Literature concerning the impact of education on individual's career choice show many different arguments and conclusions. For instance, while Borjas and Bronars (1989), Evans and Leighton (1989b) and Poschke (2013) found evidence of a positive effect of education on individual's transition into self-employment, suggestion acknowledging the opposite conclusion is demonstrated by Evans (1989) and Clark and Drinkwater (2000).

Nevertheless, in economic literature there is clear evidence supporting that education, incorporated in human capital, is a valuable resource. Therefore, education is a significant dynamic to taking into account when analysing self-employment entry.

The vast literature discussing the impact of education on career choice show us that education is a complex variable in the study of this topic. There are many ways to study educational effect in self-employment entry, such as the level of education, type of school and type of education, among others.

Although the literature regarding the impact of the level of education on the probability of entry into self-employment is not consensual, authors such as Kangasharju and Pekkala (2002), Robinson and Sexton (1999) and Zissimopoulos *et al.* (2009) founded that the higher education level, the higher the probability of an individual to pursue an entrepreneurial career. The results on our research are not significant concerning this link between level of education and latent entrepreneurship. According to the literature, there has been a discussion whether years of schooling is the most effective way to measure education effect on individual's career choice. Borjas (1986), Borjas and Bronars (1989) as Robinson and Sexton (1999) use one's years of school completed to measure this phenomenon. As oppose to Kangasharju and Pekkala (2002), which defines the level of education as a categorical variable concerning lower, intermediate, and high grades. In our research, we use student's level of education as a categorical variable divided into Master and Undergraduate degree. These differences in defining individual's level of education might explain the lack of consensual in this matter.

When it comes to study evidence in the impact of the type of school on individual's career choice, some authors choose to study impact of the education in student's probability to entry

into self-employment through the type of school. Edenborg (2013), for instance, compared vocational/technical and college education impacts on self-employment entry.

Ultimately, as some authors suggest, is critical to understand the important of the type of education in raising entrepreneurial intentions (Falk and Leoni, 2009), and especially how entrepreneurial education programs can significantly impact students' intentions to become entrepreneurs (Peterman and Kennedy, 2003 and Souitaris and Al-Laham, 2007). The contribution to this particular part of the literature concerning latent entrepreneurship was the main goal of this research.

Combined with education, experience have been taken into account when finding positive evidence between prior experience and individual's entrepreneurial intentions, whether discussing professional experience or more specifically, entrepreneurial experience. Researchers as Shapero and Sokol (1982) and later, Poschke (2013), found positive evidence between entrepreneurial experience and the probability of entry into self-employment. Moreover, Robinson and Sexton (1999) found that this evidence tend to be clear when general education is combined with experience.

Our research aims to contribute to expand the previously mentioned studies and further include the field of education on the future literature regarding latent entrepreneurship. In addition, this study intends to add value to the literature by sorting and including also entrepreneurial experience and entrepreneurial training to the discussion of individual's career choice preferences. Students with different types of education and experience will form different individual characteristics and skills, which might influence not only their careers path but also, their careers' success and also the success of the companies they will work for, whether they own it or not. In this sense, this research, together with prior ones, might further assist studying the economic value of each field of education and each field of experience on individual's career choices and their firms or the firms they will work for.

5.2 Practical Implications

Giving the limitations of our research and its narrow contribution to a complex topic that it is latent entrepreneurship, several dimensions of what drives youth self-employment still lack further discussion for the future. However, self-employment is proven to drive economic growth (Reynolds *et al.*, 1999; Zacharakis *et al.*, 2000) and to be a useful solutions in times when wages are low, where there's less employment opportunities or even a creative solution for individuals who seek different career tracks.

By understanding self-employment drivers, specifically, youth self-employment drivers, policy makers, firms and educators can take appropriate measures to improve economic growth, competitive advantage and better prepare students to enter into work environment.

Previous research has found correlation between higher rates of entrepreneurship with higher rates of economic growth. For instance, Reynolds *et al.* (1999) found that different rates of entrepreneurship account for up to one-third of the difference in country economic growth rates, while Zacharakis *et al.* (2000) find that it can explain nearly half of the difference. Policy makers can give good use to this knowledge and although our study has its limitations, it also aims to strengthen the importance of investing in entrepreneurship in order to get higher rates of entrepreneurship resulting in higher economic growth.

The study of different types of education and experience also aims to impact human capital in two ways, as individual's characteristics perspective and as a resource-based perspective. The inclusion of such variables into the equation, gives a new economic standpoint regarding the study of human capital. For instance, firms need to understand the differences, whether regarding the effects of type of education, entrepreneurial experience or entrepreneurial training on individual's characteristics, resources and skills in order to capitalize them and gain leverage in the market. Meaning that if different courses or different experience originate different resources and skills profiles, it will be easier for firms to exploit them effectively, gaining competitive advantage.

Finally, one of the main goals of this research is to further the discussion of entrepreneurship in order to help educators foster and improve entrepreneurial programs and courses. It is crucial for educators to understand the effectiveness of entrepreneurial program, courses and entrepreneurial internships in student's educational path. Universities and educators are responsible to prepare students to entry into work environment. This study does not intend to conclude that entrepreneurial education is the best choice when wanting a self-employment career, but rather to attempt to understand the best metrics to construct good programs and better prepare students who aim to pursue an entrepreneurial career.

5.3 Future Research

When analysing the impacts on self-employment choice as career, many elements must be considered. Although our research only offers a small piece of the discussion, as all studies it aims to contribute to enlarge the literature about a specific topic, in this case to the literature of

latent entrepreneurship, driving value into moving the discussion forward. Nevertheless, as many studies is important to understand its limitations in order to overcome it in future research.

By using data for a specific time frame and a specific group of students, this research is subject to several biases which arise as a result of the period selected, the questions used in the survey, the number and the type of respondents. By designing our own survey, although most questions have been used in other researchers, it does have limitations as for the results achieved. In this sense is important to note that our results are a snapshot in time with a specific group of individuals within a specific environment and country.

One should consider further analysis with new data that could overcome the limitations of the data set present in this research. For instance, it would be interesting for future research to consider data from a larger time frame and a larger sample including students from different universities. In addition, a study including cross-country analysis would also benefit the literature about latent entrepreneurship.

Future studies could also include new combinations between the variables present in this study and the type of field of education. It is important to explore other combinations to address the completion and the contribution of this research in the field of latent entrepreneurship. As discussed before, in general, the literature shows that education not only impacts self-employment choice but also show that education is a fit measure to evaluate its relationship with occupational decision. While this research does not address whether the education is the most fit variable to measure self-employment intentions, it has a more narrow scope by analysing the type of educational field. Due to the limitations of this form of analysis, further research is needed to robust this area of study.

Furthermore, the rise of new entrepreneurial coaching and training and its integration on several university programs, leaves room to continue exploring whether the area of study impacts latent entrepreneurship. In addition, it would contribute to comprehend whether this research is representative of the entire scope or whether other research will provide different outcomes.

To expand the study of latent entrepreneurship, future research should consider incorporate other sorts of type of education. For instance, break-down type of education into undergraduate, master and post-graduation degree could be a way to gain new insights about this study. In addition, by deepen the type of education into two categorical university programs, one with compulsory entrepreneurial courses and other without it, would also contribute to develop a deeper understanding of the educational impact on latent entrepreneurship. Furthermore,

research regarding the impact of vocational and technical schools in self-employment entry, seek to understand some characteristics that impact student's occupational choice. By adding the type of educational area into these studies, it could contribute to expand our knowledge beyond the current research on latent entrepreneurship.

Other important considerations should be made when studying the impacts of education in latent entrepreneurship as the entrepreneurial culture of the respondent's country of nationality and in this case also the entrepreneurial culture of the respondent's university. For instance, discussions about the number of start-ups and ventures existed in a certain country and entrepreneurial initiatives existed in a certain university would add true value to the literature.

Lastly, one needs to note that studies, as this one, do not intend to provide a definitive answer to latent entrepreneurship research, it rather aims to offer a framework for additional study about this topic. In order to deliver additional insight into this research, one must carefully measure other details as further questions must be asked as per other studies must include these outcomes to validate our findings. This study aims to open the continuation of a dialogue concerning latent entrepreneurship as further research should expand deeply the notion of fields of education and its impact on self-employment entry.

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Annex A

The annex A presents the structure of the survey construct to develop our dataset.

A.1 Structure of the survey construct to build our research's dataset.

Empreendedorismo latente: Os efeitos do tipo de educação formal no auto-emprego

Este questionário pretende ser uma ferramenta fulcral na análise dos efeitos do tipo de educação formal no auto-emprego, no contexto do empreendedorismo latente. Hoje, especialmente, em Portugal este assunto não é apenas moda, mas cada vez mais importante para a nossa economia. Que as questões de empreendedorismo importam não é novidade. No entanto, a sua importância tem evoluído ao longo do tempo. As pequenas empresas são vistas mais do que nunca como um veículo para o empreendedorismo que contribui mais do que apenas para o emprego, a estabilidade social e política. Pelo contrário, contribui em termos de poder competitivo e de inovação.

***Obrigatório**

1. Idade *

2. Género *

Marcar apenas uma oval.

☐ Masculino

☐ Feminino

3. Etnia *

Marcar apenas uma oval.

☐ Caucasiana

☐ Negra

☐ Asiática

☐ Outra: _____

Educação

4. Educação: A frequentar... *

Marcar apenas uma oval.

☐ Licenciatura

☐ Mestrado

5. Em que escola do ISCTE frequentas licenciatura/mestrado? *

Marcar apenas uma oval.

☐ ISCTE Business School

☐ Escola de Sociologia e Políticas Públicas

☐ Escola de Ciências Sociais e Humanas

☐ Escola de Tecnologias e Arquitetura

☐ Outra: _____

Figure 1. Survey: Latent Entrepreneurship part I

6. Frequentaste cadeiras de empreendedorismo durante a tua licenciatura/mestrado? *

Marcar apenas uma oval.

- ☐ Sim
☐ Não

7. Durante a tua licenciatura/mestrado, realizaste algum estágio profissional? *

Marcar apenas uma oval.

- ☐ Sim
☐ Não (Passe para a pergunta 9).

Se sim...

8. O estágio realizado foi na área de empreendedorismo? *

Marcar apenas uma oval.

- ☐ Sim
☐ Não

Emprego

9. Supondo que poderias escolher entre dois tipos de emprego. Qual preferias? *

Marcar apenas uma oval.

- ☐ Trabalhar por conta de outrem (Passe para a pergunta 10).
☐ Trabalhar por conta própria (Passe para a pergunta 11).
☐ Não sei (Passe para a pergunta 12).

Trabalhador por conta de outrem

10. Por que preferias ser trabalhador por conta de outrem? *

Marcar apenas uma oval.

- ☐ Salário fixo e regular
☐ Estabilidade de Emprego
☐ Horas de trabalho fixas
☐ Falta de ideias de negócio
☐ Falta de capital para trabalhar por conta própria
☐ Falta de conhecimentos/capacidades para trabalhar por conta própria

Passe para a pergunta 12.

Figure 2. Survey: Latent Entrepreneurship part II

Trabalhador por conta própria

11. Por que preferias ser trabalhador por conta própria? *

Marcar apenas uma oval.

- ☐ Independência pessoal/ autorrealização
- ☐ Conhecimentos/capacidades para identificar oportunidades de negócio
- ☐ Melhor perspetiva de rendimentos
- ☐ Liberdade de escolha de sítio e tempo de trabalho
- ☐ Ausência de oportunidades de emprego por conta de outrem
- ☐ Família/amigos são trabalhadores por conta própria
- ☐ Para um maior contributo para a sociedade

Emprego (Continuação)

12. Independentemente de pretendes ou não trabalhar por conta própria, seria viável trabalhares por conta própria nos próximos 5 anos? *

Marcar apenas uma oval.

- ☐ Sim (Passe para a pergunta 14).
- ☐ Não (Passe para a pergunta 13).

Se não...

13. Por que razão não seria viável? *

Marcar apenas uma oval.

- ☐ Falta de ideias de negócio/oportunidades
- ☐ Falta de apoio financeiro
- ☐ Falta de conhecimentos/capacidades
- ☐ Dificuldade burocrática em criar um negócio
- ☐ O risco de falhar
- ☐ A situação económica atual
- ☐ Outra: _____

Emprego (Continuação)

14. Tens algum familiar/amigo empreendedor? *

Marcar apenas uma oval.

- ☐ Sim
- ☐ Não

15. Já trabalhaste por conta própria? *

Marcar apenas uma oval.

- ☐ Sim
- ☐ Não

Figure 3. Survey: Latent Entrepreneurship part III

16. Pretendes, um dia, trabalhar por conta própria ou abrir o teu próprio negócio? *

Marcar apenas uma oval.

- ☐ Sim
☐ Não

17. Se criasses o teu próprio negócio hoje, quais seriam os teus principais receios? *

Marcar apenas uma oval.

- ☐ A incerteza de rendimento/salário
☐ A incerteza de emprego
☐ A necessidade de despende de muita energia e tempo para isso
☐ A possibilidade de falhar
☐ A possibilidade de falência

18. Até que ponto concordas ou não concordas com as seguintes questões? *

Por favor, escolhe uma opção em cada questão

Marcar apenas uma oval por linha.

	Concordo Completamente	Concordo	Não concordo nem discordo	Discordo	Discordo completamente
Um trabalhador por conta de outrem tem mais Segurança de emprego do que um trabalhador por conta própria. Ser trabalhador por conta própria exige mais experiência profissional do que ser trabalhador por conta de outrem.	☐	☐	☐	☐	☐
É difícil começar um negócio devido à falta de disponibilidade de apoio financeiro. É difícil começar um negócio devido à complexidade e burocracia dos processos administrativos.	☐	☐	☐	☐	☐
Ninguém deve começar um negócio se existir o risco de falhar. É difícil obter informação suficiente sobre como começar um novo negócio?	☐	☐	☐	☐	☐

Figure 4. Survey: Latent Entrepreneurship part IV

19. Até que ponto concordas ou não concordas com as seguintes questões? *

Marcar apenas uma oval por linha.

	Concordo Completamente	Concordo	Não concordo nem discordo	Discordo	Discordo completamente
A minha licenciatura/mestrado ajudou-me a desenvolver um sentido de iniciativa	☐	☐	☐	☐	☐
A minha licenciatura/mestrado ajudou-me a querer ser empreendedor	☐	☐	☐	☐	☐
A minha licenciatura/mestrado ajudou-me a desenvolver os conhecimentos/capacidades para desenvolver um negócio	☐	☐	☐	☐	☐

Figure 5. Survey: Latent Entrepreneurship part V

Annex B

The annexes present complementary results of the regression analysis and the predictive margin results regarding the basic model, schools impact model, entrepreneurial courses model and entrepreneurial internships model.

B.1 Binary logistic Regression Results for the Basic Model

Log Likelihood = -261.671	Number of obs = 521	LR chi2 (17) = 187.500	Prob > chi2 = 0.000	Pseudo R2 = 0.264		
Variable	Odds Ratio	Std. Err.	z	P > z	[95% Conf. Interval]	
Cons.	0.014	0.017	-3.520	0.000	0.001	0.153
Gender	1.605	0.367	2.070	0.039	1.025	2.513
Race	0.873	0.276	-0.430	0.669	0.470	1.623
Age	1.191	0.059	3.540	0.000	1.081	1.313
Entrepreneurial Courses	0.575	0.147	-2.170	0.030	0.349	0.947
Entrepreneurial Internships	1.201	0.490	0.450	0.654	0.540	2.670
School 1	0.968	0.366	-0.080	0.932	0.461	2.033
School 2	0.508	0.194	-1.780	0.076	0.240	1.073
School 4	1.272	0.435	0.700	0.481	0.651	2.485
Level of Education	0.764	0.222	-0.920	0.355	0.432	1.351
Entrepreneurial Role Models	1.176	0.271	0.700	0.483	0.748	1.848
Perception of Security	0.278	0.086	-4.140	0.000	0.151	0.509
Perception of Entrepreneurial Experience	2.604	0.629	3.960	0.000	1.622	4.181
Perception of Financial Obstacles	1.023	0.355	0.090	0.932	0.524	2.023
Perception of Administrative Obstacles	1.434	0.415	1.250	0.213	0.813	2.530
Perception of Information Obstacles	0.418	0.109	-3.340	0.001	0.251	0.698
Risk Tolerance	3.434	0.938	4.520	0.000	2.010	5.867
Perception of Entrepreneurial Skills 1	0.568	0.162	-1.980	0.048	0.324	0.995
Perception of Entrepreneurial Skills 2	9.758	2.944	7.550	0.000	5.402	17.625
Perception of Entrepreneurial Skills 3	0.622	0.186	-1.590	0.112	0.346	1.116

B.2 Predictive Margins Results for the Basic Model

Model VCE: OIM		Number of obs = 521	Pr(LAT), predict()	Delta- method			
Variable		Margin	Std. Err	z	P > z	[95% Conf. Interval]	
Cons.		-	-	-	-	-	-
Gender	1 = Male	0.620	0.028	21.970	0.000	0.565	0.676
	0 = Female	0.542	0.024	22.700	0.000	0.495	0.589
Race	1 = Caucasian	0.571	0.019	29.400	0.000	0.533	0.609
	0 = Otherwise	0.593	0.048	12.440	0.000	0.500	0.686
Age		-	-	-	-	-	-
Entrepreneurial Courses	1 = Yes	0.518	0.031	16.890	0.000	0.458	0.578
	0 = No	0.609	0.023	26.460	0.000	0.563	0.654
Entrepreneurial Internships	1 = Yes	0.601	0.063	9.520	0.000	0.477	0.725
	0 = No	0.571	0.019	30.020	0.000	0.534	0.608
School 1	1 = ECSH	0.570	0.053	10.740	0.000	0.466	0.674
	0 = Otherwise	0.575	0.022	26.060	0.000	0.532	0.618
School 2	1 = ESPP	0.479	0.057	8.370	0.000	0.367	0.592
	0 = Otherwise	0.595	0.021	27.800	0.000	0.553	0.637
School 4	1 = IBS	0.596	0.037	16.250	0.000	0.524	0.668
	0 = Otherwise	0.556	0.032	17.530	0.000	0.494	0.618
Level of Education	1 = Master	0.556	0.026	21.050	0.000	0.504	0.607
	0 = Undergraduate	0.599	0.032	18.750	0.000	0.537	0.662
Entrepreneurial Role Models	1 = Yes	0.587	0.026	22.390	0.000	0.536	0.639
	0 = No	0.560	0.027	21.020	0.000	0.508	0.613
Perception of Security	1 = Agree / Strongly Agree	0.533	0.020	26.440	0.000	0.493	0.572
	0 = Otherwise	0.731	0.036	20.250	0.000	0.661	0.802
Perception of Entrepreneurial Experience	1 = Agree / Strongly Agree	0.630	0.023	27.980	0.000	0.586	0.675
	0 = Otherwise	0.466	0.033	14.240	0.000	0.402	0.530

Perception of Financial Obstacles	1 = Agree / Strongly Agree	0.575	0.020	28.470	0.000	0.535	0.614
	0 = Otherwise	0.570	0.051	11.200	0.000	0.470	0.670
Perception of Administrative Obstacles	1 = Agree / Strongly Agree	0.589	0.021	27.530	0.000	0.547	0.631
	0 = Otherwise	0.530	0.040	13.380	0.000	0.452	0.607
Perception of Information Obstacles	1 = Agree / Strongly Agree	0.484	0.033	14.470	0.000	0.418	0.549
	0 = Otherwise	0.635	0.026	24.810	0.000	0.585	0.686
Risk Tolerance	1 = Disagree / Strongly Disagree	0.625	0.021	30.100	0.000	0.584	0.665
	0 = Otherwise	0.411	0.040	10.320	0.000	0.333	0.489
Perception of Entrepreneurial Skills 1	1 = Agree / Strongly Agree	0.542	0.024	22.350	0.000	0.494	0.589
	0 = Otherwise	0.634	0.034	18.820	0.000	0.568	0.700
Perception of Entrepreneurial Skills 2	1 = Agree / Strongly Agree	0.795	0.027	29.280	0.000	0.742	0.849
	0 = Otherwise	0.391	0.029	13.380	0.000	0.334	0.448
Perception of Entrepreneurial Skills 3	1 = Agree / Strongly Agree	0.602	0.024	25.140	0.000	0.555	0.649
	0 = Otherwise	0.526	0.034	15.410	0.000	0.459	0.593

B.3 Binary logistic Regression Results for Schools Impact Model

Log Likelihood = -264.081	Number of obs = 521	LR chi2 (17) = 182.680	Prob > chi2 = 0.000	Pseudo R2 = 0.257		
Variable	Odds Ratio	Std. Err.	z	P > z	[95% Conf. Interval]	
Cons.	0.014	0.016	-3.590	0.000	0.001	0.142
Gender	1.558	0.354	1.950	0.051	0.999	2.432
Race	0.853	0.271	-0.500	0.617	0.458	1.590
Age	1.189	0.058	3.540	0.00	1.080	1.308
School 1	0.905	0.341	-0.260	0.792	0.432	1.895
School 2	0.521	0.197	-1.730	0.084	0.249	1.092
School 4	1.189	0.404	0.510	0.611	0.610	2.315
Level of Education	0.721	0.207	-1.140	0.255	0.410	1.267
Entrepreneurial Role Models	1.120	0.255	0.500	0.620	0.716	1.751
Perception of Security	0.294	0.090	-4.010	0.000	0.162	0.535
Perception of Entrepreneurial Experience	2.647	0.638	4.040	0.000	1.651	4.245
Perception of Financial Obstacles	1.089	0.366	0.250	0.800	0.563	2.104
Perception of Administrative Obstacles	1.471	0.422	1.350	0.178	0.838	2.582
Perception of Information Obstacles	0.411	0.107	-3.420	0.001	0.247	0.685
Risk Tolerance	3.425	0.927	4.550	0.000	2.016	5.820
Perception of Entrepreneurial Skills 1	0.541	0.153	-2.170	0.030	0.310	0.942
Perception of Entrepreneurial Skills 2	8.878	2.611	7.420	0.000	4.988	15.801
Perception of Entrepreneurial Skills 3	0.602	0.177	-1.730	0.084	0.338	1.071

B.4 Predictive Margins Results for Schools Impact Model

Model VCE : OIM		Number of obs = 521	Pr(LAT), predict()	Delta-method			
Variable		Margin	Std. Err	z	P > z	[95% Conf. Interval]	
Cons.		-	-	-	-	-	-
Gender	1 = Male	0.618	0.028	21.730	0.000	0.562	0.674
	0 = Female	0.543	0.024	22.680	0.000	0.496	0.590
Race	1 = Caucasian	0.570	0.019	29.310	0.000	0.532	0.608
	0 = Otherwise	0.597	0.048	12.330	0.000	0.502	0.691
Age		-	-	-	-	-	-
School 1	1 = ECSH	0.561	0.054	10.390	0.000	0.455	0.666
	0 = Otherwise	0.577	0.022	26.070	0.000	0.534	0.621
School 2	1 = ESPP	0.483	0.057	8.470	0.000	0.371	0.594
	0 = Otherwise	0.595	0.022	27.580	0.000	0.553	0.637
School 4	1 = IBS	0.590	0.037	15.980	0.000	0.518	0.663
	0 = Otherwise	0.561	0.032	17.810	0.000	0.499	0.623
Level of Education	1 = Master	0.551	0.026	20.920	0.000	0.500	0.603
	0 = Undergraduate	0.605	0.032	19.120	0.000	0.543	0.667
Entrepreneurial Role Models	1 = Yes	0.583	0.026	22.270	0.000	0.532	0.635
	0 = No	0.564	0.027	21.190	0.000	0.512	0.616
Perception of Security	1 = Agree / Strongly Agree	0.534	0.020	26.380	0.000	0.495	0.574
	0 = Otherwise	0.727	0.037	19.740	0.000	0.655	0.799
Perception of Entrepreneurial Experience	1 = Agree / Strongly Agree	0.632	0.023	27.890	0.000	0.587	0.676
	0 = Otherwise	0.463	0.033	14.090	0.000	0.399	0.527
Perception of Financial Obstacles	1 = Agree / Strongly Agree	0.576	0.020	28.560	0.000	0.537	0.616
	0 = Otherwise	0.562	0.050	11.150	0.000	0.463	0.661
Perception of Administrative Obstacles	1 = Agree / Strongly Agree	0.591	0.021	27.530	0.000	0.548	0.633
	0 = Otherwise	0.526	0.040	13.300	0.000	0.449	0.604

Perception of Information Obstacles	1 = Agree / Strongly Agree	0.481	0.034	14.270	0.000	0.415	0.547
	0 = Otherwise	0.637	0.026	24.720	0.000	0.587	0.688
Risk Tolerance	1 = Disagree / Strongly Disagree	0.626	0.021	29.930	0.000	0.585	0.667
	0 = Otherwise	0.410	0.040	10.300	0.000	0.332	0.488
Perception of Entrepreneurial Skills 1	1 = Agree / Strongly Agree	0.538	0.024	22.080	0.000	0.491	0.586
	0 = Otherwise	0.640	0.033	19.150	0.000	0.574	0.705
Perception of Entrepreneurial Skills 2	1 = Agree / Strongly Agree	0.791	0.028	28.500	0.000	0.737	0.846
	0 = Otherwise	0.398	0.029	13.550	0.000	0.340	0.455
Perception of Entrepreneurial Skills 3	1 = Agree / Strongly Agree	0.522	0.034	15.410	0.000	0.456	0.589
	0 = Otherwise	0.604	0.024	25.350	0.000	0.558	0.651

B.5 Binary logistic Regression Results for Entrepreneurial Courses Model

Log Likelihood = -265.880	Number of obs = 521	LR chi2 (17) = 179.080	Prob > chi2 = 0.000	Pseudo R2 = 0.252		
Variable	Odds Ratio	Std. Err.	z	P > z	[95% Conf. Interval]	
Cons.	0.018	0.021	-3.440	0.001	0.002	0.177
Gender	1.577	0.353	2.030	0.042	1.016	2.446
Race	0.883	0.277	-0.400	0.692	0.478	1.633
Age	1.168	0.055	3.300	0.001	1.065	1.280
Entrepreneurial Courses	0.645	0.158	-1.790	0.073	0.400	1.042
Level of Education	0.984	0.267	-0.060	0.952	0.578	1.675
Entrepreneurial Role Models	1.177	0.268	0.720	0.473	0.754	1.838
Perception of Security	0.299	0.089	-4.030	0.000	0.166	0.537
Perception of Entrepreneurial Experience	2.529	0.600	3.910	0.000	1.588	4.027
Perception of Financial Obstacles	1.054	0.348	0.160	0.872	0.552	2.015
Perception of Administrative Obstacles	1.437	0.409	1.270	0.203	0.823	2.510
Perception of Information Obstacles	0.400	0.101	-3.640	0.000	0.244	0.655
Risk Tolerance	3.410	0.924	4.530	0.000	2.006	5.799
Perception of Entrepreneurial Skills 1	0.530	0.149	-2.260	0.024	0.306	0.919
Perception of Entrepreneurial Skills 2	10.012	2.986	7.720	0.000	5.580	17.963
Perception of Entrepreneurial Skills 3	0.670	0.195	-1.370	0.170	0.379	1.187

B.6. Predictive Margins Results for Entrepreneurial Courses Model

Model VCE : OIM		Number of obs = 521	Pr(LAT) , predict()	Delta-method			
Variable		Margin	Std. Err	z	P > z	[95% Conf. Interval]	
Cons.		-	-	-	-	-	-
Gender	1 = Male	0.619	0.028	21.880	0.000	0.564	0.675
	0 = Female	0.542	0.024	22.600	0.000	0.495	0.589
Race	1 = Caucasian	0.571	0.020	29.150	0.000	0.532	0.609
	0 = Otherwise	0.592	0.048	12.250	0.000	0.497	0.686
Age		-	-	-	-	-	-
Entrepreneurial Courses	1 = Yes	0.529	0.03	17.440	0.000	0.470	0.589
	0 = No	0.603	0.023	25.750	0.000	0.557	0.648
Level of Education	1 = Master	0.573	0.026	21.940	0.000	0.522	0.624
	0 = Undergraduate	0.576	0.032	17.800	0.000	0.512	0.639
Entrepreneurial Role Models	1 = Yes	0.560	0.027	20.810	0.000	0.507	0.613
	0 = No	0.588	0.026	22.300	0.000	0.536	0.639
Perception of Security	1 = Agree / Strongly Agree	0.534	0.020	26.230	0.000	0.494	0.574
	0 = Otherwise	0.725	0.036	20.050	0.000	0.655	0.796
Perception of Entrepreneurial Experience	1 = Agree / Strongly Agree	0.630	0.023	27.750	0.000	0.585	0.674
	0 = Otherwise	0.468	0.033	14.240	0.000	0.403	0.532
Perception of Financial Obstacles	1 = Agree / Strongly Agree	0.575	0.020	28.310	0.000	0.536	0.615
	0 = Otherwise	0.566	0.050	11.370	0.000	0.469	0.664
Perception of Administrative Obstacles	1 = Agree / Strongly Agree	0.590	0.022	27.390	0.000	0.547	0.632
	0 = Otherwise	0.529	0.040	13.320	0.000	0.451	0.606
Perception of Information Obstacles	1 = Agree / Strongly Agree	0.476	0.033	14.280	0.000	0.411	0.542
	0 = Otherwise	0.639	0.025	25.250	0.000	0.590	0.689
Risk Tolerance	1 = Disagree / Strongly Disagree	0.625	0.021	29.890	0.000	0.584	0.666
	0 = Otherwise	0.408	0.040	10.130	0.000	0.329	0.487

Perception of Entrepreneurial Skills 1	1 = Agree / Strongly Agree	0.538	0.024	22.100	0.000	0.490	0.585
	0 = Otherwise	0.643	0.033	19.250	0.000	0.577	0.708
Perception of Entrepreneurial Skills 2	1 = Agree / Strongly Agree	0.800	0.027	29.970	0.000	0.747	0.852
	0 = Otherwise	0.387	0.029	13.390	0.000	0.330	0.443
Perception of Entrepreneurial Skills 3	1 = Agree / Strongly Agree	0.533	0.034	15.490	0.000	0.465	0.600
	0 = Otherwise	0.599	0.024	24.600	0.000	0.551	0.646

B.7 Binary logistic Regression Results for Entrepreneurial Internships Model

Log Likelihood = -267.46699	Number of obs = 521	LR chi2 (17) = 175.90	Prob > chi2 = 0.0000	Pseudo R2 = 0.2475		
Variable	Odds Ratio	Std. Err.	z	P > z	[95% Conf. Interval]	
Cons.	0.018	0.021	-3.430	0.001	0.002	0.179
Gender	1.562	0.349	1.990	0.046	1.007	2.421
Race	0.863	0.272	-0.470	0.639	0.465	1.600
Age	1.161	0.055	3.190	0.001	1.059	1.274
Entrepreneurial Internships	1.120	0.442	0.290	0.774	0.517	2.428
Level of Education	0.913	0.244	-0.340	0.733	0.540	1.542
Entrepreneurial Role Models	1.120	0.253	0.500	0.617	0.719	1.744
Perception of Security	0.307	0.091	-3.970	0.000	0.171	0.550
Perception of Entrepreneurial Experience	2.587	0.615	4.000	0.000	1.624	4.122
Perception of Financial Obstacles	1.142	0.381	0.400	0.690	0.594	2.196
Perception of Administrative Obstacles	1.441	0.409	1.290	0.198	0.826	2.514
Perception of Information Obstacles	0.391	0.098	-3.730	0.000	0.238	0.640
Risk Tolerance	3.419	0.919	4.570	0.000	2.019	5.792
Perception of Entrepreneurial Skills 1	0.515	0.144	-2.380	0.017	0.298	0.890
Perception of Entrepreneurial Skills 2	9.110	2.675	7.520	0.000	5.123	16.198
Perception of Entrepreneurial Skills 3	0.633	0.184	-1.570	0.115	0.358	1.119

B.8 Predictive Margins Results for Entrepreneurial Internships Model

Model VCE : OIM		Number of obs = 521	Pr(LAT) , predict()	Delta- method			
Variable		Margin	Std. Err	z	P > z	[95% Conf. Interval]	
Cons.		-	-	-	-	-	-
Gender	1 = Male	0.619	0.028	21.720	0.000	0.563	0.675
	0 = Female	0.543	0.024	22.530	0.000	0.496	0.590
Race	1 = Caucasian	0.570	0.020	29.080	0.000	0.532	0.609
	0 = Otherwise	0.595	0.049	12.190	0.000	0.500	0.691
Age		-	-	-	-	-	-
Entrepreneurial Internships	1 = Yes	0.591	0.063	9.360	0.000	0.468	0.715
	0 = No	0.572	0.019	29.850	0.000	0.535	0.610
Level of Education	1 = Master	0.567	0.026	21.790	0.000	0.516	0.619
	0 = Undergraduate	0.583	0.032	18.350	0.000	0.521	0.645
Entrepreneurial Role Models	1 = Yes	0.583	0.026	22.160	0.000	0.532	0.635
	0 = No	0.564	0.027	20.980	0.000	0.511	0.617
Perception of Security	1 = Agree / Strongly Agree	0.534	0.020	26.130	0.000	0.494	0.574
	0 = Otherwise	0.723	0.037	19.800	0.000	0.652	0.795
Perception of Entrepreneurial Experience	1 = Agree / Strongly Agree	0.631	0.023	27.760	0.000	0.587	0.676
	0 = Otherwise	0.464	0.033	14.040	0.000	0.399	0.529
Perception of Financial Obstacles	1 = Agree / Strongly Agree	0.578	0.020	28.370	0.000	0.538	0.618
	0 = Otherwise	0.555	0.051	10.950	0.000	0.456	0.654
Perception of Administrative Obstacles	1 = Agree / Strongly Agree	0.590	0.022	27.310	0.000	0.548	0.632
	0 = Otherwise	0.528	0.040	13.260	0.000	0.450	0.606
Perception of Information Obstacles	1 = Agree / Strongly Agree	0.473	0.034	14.100	0.000	0.407	0.539
	0 = Otherwise	0.641	0.025	25.220	0.000	0.591	0.691
Risk Tolerance	1 = Disagree / Strongly Disagree	0.626	0.021	29.790	0.000	0.584	0.667

	0 = Otherwise	0.407	0.040	10.110	0.000	0.328	0.486
Perception of Entrepreneurial Skills 1	1 = Agree / Strongly Agree	0.535	0.024	21.910	0.000	0.487	0.583
	0 = Otherwise	0.646	0.033	19.500	0.000	0.581	0.711
Perception of Entrepreneurial Skills 2	1 = Agree / Strongly Agree	0.794	0.027	29.010	0.000	0.741	0.848
	0 = Otherwise	0.393	0.029	13.420	0.000	0.336	0.451
Perception of Entrepreneurial Skills 3	1 = Agree / Strongly Agree	0.526	0.034	15.330	0.000	0.459	0.594
	0 = Otherwise	0.602	0.024	24.990	0.000	0.555	0.649