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**How to Motivate Higher Education Students and Graduates to Engage in
Entrepreneurial Activity: The Case of the University of Cyprus**

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Abstract

The current Master's dissertation aims to develop an understanding of entrepreneurial intent. By analyzing data from the Global Entrepreneurship Monitor, the factors which motivate university students and graduates to engage in entrepreneurial activity are identified, focusing on the case of Cyprus. Furthermore, via benchmarking analysis, actions pursued by top universities relating to boosting entrepreneurial intentions and activity are evaluated and compared to the current situation prevailing in the University of Cyprus, which serves as the single largest institution where Cypriots study.

Available literature reviewed and data analysis carried out within this Master's dissertation, indicate that there are specific factors, the existence of which, and the level to which they are present, govern one's propensity to entrepreneurship. Academic institutions, having realized their important role in cultivating entrepreneurial intent, have incorporated a number of actions and policies to enhance the entrepreneurial activities of students and graduates.

Gender, education level and exposure to entrepreneurial activity during childhood, are identified as attributes that signal early-on one's tendency towards entrepreneurship. Such a tendency is further cultivated through university studies; experiences and knowledge obtained as a student, as well as the existence of an entrepreneurial fostering ecosystem within the university, drives students and graduates to becoming entrepreneurs. The prevailing economic conditions also govern a person's ultimate decision to become an entrepreneur. These conditions determine the availability of financing for setting up startups, and the availability of jobs – lack of which makes it more likely to start an own business. An individual's drive to make an impact in the world has also been identified as a significant attribute for pursuing innovative and entrepreneurial activity.

Findings analyzed within this Master's dissertation provide valuable knowledge for individuals, the society and universities on how to promote innovation and entrepreneurship, reaping the benefits stemming from such activity.

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Chapters

Chapter 1

Introduction

1.1. Introduction and Background

As early as the 18th century, economists the like of Adam Smith have been supporting the role of entrepreneurs in the creation of jobs and economic growth (Michael, 2007). Engaging in entrepreneurial activity has substantial positive impact to the economy, by creating economic value, improving Gross Domestic Product (GDP) and creating economic growth, as well as to the society in general, through job creation, increased job and life satisfaction, and improvements in the standard of living (Dvouletý, 2017).

Based on the Global Entrepreneurship Index 2019 (Acs, Szerb, Lafuente and Markus, 2019), Cyprus ranks at the 35th place in the world, just above Italy and below China (Appendix). As per the specific global index, an important attribute for pursuing entrepreneurial activity are Startup Skills, indicating the important role academic institutions play in promoting entrepreneurship.

Studies have indicated that motivators of entrepreneurship include personal wealth accumulation (Hessels, Gelderen and Thurik, 2008), personal traits and situationally specific external factors (Baum, Frese, and Baron, 2006), as well as a plethora of demographic factors, such as gender, age, ethnicity, programs of study and parent's business background (Edrus et al, 2018).

The aim of this Master's dissertation is to identify factors which motivate university students and graduates to engage in entrepreneurial activity, focusing on the case of the University of Cyprus (UCY), in an effort to better understand entrepreneurial intent and therefore, adopt effective and relevant policies and actions to foster entrepreneurial activity.

1.2. Research Objectives and Questions

The current Master's dissertation, aims to contribute academically in terms of knowledge about opportunity development and entrepreneurial motivation, as well as to provide practical implications for UCY in the form of concrete development suggestions on how entrepreneurial activity amongst students and graduates can be motivated and facilitated.

In performing the above task, this Master's dissertation aims to shed light on the following questions:

- ❖ What are the motivating factors towards pursuing entrepreneurial activity among students and graduates in Cyprus?
- ❖ What actions, activities and infrastructure have top performing universities put in place in order to boost entrepreneurial activities amongst their student and alumni communities?
- ❖ How do actions, activities and infrastructure of UCY relate and compare to the above?

1.3. Importance of Study

This study is important for a number of reasons mainly stemming from the impact entrepreneurship has on the economy, especially one as Cyprus.

Entrepreneurship has a positive impact on evolving innovating business ideas and initiatives, that amongst others, support the creation of new job markets, boost economies, develop new solutions to problems, and create technology that improves efficiency (Acs, Szerb and Lloyd, 2018). Entrepreneurship and innovation are both catalysts of the rapidly changing economic environment, and remedies for surviving the dynamic, complex and threatening new business era (Kuratko and Hoskinson, 2014). Entrepreneurs are equally, if not more, important when the economy is not doing so well or in time of crisis. When unemployment is high and the economy is shrinking or stagnating, boosting entrepreneurship can help turn the economy around (Kritikos, 2014). As recent studies suggest, by developing novel products and/or increasing competition, new companies can increase demand, which could in turn generate new job opportunities and decrease unemployment (Kritikos, 2014).

This is particularly important for Cyprus, due to both the recent financial crisis that has substantially reduced the country's GDP (reduction of 10% between 2012 and 2016 according to World Bank data) and the over-dependence of the Cypriot economy in specific industries, such as tourism, real estate and financial services (Cyprus in Figures, 2019). Relevant studies indicate that entrepreneurs create more jobs than their counterparts of equal size, they earn more and afford to pay more to their employees, while entrepreneurial firms have higher growth rates (Praag and Versloot, 2007).

Stemming from the above, entrepreneurship is seen as a strategy for countries' economic growth and a means of maintaining sustainable competitive advantage during the globalization era. Youth entrepreneurship is even more impactful. Taking into consideration the job market's limited capacity to absorb new labour, it is of vital importance that universities are able to create employers. In addition, the large innovative capacity of young people can boost the growth and economic development of a country like Cyprus. Such entrepreneurial activity can therefore flourish within universities, where young people interact and gain access to fundamental entrepreneurial skills and knowledge.

The findings of this Master 's Dissertation are expected to prove valuable assets for:

- ✓ policy makers, who can identify what needs to be done in order to boost entrepreneurial intentions,
- ✓ students and graduates, who can observe actions and activities which can help them increase their chances of becoming successful entrepreneurs,
- ✓ education institutions, which can obtain important insights as to the infrastructure and actions that boost entrepreneurial activities,
- ✓ UCY, for which this Master's dissertation will provide a benchmarking analysis in order to identify what needs to be done for enhancing the entrepreneurial appetite of its students and graduates.

1.4. Research Methods

In achieving the objectives of the current Master's dissertation, a documentary analysis will be pursued. Data from the Global Entrepreneurship Monitor (GEM) will be used, to identify entrepreneurial attitudes both in Cyprus and globally. Such data include countries' entrepreneurial activity, importance of education level on entrepreneurial endeavors and statistical impact of various factors on becoming an entrepreneur as well as maintaining a successful own business.

In addition, a benchmarking analysis will be carried out, whereby the actions, activities and infrastructure relating to promoting entrepreneurship of the top ten universities globally (as per the Times Higher Education World Rankings for 2020) and UCY will be identified through each institution's website. The data between the different universities will then be compared and contrasted, in an effort to identify what UCY could do better in pursuing a more 'entrepreneurial friendly' ecosystem.

1.5. Structure

In the next chapter, the relevant literature will be reviewed and evaluated. In chapter three, the theoretical framework for concepts relating to innovation and entrepreneurship will be defined and explained. In chapter four, the research methodology will be outlined, and issues relating to the validity and the reliability of the research will be discussed. The chapter will be concluded with a discussion of the Master's dissertation limitations.

In chapter five, a documentary analysis will be performed. Based on this analysis, the research objectives will be addressed, and the outcomes of the research will be discussed. Chapter six will document the research's findings, providing specific recommendations to all key stakeholders in an effort to enhance engagement in entrepreneurial activities for students and graduates of UCY. The Master's dissertation will be concluded by summarising all findings, while making the case that it can serve as a stepping stone from which one can further develop the findings, and expand the study and its conclusions.

Chapter 2

Literature Review

2.1. Determinants of Entrepreneurship Motivation

University students play a critical role in expanding the business environment (Tredevi, 2016). To do so, they need to be both willing and able to engage in entrepreneurial activities (Ahmed et al., 2012). The factors driving the desirability and the feasibility of students and newly graduates to establish new ventures are deemed to be the motivators for entrepreneurship.

Factors affecting one's propensity towards entrepreneurial activity include demographic attributes, such as gender. Many studies have found that males are more likely to be self-employed than females (Gupta et al, 2009). Kolvereid (1996) applied the theory of planned behaviour in exploring the choice of employment status, and found that males have significantly higher preferences for self-employment than females. Similarly, most studies indicate that males have higher entrepreneurial intentions than females (Johara, Yahya, and Tehseen, 2017). As the current Master's dissertation will analyse the case for the University of Cyprus (UCY), where 65% of current students are female, this factor is of high importance.

Available resources have also been found to determine one's pursuit of entrepreneurial activity. This mainly refers to capital, as this is the most prominent (and usually hard to find) external resource necessary for starting an own-business. Studies by Kristiansen and Indarti (2004) and Cressy (2006) have identified that access to funding is one of the greatest obstacles for self-employment, since entrepreneurs are usually in the beginning of their career, thus having limited own-funds, while the high risk and non-existence track-record of the new entity make it difficult for banks or potential investors to finance the project.

Previous studies have indicated that a person's decision to engage in entrepreneurial activities is greatly governed by past experiences. This includes both past personal business experience (Dyke et al, 1992) and exposure to business activities through family or friends (Cooper, Dunkelberg, 1984). The argument is made, that entrepreneurial experience

provides role-models, as well as learning opportunities, which govern one's decision to engage in such activity in the future (Zhang Li, 2016). In this context, Shapero (1982) argues that parents have a critical role in fostering an entrepreneurial spirit in the house. Evidence has shown that family surroundings impact a person's appetite for entrepreneurship (Collins et al, 1964). Put boldly, it is argued that students whose parents are self-employed are more likely to start their own business (Scott & Twomey, 1988).

Hereditary factors, also seem to come into play when discussing entrepreneurship. Personal traits, such as innovativeness and risk assertiveness, have been linked to increased interest for self-employment. According to Sexton and Bowman (1985) entrepreneurs have higher risk acceptance levels, not minding to undertake financial risks in order to pursue their plans and ambitions. Other personal characteristics that give rise to entrepreneurial activity include persistence (Caliendo et al., 2014), optimism (Kozubikova et al., 2017) and responsibility (Kerr et al., 2018). It should be noted, that all these traits may be developed and improved, through soft-skills training (Andreas, 2018).

Moreover, the state may have a role to play in motivating citizens to become entrepreneurs, through signalling and through fostering an entrepreneurial environment. Studies have shown that perceptions drive activity. Yilmaz and Gunel (2011) found that the majority of students think that becoming an entrepreneur is an adverse situation, which has a negative impact on work-life balance, and they therefore opt out of it to spend more time with their families. According to Gurol & Atsan (2006) students' and newly graduates' perceptions of the socio-economic and political environment has a direct effect on the potential of becoming entrepreneurs. Key players in shaping the tendency towards entrepreneurship, include media and society (Baryniene et al., 2014) and politicians (Goktan et al., 2015). The support of all (both in substance and in form) is critical for promoting start-ups and setting up new business entities.

Education appears to have a significant effect on entrepreneurial activity (Bae et al, 2014). The learning experience is expected to enhance students' academic and practical knowledge, developing their understanding of entrepreneurial skills and attitudes (Becker, 1975). Furthermore, a university environment nurturing and supporting entrepreneurship, cultivates students' self-confidence for becoming entrepreneurs (Chen, Greene and Crick, 1998).

Previous studies indicate that company founders are well-educated (Wadhwa et al, 2010). A survey carried out in 2009 in the USA by the Kauffman Foundation, has identified that 95% of entrepreneurs have earned at least a Bachelor's Degree (Wadhwa et al., 2009). At the same time, a study conducted in 2019 among university students in Guangzhou, China, has provided evidence that academic performance is adversely related to entrepreneurial endeavors (Wu & Lin, 2019). Only 4% of students with good academic performance were found willing to start their own business after graduating. The vast majority of student preferred to start a job, as employees. This does not necessarily imply that entrepreneurs tend to be academically underperforming. Deducing from the above, it may be the case that while entrepreneurs are university-stars, not all university-stars become entrepreneurs.

Life as a student, seems to be playing a critical role in determining one's entrepreneurial endeavors. Previous studies for identifying entrepreneurship motivators have identified non-hereditary factors, such as education, university campus infrastructure and an adequate social / family support system as being important in deciding to start one's own business (Mustafa, 2019). According to Hattab (2014), students taking courses in entrepreneurship are more likely to set up their own business, while Marques et al (2018) further develop this argument, by pointing out that the positive correlation between entrepreneurial education and entrepreneurial activity is stronger for business and social sciences students. Similarly, studies indicate that financial literacy has a significant positive impact both on a person's willingness to participate in entrepreneurial activities, as well as on the likelihood of success of such actions (Li, Qian, 2019).

Similarly, higher education establishments may play an important role in promoting entrepreneurial activity amongst students and graduates. Stuart and Ding (2006) indicate that students who interact with academics that have started their own business, are more likely to get involved with entrepreneurship. It could therefore be the case, that by promoting and facilitating the establishment of spin-off companies by its academic faculty, the university would be promoting entrepreneurial activity by its students and graduates. A study by Mussio & Ramaciotti (2016) conducted amongst 9062 students in Italy, has identified a significant, positive correlation between having clearly defined set of rules for setting up start-ups and spin-offs, and students' decision to become an entrepreneur. The same study, has found that providing entrepreneurship courses at university level, increases the likelihood of starting an own-business for students attending such courses. This is in line with relevant literature (Souitaris et al., 2007, Graevenitz et al., 2010) which

argues that education in entrepreneurship is likely to give rise to future entrepreneurial activity.

Another key action by universities, that has been found to promote entrepreneurship is university-industry collaboration (O'Shea et al., 2005). Students have minimum prior exposure and experience in commercial activities, and can therefore be greatly assisted by interacting with business and industry executives. Acquiring a business mindset through practical experience (e.g. work placements) seems to greatly enhance the students' appetite for entrepreneurship.

Guerrero et al. (2018), argue that by focusing in entrepreneurship and innovation, universities contribute towards economic expansion and competitiveness, as graduates are inclined to further pursue entrepreneurial activity. Stemming from this, and the increasing value associated with entrepreneurship, there is a turn towards the transformation of higher education institutions into entrepreneurial universities. These are universities which add entrepreneurship into their other two core activities, namely teaching and research (Guerrero and Urbano, 2019). Such universities promote entrepreneurial culture by providing spaces where entrepreneurial teams meet with each other, and with external key players, such as mentors, industry experts and established companies. Examples of such successful set ups include London's Imperial College Translation and Innovation Hub, which houses offices, laboratories and recreation venues totaling 54,000 sq. ft. in the center of London. The Hub provides an entrepreneurial ecosystem by offering cutting edge technology infrastructure, networking and cross-fertilization opportunities, as well as support for setting up start-ups.

Similar hubs and incubators have been working successfully in the US for the past decades. Harvard University, for example, has set up the Harvard Innovation Lab, which operates both the Venture Incubation Program, a 12-week mentoring and resources-providing program, and the Launch Lab X, which offers Harvard alumni access to \$100,000 in funding. The Massachusetts Institute of Technology (MIT) operates MIT Delta-V, a startup accelerator available to student entrepreneurs, offering advice, funding, expertise and coaching.

The shift towards the establishment of such incubators, is driven by their success. A study in the USA of more than 150 university incubators and 650 companies, has indicated that university-incubated entities outperform their non-incubated counterparts, both in terms

of sales value and number of jobs created (Lasrato et al., 2015). This was found to be true both in the initial stages of the company set-up, but also in the long-term.

Another motivating feature that, according to literature, may be offered by Universities to boost entrepreneurship, is providing clear and generous intellectual property rights to students, for their ideas. Creating a win-win situation, will benefit both the institution and the student / graduate.

As already outlined, there are a number of factors which promote the innovation ecosystem, giving rise to entrepreneurial activity. The impact of each factor, and how they interact, depends on the specific environment on which they are applied. Factors such as culture, economic environment and social perceptions, determine which factors are more influential. Casrud & Brannback (2011) point out that motivating factors for pursuing entrepreneurial activity differ from country to country. For policy makers to determine which policy to pursue in order to give rise to entrepreneurship, they have to understand the specific motivators applicable to their case.

2.2. Contribution to Literature Review

The current Master's dissertation will at first study the determinants of entrepreneurship as suggested by the above literature and offer further grounds of validation, if so, for current data. Most importantly though, it will add to the literature by identifying and distinguishing, which of those factors are applicable in the case of Cyprus. As already discussed above, the determinants differ between countries and therefore, a more thorough analysis for the country specific applicable determinants for Cyprus is highly pursued. Furthermore, this Master's dissertation aims to identify a checklist of actions pursued by top universities relating to boosting entrepreneurial intentions and activity, and compare this to the current situation prevailing in UCY. Since UCY serves as the single largest institution where Cypriots study, and by considering that 90% of students are Cypriot, it is expected that the Master's dissertation will provide important insights on what the situation is in Cyprus and how entrepreneurial activity may be boosted.

Through these findings, Cyprus' ecosystem can better understand how to promote innovation and entrepreneurship, reaping the relevant benefits stemming from such activity.

Chapter 3

Theoretical Background

3.1. Entrepreneurship and Innovation

According to Oxford Dictionary, an entrepreneur is “a person who sets up a business or businesses, taking on financial risks in the hope of profit” and is believed to originate from the French “entreprendre” meaning ‘undertake’. Cambridge Dictionary includes the dimension of opportunity: “someone who starts their own business, especially when this involves seeing a new opportunity”.

Entrepreneurship is any activity involving the discovery, evaluation, and exploitation of opportunities to introduce new goods and services, ways of organizing, markets, process, and raw materials through organizing efforts that previously had not existed (Venkataraman, 1997; Shane and Venkataraman, 2000).

Entrepreneurship refers to innovative venturing into new firms, which are transformative rather than replicative (Henrekson & Sanandaji, 2019). It involves the development of new business projects and entities, and implies self-employment. As such, an entrepreneur is an individual who sets up a new business, with the aim of making a profit.

Entrepreneurial opportunities as defined by Shane and Venkataraman (2000, p. 220) refer to “those situations in which new goods, services, raw materials, and organizing methods can be introduced and sold at greater than their cost of production.”

Shane and Venkataraman also distinguish entrepreneurial opportunities from profit opportunities more generally. While the latter reflect opportunities to create value by enhancing the efficiency of producing existing goods, services, and processes, the former includes value creation through “the very perception of the means-ends framework” itself (Kirzner, 1973, p. 33).

Innovation is described in Adair (Adair, 2009) as the creation, invention or discovery, focusing upon the conception of an idea, covering the whole process whereby the new idea is brought into productive use. Innovation has been vital for economic growth in the last centuries (Mokyr 1990; Baumol 2004). According to Nooteboom and Stam (2008),

innovation is also crucial for solving problems in society such as those concerning climate change, health, and congestion, while having an intrinsic value as a manifestation of creativity. Creativity is making a connection between or combining two elements that have not previously been connected or combined (Feinstein, 2006). This resonates with Schumpeter's stance on innovation as "novel combinations". Cognitive psychologist Sternberg (1996: p. 375) defines creativity as "the process of producing something that is both original and worthwhile". Two main elements are therefore novelty, denoting originality, and value, meaning worthwhile. Creativity includes the process of finding a novelty and then transforming it into observable products (Schweizer 2004).

Innovations are created through the interaction and networking between local actors and processes, which produces solutions to different challenges (Oksanen, 2014). This is referred to as an *innovation ecosystem*.

Universities are a prime component of such an ecosystem, as they educate would-be entrepreneurs while providing the necessary infrastructure and networking for innovation and entrepreneurship to blossom. Technological advances are in the forefront of innovation, while universities are considered by both governments and industry as the incubators of these advancements (Graham, 2014). This has pushed universities to explore ways of increasing their entrepreneurial activities, creating more entrepreneurs and startup companies, improving the overall economy by generating growth and wealth. (Clarysse and Moray 2004).

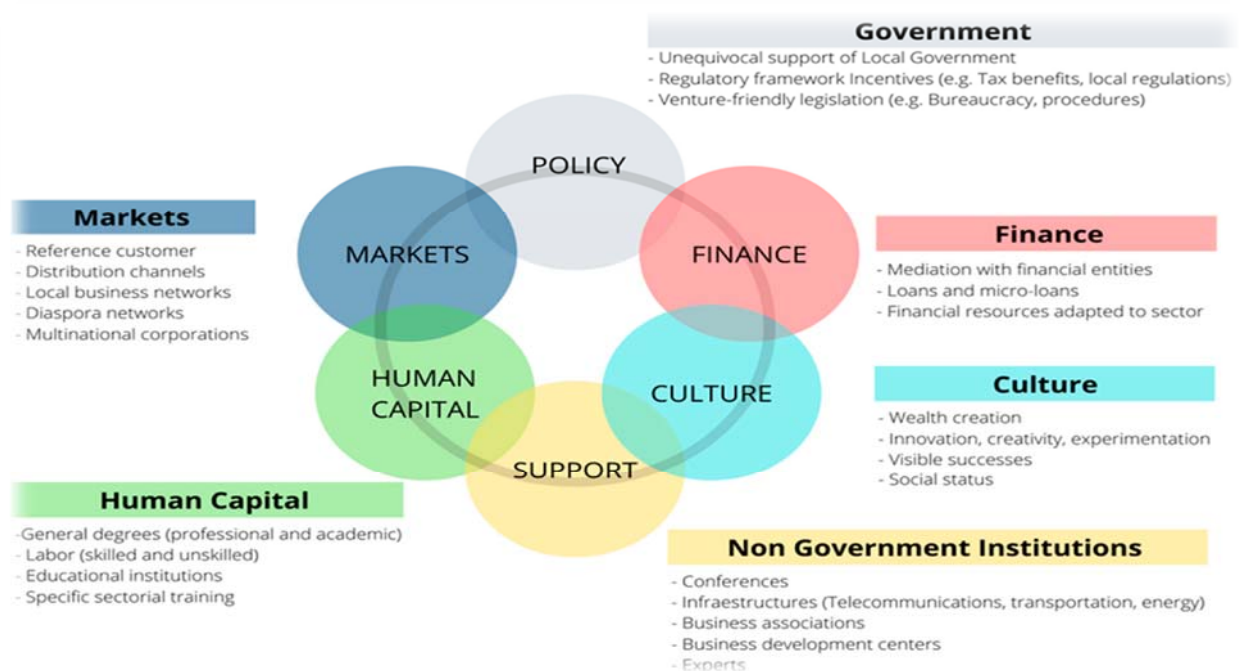
In line with their newfound role in the economy, universities are setting up *University-based entrepreneurship ecosystems*. The latter refers to a multi-dimensional matrix that supports entrepreneurship development through a variety of initiatives related to teaching, research and outreach. (Fetters et. Al, 2010).

In doing so, universities aim to develop entrepreneurial capacities and mindsets. Entrepreneurship actions could be directed towards various goals, such as to (a) develop entrepreneurial drive in students (raising awareness and motivation), (b) train students in setting up a business and managing its growth, and (c) develop the necessary entrepreneurial abilities to recognize and exploit business opportunities.

3.2. Entrepreneurship System in Cyprus

An entrepreneurial ecosystem involves the interaction of all the different stakeholders, in pursue of entrepreneurial activity. Isenberg (2011) identified 6 particular domains which form the entrepreneurship ecosystem, as shown in the Figure 3.1 below.

Figure 3.1: Domains of the Entrepreneurship Ecosystem (Isenberg, 2011)



All the stakeholders identified above are interrelated, having access to the same information while interacting and communicating with each other, creating new, innovative ventures and merging current businesses (Auerswald, 2015). Entrepreneurial activity is the result of the interaction between the various components of the ecosystem.

In Cyprus, the entrepreneurial ecosystem has been making small but positive steps over the last years. The Policy domain has been improving, as the government has been implementing entrepreneurial friendly decisions, including tax breaks for companies investing in startups, and the recent setting up of the Deputy Ministry of Research, Innovation & Digital Policy. Access to Finance for startups has been increasing over the past years, through both publicly and privately funded opportunities. The former include the Cyprus Entrepreneurship Fund, as well as EU Structural Funds, while the latter include bank loan schemes with favorable terms for startups, and venture capital / business angels such as the Cyprus Seeds initiative which provides up to €50,000 grants to startups. The

Culture in Cyprus is supportive of small and medium-sized firms, as almost 98% of Cypriot firms fall into this size frame. In this respect, there is a strong positive predisposition towards entrepreneurship. However, visible successes of entrepreneurs are missing from the social domain, creating a gap between entrepreneurship and wealth. The small size of Cyprus, both in terms of population as well as country GDP and market size, coupled with the geographical isolation of the island, weaken the Market domain, as evident by limited distribution channels and lack of multinationals. The Human Capital and Non-Governmental Institutions domains can both be influenced by actions of universities, and especially the University of Cyprus (UCY).

3.3. The University of Cyprus

UCY is the oldest university in Cyprus, having been established in 1989. Operating from Nicosia, it boasts 5.500 Undergraduate students, and 1.500 Postgraduate students. It has a strong alumni base, currently measuring approximately 25.000 individuals. The predominant teaching language is Greek, and it therefore attracts mainly Greek speaking students. As at November 2019, 90% of students are Cypriots. Enjoying a solid, long-standing reputation within the Cypriot society, coupled with increased global recognition (as evident by recent global university rankings) UCY attracts the largest part of young Cypriots who pursue higher education studies. Undergraduate studies in UCY are fully subsidized by the Republic of Cyprus, and as such financial issues are not a barrier for entering the university. It follows from the above, that UCY students portray a good and representative profile of the “average Cypriot student”.

Chapter 4

Methodology

4.1. Research Process and Methods

In identifying the most persistent factors giving rise to entrepreneurial activity by students and graduates, and in observing how these are applied in the case of the University of Cyprus (UCY), a documentary analysis will be pursued. In doing, so, data from the Global Entrepreneurship Monitor (GEM) will be used.

GEM is a consortium of national country teams which, in close association with top universities, carry out survey-based research on entrepreneurship-related issues. Operating since 1999, GEM has a long, established record of findings on entrepreneurship, being a key source of comparable data across countries and entrepreneurial attitudes. It is the only global research source collecting data directly from entrepreneurs, while its extensive database enables in-depth academic research, as evident by the rapidly increasing amount of GEM-based scientific publications in various academic journals (Bosma, 2013).

GEM data are gathered by national teams, which undertake two annual surveys: the Adult Population Survey (APS) and the National Expert Survey (NES). Using the same standard GEM questionnaire, the APS asks a nationally representative sample of approximately 3,000 working-age adults, about their entrepreneurial appetite and intent. Results are then checked and quality-approved by GEM's technical team. Through this survey, available data covers both entrepreneurial actions and activities, and also perceptions and attitudes toward entrepreneurship. Such data is valuable, since they cover what has happened (and what were the underlying attributes that led to this result) and what will be happening in the future, since entrepreneurial attitudes will govern future actions.

In complementing APS results, GEM carries out an annual NES, whereby at least 36 experts from each country (individuals having national expertise and knowledge) complete a questionnaire on their perceptions of the national environment of entrepreneurship. These experts differ year-on-year, to ensure objectivity.

By processing and analyzing GEM data for the year 2019, Cyprus' entrepreneurial activity on the various stages of business maturity will be identified, and compared to that of other EU countries (which will include the UK as well). This comparison with countries operating on the same economic arena, is expected to outline Cyprus' overall performance, indicating underperforming areas and whether there is potential for further enhancing entrepreneurial activity. Comparisons will cover the 3-year period 2017 to 2019, unless such previous data is not available.

The data will be used to identify the most prominent factors boosting entrepreneurial activity, both in Cyprus and in other EU countries. Furthermore, barriers to successful continuation of entrepreneurial endeavors, will be identified, so as to ensure that startups follow a successful path. Identifying such barriers, with an intention of taking remedial action, is of prime importance as startups have a very high failure rate (Cantamessa et al. 2018).

The importance of education level on entrepreneurial endeavors will also be ascertained, through examining Cypriot entrepreneurs' education level trends, for the years 2017 to 2019. By identifying the effect of university education on entrepreneurial activity, public policy can be better tailored and public funding can be more effectively channeled to achieve maximum impact. This knowledge will also assist universities, and UCY specifically, to set their objectives and take cost-effective decisions.

Consequently, data relating to the effectiveness of the measures taken by Cypriot universities in enhancing entrepreneurship will also be examined for the same 3-year period. Considering that UCY serves as the single largest institution where Cypriots go to study, these insights are expected to be true for UCY.

Furthermore, and in identifying what more UCY could be doing in order to boost entrepreneurial activity among its students and alumni, the Master's dissertation will carry out an analysis of best practices for promoting entrepreneurial activity, applied by top universities across the world. For this analysis, the 10 top universities worldwide will be selected based on the Times Higher Education World Rankings (TIMES) for 2020. The specific ranking metric has been applied, since it's one of the oldest and most extensively used, while it considers a variety of attributes for a very wide range of universities (Marope, Wells, & Hazelkorn, 2013). Additionally, out of the top ten universities, 70% are based in

the US and 30% are based in the UK, which both have high Global Entrepreneurship Indices for a number of years consecutively.

The data will be obtained mainly through each institution's website. This benchmarking analysis is expected to highlight what other universities do well in the area of entrepreneurship, and how this affects students and graduates. Such a benchmarking exercise can be a powerful tool in helping organizations evaluate their competitive position relative to its competitors (Fernandez, McCarthy and Rakotobe-Joel, 2001). Measuring and comparing performance of a specific service (in this case entrepreneurship promotion) against that of the recognized best in the sector, provides valuable knowledge and opportunities for improvement and development (Allan, 1993).

Then, via engaging in a competitive grid analysis, these best practices will be compared and contrasted with those of UCY, to identify relevant gaps in an effort to propose suggestions or remedial action.

4.2. Validity, Reliability and Limitations of the Study

GEM data reliably cover the Cypriot population, as they equally represent men and women, living in both rural and urban areas. The total sample size amounts to 3,000 individuals over a population of 800,000, with a confidence interval of 95%. Furthermore, experts selection for the National Expert Survey achieves a balance across regions, gender, experience level and private/public sector involvement. The experts pool adequately covers the different disciplines affecting the entrepreneurial ecosystem, namely entrepreneurs, academics, regulators, government officials and practitioners.

Even though data obtained by GEM portray an accurate picture of the overall national entrepreneurial activity, attitudes and perceptions, they do not specifically relate to individuals who attended universities. As such, motivating factors stemming from the analysis could be under-representing university students and graduates. This risk is mitigated by the fact that for Cyprus, according to GEM data, 84% of the population that is being involved in entrepreneurial activity has attended university, for at least an undergraduate degree.

In addition, the benchmarking exercise involves comparing UCY to the top universities in overall rankings, not merely entrepreneurial performance. This is done for ensuring that

the ranking system used is as robust and globally acceptable as possible. In identifying the level of this risk on the analysis results, entrepreneurial success of the top universities will be assessed, using drivers such as startup companies developed, entrepreneurs created and capital raised for startups. Data for these drivers will be obtained from analysts PitchBook, a global financial data and software company, and will cover the years 2006 to 2018. Furthermore, the fact that the majority of the top universities are based in the US which ranks first in the Global Entrepreneurship Index 2019, having achieved the highest index persistently, provides reliability to the data provided.

A final limitation of the current Master's dissertation is the fact that information relating to top universities' entrepreneurship promoting actions will be derived through the websites of the universities. This approach has been taken for practical reasons, as it is less costly and time consuming than directly contacting and perhaps visiting all top-10 universities. Moreover, through each institution's website one can identify all available infrastructure, actions and activities, even if provided by different university Departments or Offices. A further mitigating factor for this risk, is that universities have a direct motive in promoting their entrepreneurial activities, as this is a strong selling point for attracting students, while research indicates that universities are effective in promoting their brand through their websites (Chapleo, Duran and Diaz, 2011).

Chapter 5

Description of Data and Data Analysis

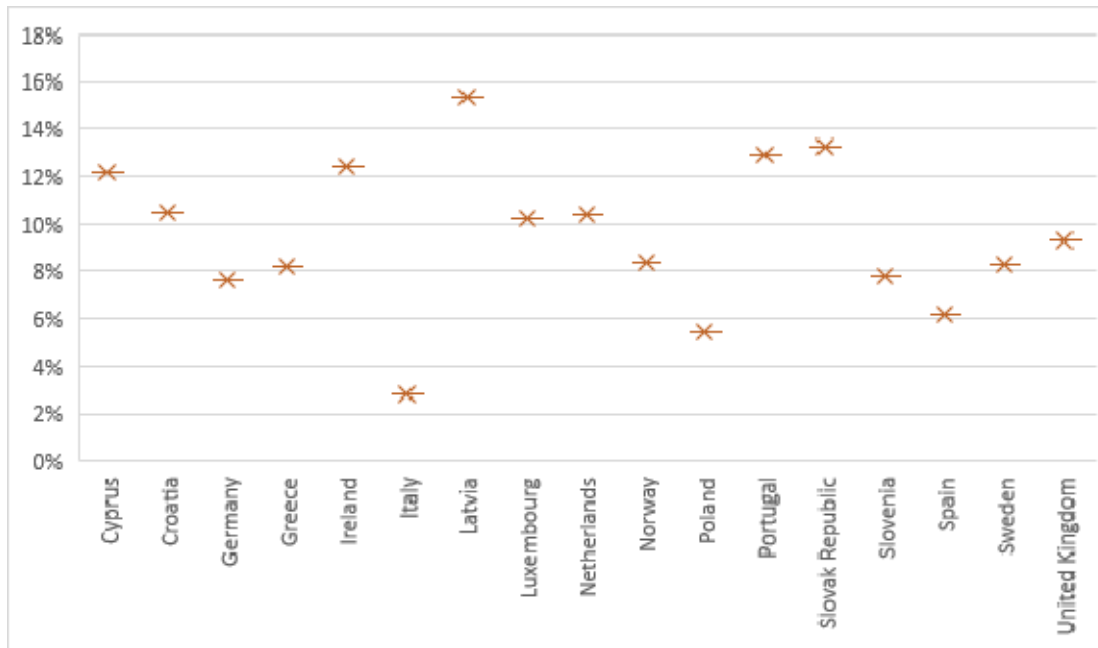
As part of the Data Analysis for the current Master's dissertation, available findings mainly relating to European Union countries including the UK (EU) stemming from the Global Entrepreneurship Monitor (GEM) will be assessed. In addition, a benchmarking exercise will be carried out, identifying and comparing entrepreneurial practices in top universities around the world, and the University of Cyprus (UCY).

5.1. Global Entrepreneurship Monitor Assessment Analysis

According to the 2019 GEM Report, the global Early-Stage Entrepreneurial Activity (ESEA) amounts to 8,2%. ESEA is measured as the percentage of the population within the 18–64 age group, who is actively engaged in starting or running a new business. The term “new business” refers to an entity that has been established in the last 3,5 years. As such, the ESEA metric includes Nascent Entrepreneurs (those who have not yet paid any salaries for three months or more) and New Business Owners (those running a business which has been making payments for between three and 42 months). It does not include those who are running a business which has been making payments for more than 42 months, known as Established Business Owners.

Figure 5.1 below, graphically depicts ESEA for Cyprus and other European countries, as derived by the GEM data. Cyprus compares well with its EU counterparts that have been included in the GEM Report.

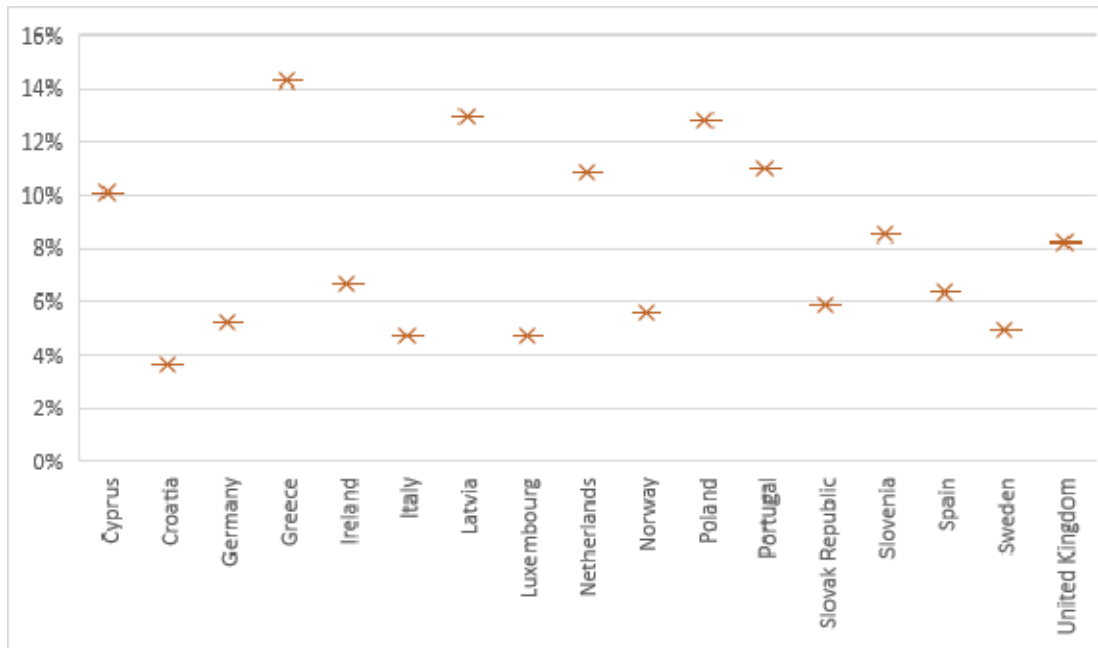
Figure 5.1: Early-Stage Entrepreneurial Activity



Cyprus scores 12,2% on the ESEA index, compared to an overall EU per capita average of 7,2%, calculated as the weighted average of Early-Stage Entrepreneurial Activity in each country, taking into account the population of that specific country.

In order to have a complete picture about Cyprus' standing regarding the success of entrepreneurs, and by proxy how nurturing the country's environment is for such ventures to flourish, one needs to also examine how many entrepreneurial ventures stand the test of time. GEM's Established Business Ownership Rate (EBO) index provides important insights regarding this aspect. EBO measures the percentage of the working population who currently owns an established business for more than 42 months. As per the 2019 GEM Report, Cyprus scores 10,1%, indicating that the majority of entrepreneurial ventures survive the 3,5 years mark. Cyprus' standing in the EBO index, compared to other EU countries, is portrayed in Figure 5.2, based on GEM derived rates for each individual country.

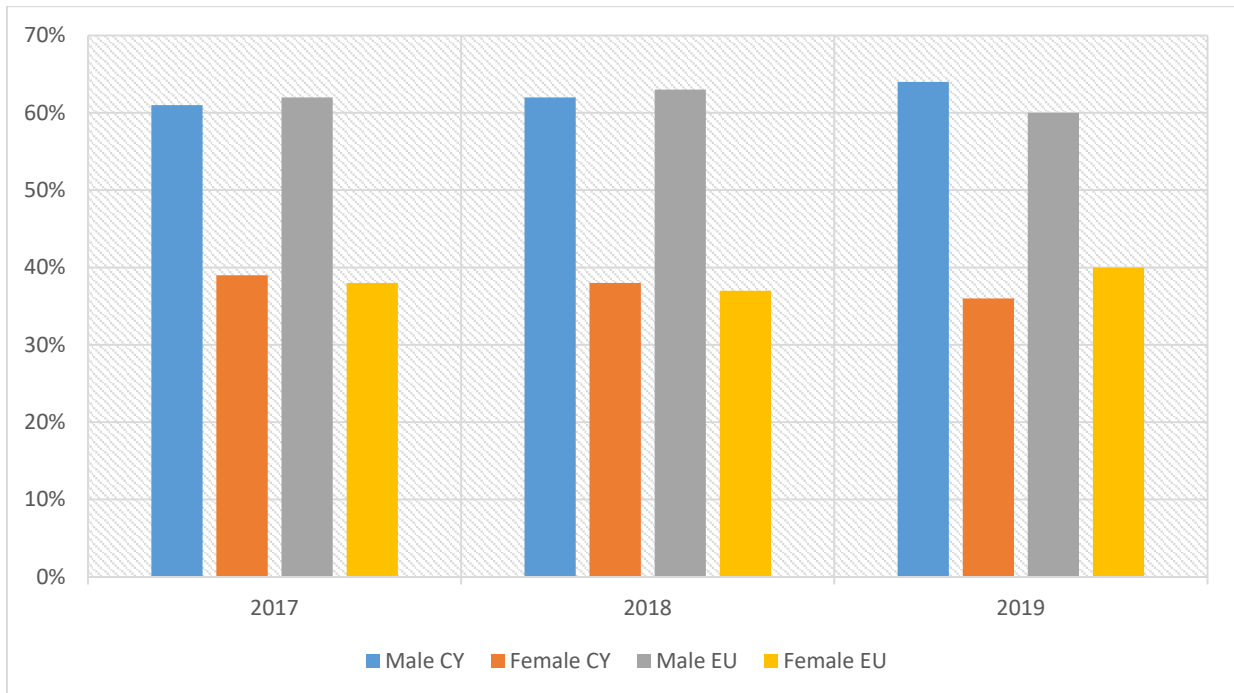
Figure 5.2: Established Business Ownership Rate



GEM data also address the gender issue in relation to entrepreneurial activity. In deriving gender data, the total Early-Stage Entrepreneurial Activity for males and females for Cyprus and European countries has been used. Using ESEA, the relationship between males and females involved in entrepreneurial activity for each country was determined. Then, the average for European countries was calculated, to enable comparisons between Cyprus and European counterparts.

As of 2019, males made up 60% of the total entrepreneurship workforce, both within the EU and globally. The situation is even more polarized in Cyprus, where women accounted for only 36% of total entrepreneurs. This gender gap has been steadily increasing in Cyprus over the past years, while the situation in the EU has been moving marginally in favor of women (up from 37% in 2018 to 40% in 2019). Relevant data, both for Cyprus and the EU can be seen in Figures 5.3 below.

Figure 5.3: Gender segregation of entrepreneurship in Cyprus and the EU

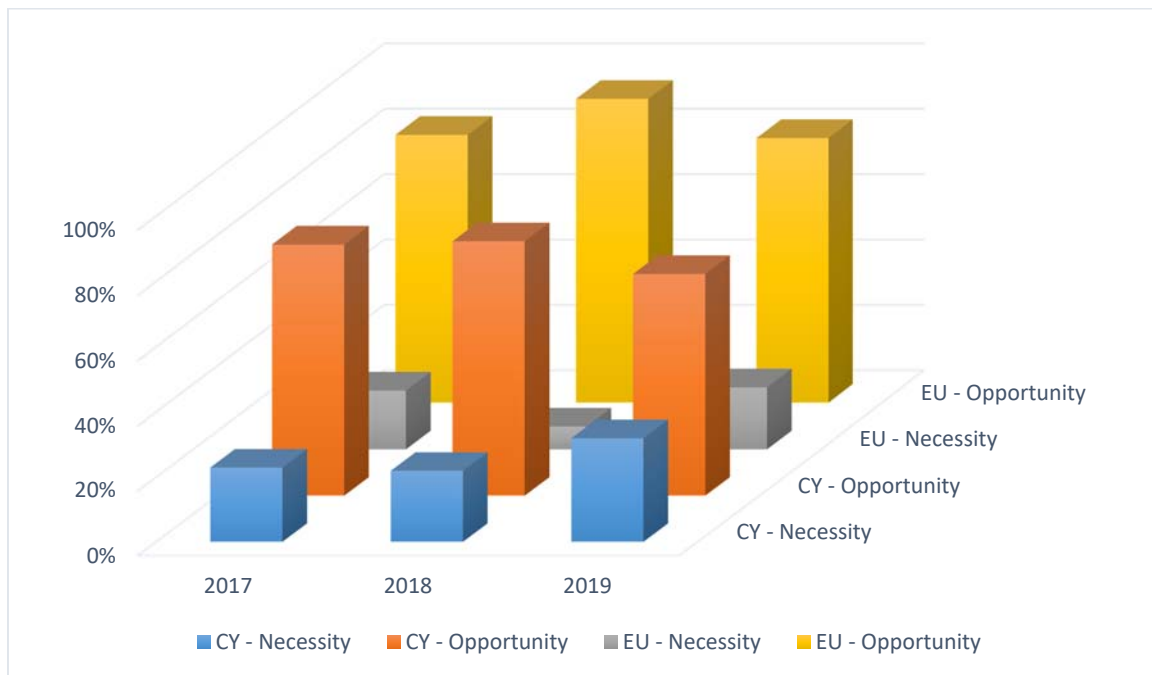


Even though the overall population gender spread in Cyprus has remained the same for the last decade (52% female - 48% male, according to the Cyprus Statistical Service), progressively less women are involved in entrepreneurship compared to their male counterparts. This indicates that not only the gender gap is wider in Cyprus compared to the global and the EU average, but also that this gap is extending, in contradiction with EU trend. Initiatives by the government to reverse this trend do not seem to have a substantial impact. Such initiatives include the Female Entrepreneurship Promoting Plan, offering startup capital to female entrepreneurs via the Ministry of Energy, Commerce and Industry.

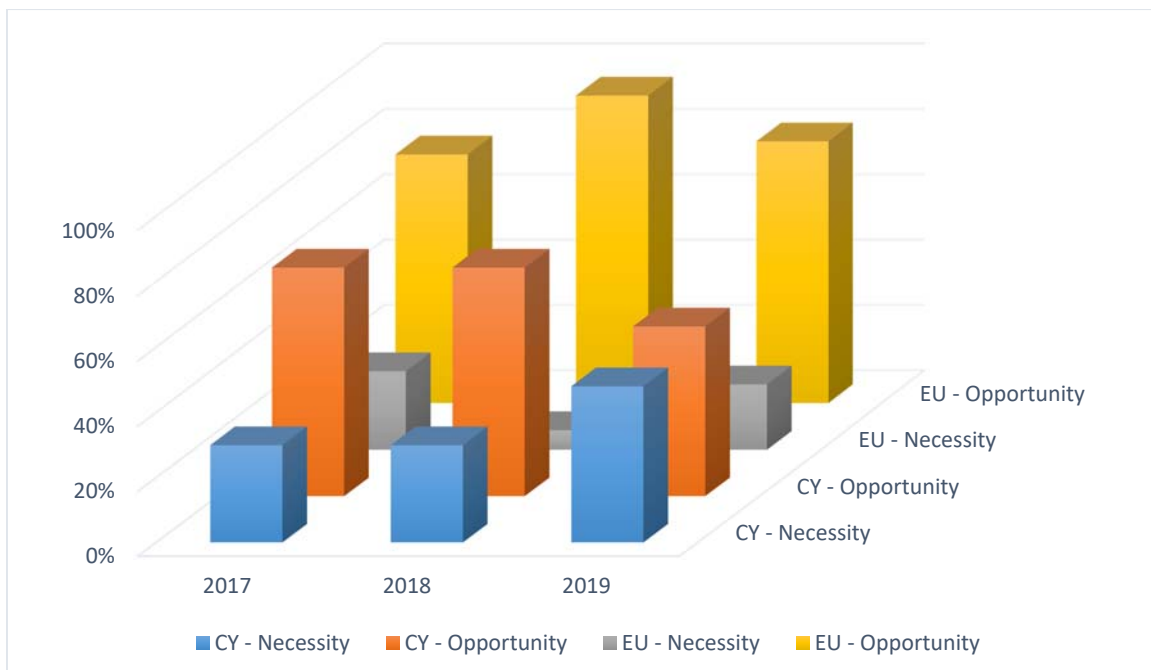
In trying to minimize this gender gap, one has to look deeper on what drives males and females to pursue entrepreneurial activity. As part of the GEM survey, entrepreneurs were asked to note whether they chose their career path due to necessity (lack of options) or opportunity. For 2019, 68% of males responded that opportunity was the driving force. Amongst females, only 52% noted that opportunity, rather than necessity, led them to entrepreneurship, much lower than the European female average of 80%. This data is plotted in Figure 5.4 below.

Figure 5.4: Entrepreneurship motivators (opportunity Vs necessity) per gender in Cyprus and Europe

Male entrepreneurs



Female entrepreneurs



As noted in Figure 5.4, women in Cyprus compared to women in the EU and men in Cyprus, lack the opportunity of becoming involved in entrepreneurial actions. Furthermore, Cypriot women are increasingly turning to entrepreneurship as a necessity, which could be the

result of higher unemployment rate within the female Cypriot population. According to World Bank data, unemployment rate for 2019 in Cyprus amounts to 8,4% for the female population and 7,5% for the male.

Evidently from Figure 5.4, opportunity drives entrepreneurship. Such opportunity and accessibility of resources, especially capital, has indeed featured highly on the literature review as a key element of enabling entrepreneurship. To better understand the impact of financing opportunities to the success of startups in Cyprus and the EU, data from GEM's questionnaires have been used. The GEM survey has identified sufficiency of funding for entrepreneurial activity from various sources. Respondents had to mark on a Likert scale from 1 to 9 (where 1 refers to 'completely false' and 9 refers to 'completely true') the level of sufficiency perceived for different funding sources. Results for Cyprus are noted on Table 5.1 below.

Table 5.1: Access to finance sufficiency in Cyprus*

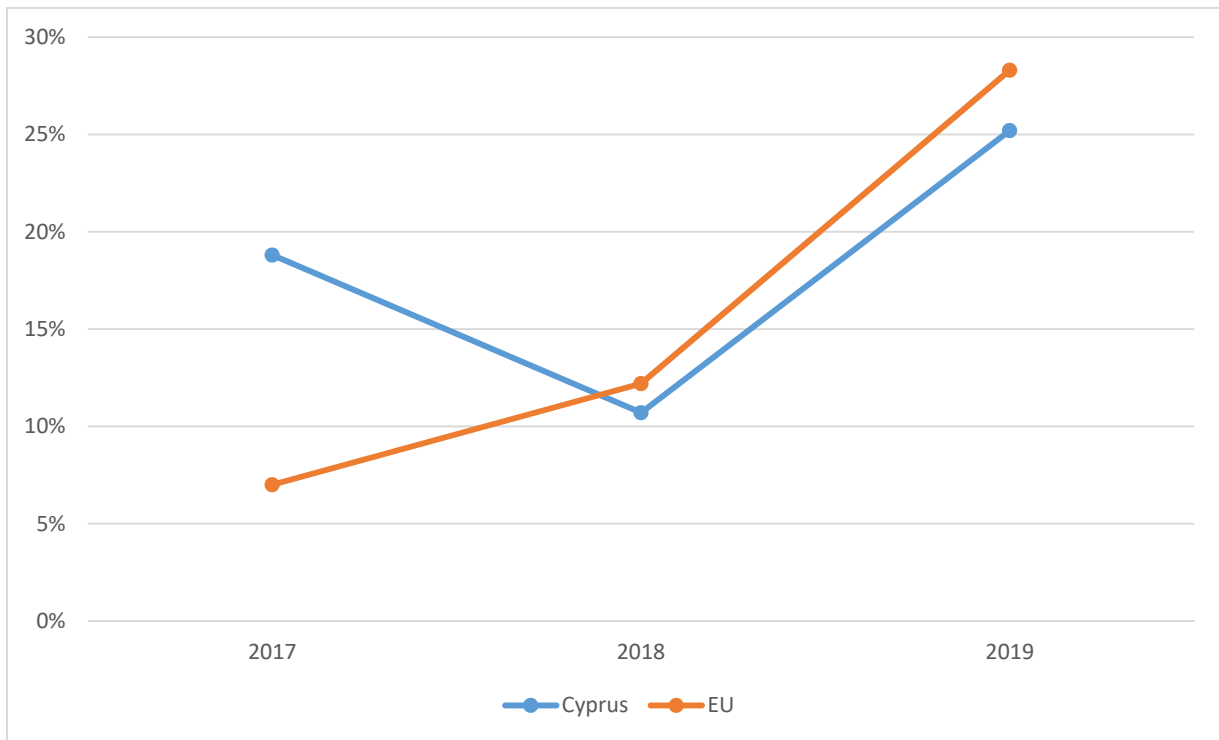
Sufficient funding from:	2017	2018	2019
Equity	3.3	3.4	4.0
Debt	3.5	3.7	4.4
Government Subsidies	4.8	4.3	4.9
Informal investors (family, friends, etc)	4.4	5.0	5.1
Business Angels	4.0	4.2	4.2
Venture Capitalists	2.3	2.5	3.2
Initial Public Offerings on the Stock Exchange	2.3	2.4	2.7
Crowd funding	2.1	2.7	2.8
Total average	3.3	3.5	3.9

* (scale: completely false =1, completely true = 9)

The overall sufficiency appears to be low, standing at 3.9 in 2019, especially when compared to the EU average of 4.7. On the positive side, the perception regarding fund sufficiency from various sources has been increasing year-on-year. As evident by Table 5.1 above, entrepreneurs find it very difficult to raise capital through the Cyprus Stock Exchange, while the crowd funding culture has not been gaining pace in Cyprus. In addition, due to the country's small size, Cypriot startups have been kept below the radar of venture capitalists.

GEM data also indicate how financing problems have led to startup failures. As evident by Figure 5.5 below, both in Cyprus and the EU there is a big (and increasing) impact of financing problems on entrepreneurship.

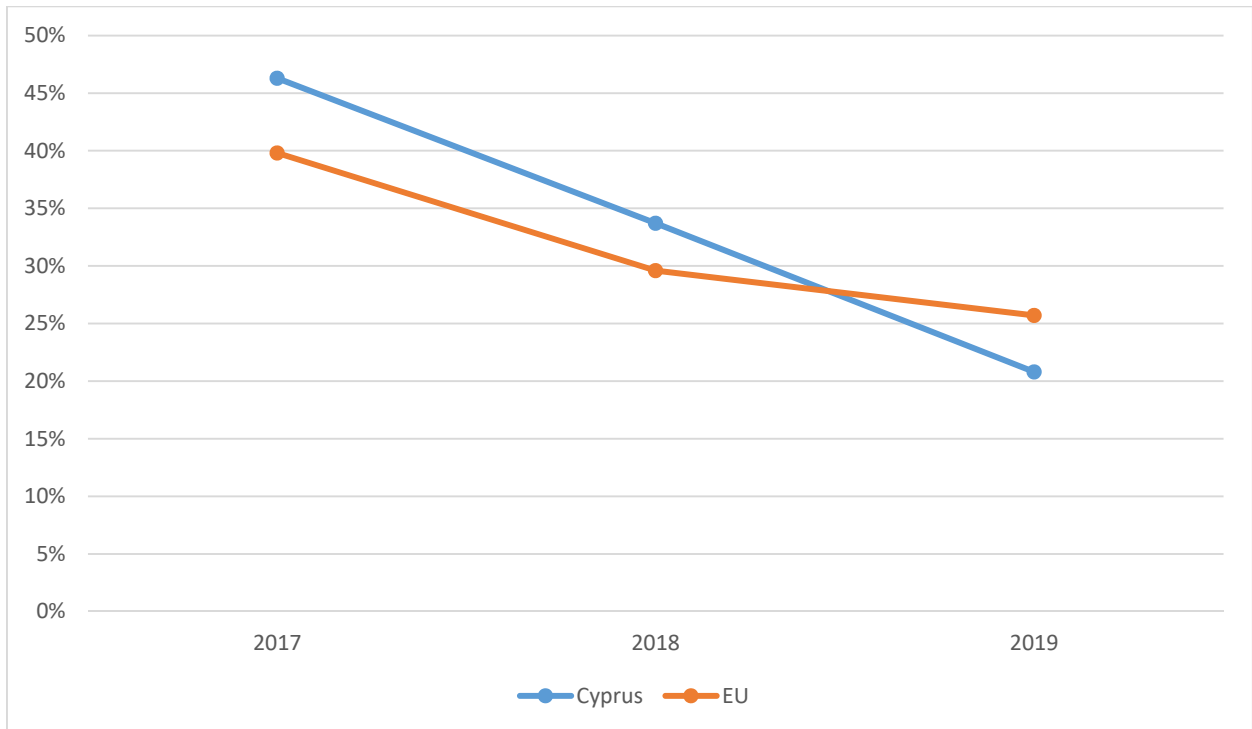
Figure 5.5: Effect of finance problems on startup success



Seen in Figure 5.5 above, in 2019 problems securing finance account for 25% of startup failures in Cyprus. In line with EU trend, access to finance as a sustainability barrier for Cypriot start-ups has more than doubled compared to last year. In inverting these trends, and ultimately boosting long-term entrepreneurship, the Cypriot Business Ecosystem (Government, banks, incubators, etc.) needs to provide remedies enabling newly established business to gain finance access (e.g. through Government guarantees for securing loans, through tax breaks for investing in start-ups, through setting up a business angel / fund / crowdfunding framework).

It has to be noted, however, that financing need not only come from external sources, but it could also be generated internally, through plowing back the startup's profits. For this to happen, however, the entity must be able to make profits. As the data reveal, another important reason why startups fail, is their inability to become profitable. Figure 5.6 below indicates the effect of such profitability issues on the survival of entrepreneurial endeavors.

Figure 5.6: Effect of lack of profitability on startup success

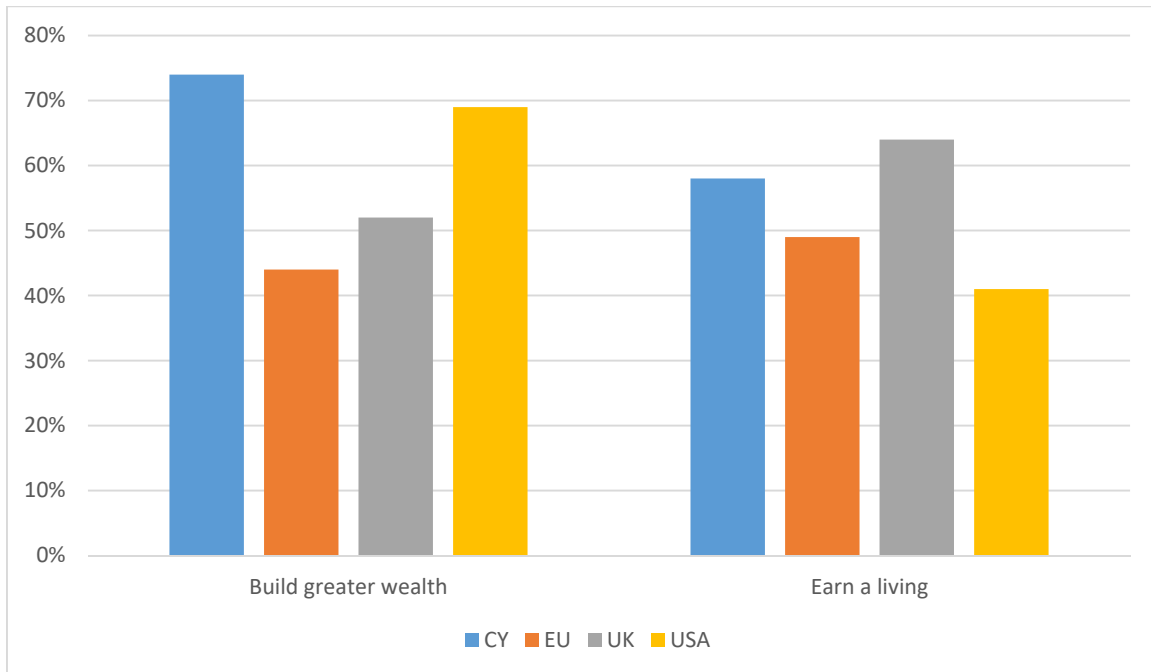


In 2019, 21% of Cypriot startups had to discontinue operations because they were loss making. Fortunately, this percentage is steadily decreasing, (from 47% in 2017 to 21% in 2019) indicating that entrepreneurial companies are performing better as time progresses. This finding, also highlights the importance of making a profit in the success of entrepreneurial activity. The relationship between profit and success appears to be two-fold. On the one hand profits provide a quick, cheap and readily available financing opportunity for the ever-increasing needs of newly established startups. On the other hand, profits enable the entrepreneur to accumulate personal wealth.

Based on GEM data, the latter comes up as the most important reason why an individual in Cyprus sets out on an entrepreneurship journey. The need to increase one's income base, combined with the perception that owning your business gives higher income prospects, is a motivating factor towards becoming an entrepreneur. In 2019, a staggering 74% of Cypriot entrepreneurs have identified Building Greater Wealth as a prime reason for becoming an entrepreneur. The EU average for the same year was 44%, while Cyprus maintained the second higher percentage throughout EU countries. Similarly, 58% of Cypriot entrepreneurs in 2019 have said that their career choice stemmed from the need to Earn a Living, because jobs are scarce. Especially valid during recessions, the inability to find a job, combined with financial distress and the willingness to work, drives people to set

up their own businesses. In Cyprus, this reason features higher than the 49% EU average. These results are summed up in Figure 5.7 below.

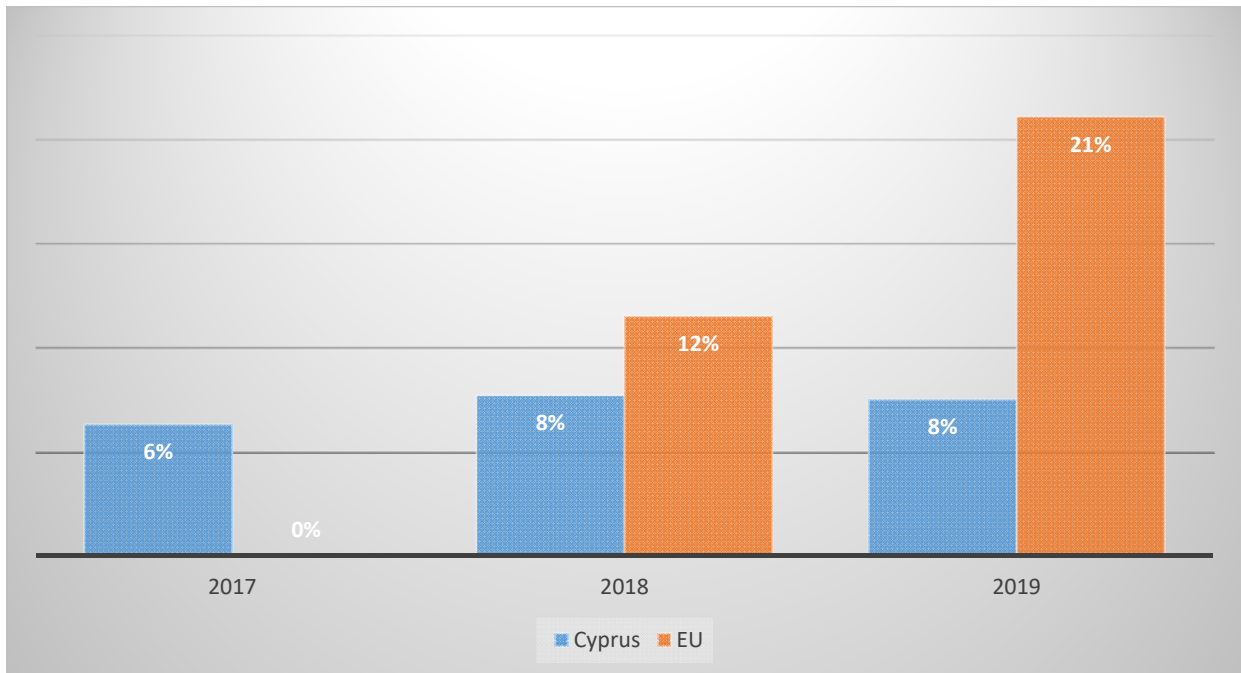
Figure 5.7: Importance of accumulating wealth and earning a living as motivators for entrepreneurship



As seen in Figure 5.7, entrepreneurial activities in Cyprus are mainly driven by the urge to make money; either because people feel they are not earning enough where they currently work or because they find it difficult to secure a job. In this aspect, Cyprus is scoring well above European averages. In fact, the 'Build Greater Wealth' motivating factor is as powerful as it appears for the US, indicating that measures taken by US universities to promote entrepreneurship could be replicated by UCY.

The effect of the state has also been reviewed as part of the data analysis. The government, being a key stakeholder within the innovation and entrepreneurship ecosystem, can formulate policies and take action to facilitate entrepreneurial activity. To examine the state's role in maintaining such activity, GEM data is used to identify the impact of government (and bureaucracy) on the discontinuance of newly established business operations. As can be seen in Figure 5.8 below, in 2019 8% of Cypriot entrepreneurs have failed because of government related issues.

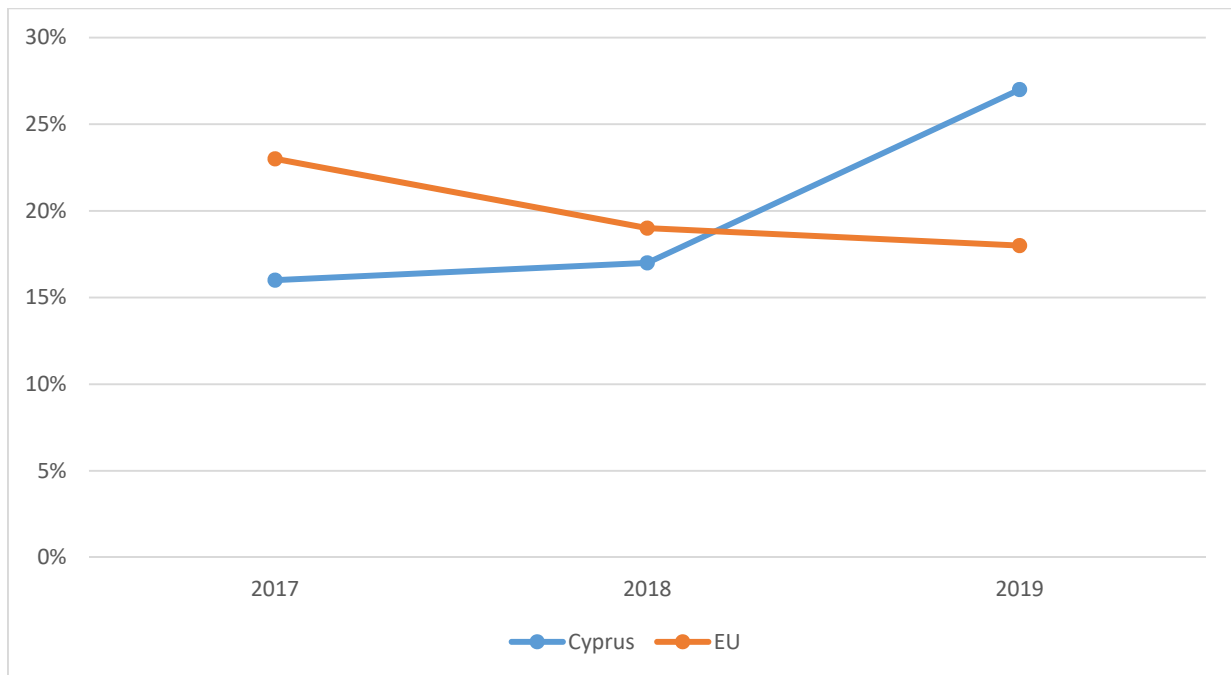
Figure 5.8: Effect of Government / bureaucracy on failure of startups



At an EU level, the adverse effect of government actions on entrepreneurship is pursuing a worryingly upward trend. In Cyprus, the impact has remained stable over the last years, implying that not much is changing on the specific front. Government policies enacted in recent years (such as tax benefits for investing in startups, promoting youth and women entrepreneurship funding schemes, establishment of Ariadne e-government platform), do not seem to have a substantial impact on the real entrepreneurial economy, as evident by both Figure 5.8 above, and Cyprus' trend in entrepreneurship activity.

Another factor being examined is whether a person's propensity to become an entrepreneur is predisposed by past experiences. In fact, GEM data portray Continuing Family Tradition as one of the motivating factors giving rise to entrepreneurial activity. An upbringing in surroundings where setting up an own business has been the norm, seems to create an appetite towards entrepreneurship when children turn adults. For 2019, in Cyprus, 30% of entrepreneurs consider this specific factor important on their decision to pursue their career. In the EU, the respective percentage is marginally higher, standing at 33%. Further investigating relevant data, the importance of personal / family factors in pursuing entrepreneurship stems out. In 2019, 27% of Cypriots discontinued their newly established business operations because of family or personal reasons. As evident by Figure 5.9 below, this percentage has been increasing in the last years, following the reverse trend from the EU.

Figure 5.9: Impact of family/personal reasons on startup failures



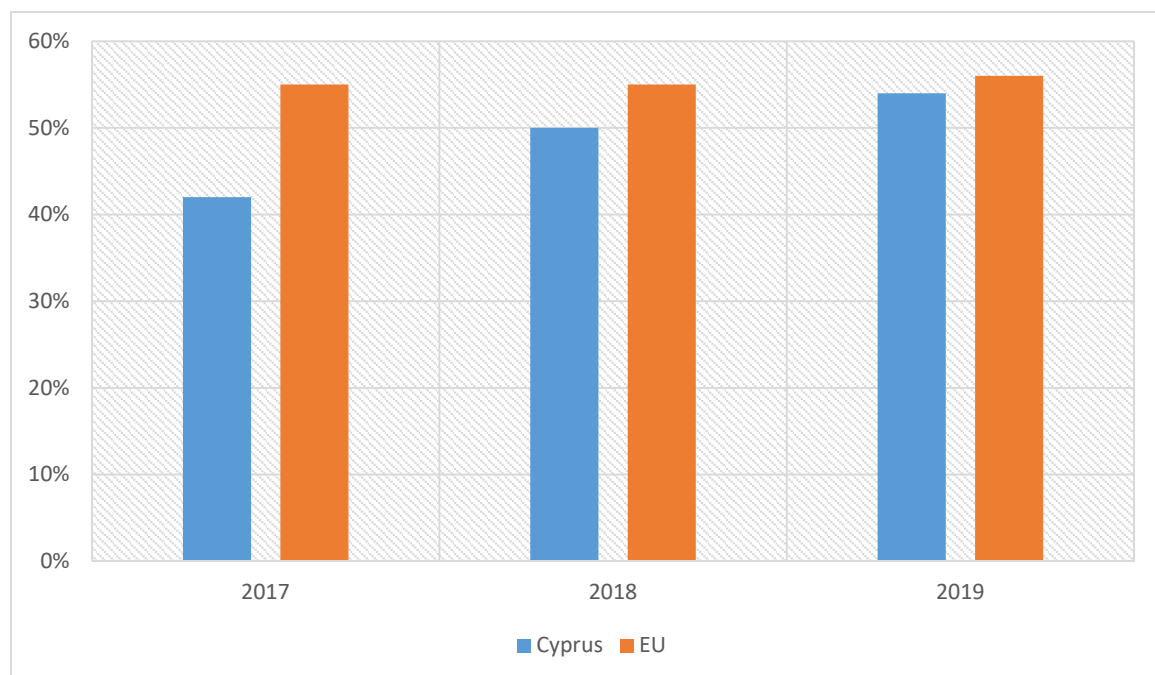
Such family and personal reasons may include the long hours associated with self-owning a newly established business, age and family composition changes, as well as hereditary factors (such as lack of risk assertiveness, persistence and optimism). The latter is evident by the fact that, according to GEM data, 36,4% of Cypriots fear failure, while only 21% consider themselves as having entrepreneurial intentions. The specific factors giving rise to this barrier of entrepreneurship may be the object of future research, in order to identify them and offer remedial action.

One of the personal factors that has been found to create opportunity for enhancing entrepreneurial activity is the urge to Make a Difference. In 2019, 45% of Cypriots identified this specific motive as a driver for engaging in entrepreneurial activity, compared to an EU average of 42%. The need to create an impact appears to be especially important for those belonging to Generation Y (millennials, born between 1980 and 1994) and Generation Z (born between 1995 and 2015). According to the Millennial Impact Report (The Millennial Impact Report, 2020), whose data is based on a survey of millennials from 300 companies, 94% of millennials want to use their skills to benefit a cause. Similarly, a 2019 report by the Institute of Chartered Accountants in England and Wales (Attract Gen Z, ICAEW, 2019) has identified “making an impact” and “being part of something exciting that is ‘doing good’ for society or the world” as key considerations for Generation Z’s career choice. Considering that the average age group of the Cypriot entrepreneur is 45-54 years of age, it is expected

that as more individuals from Generations Y and Z enter this age band, the impact of the 'Make a Difference' motivating factor will be increasing.

It is important to mention that societal factors and perceptions towards entrepreneurship may also form part of the personal reasons mentioned above. For Cyprus, data analyzed indicate that in 2019, almost 70% of society perceives entrepreneurship as a good career choice. This is significantly higher than the 60% European average. At the same time, however, media attention towards entrepreneurship is quite lower, as evident by Figure 5.10 below.

Figure 5.10: Media exposure for entrepreneurship

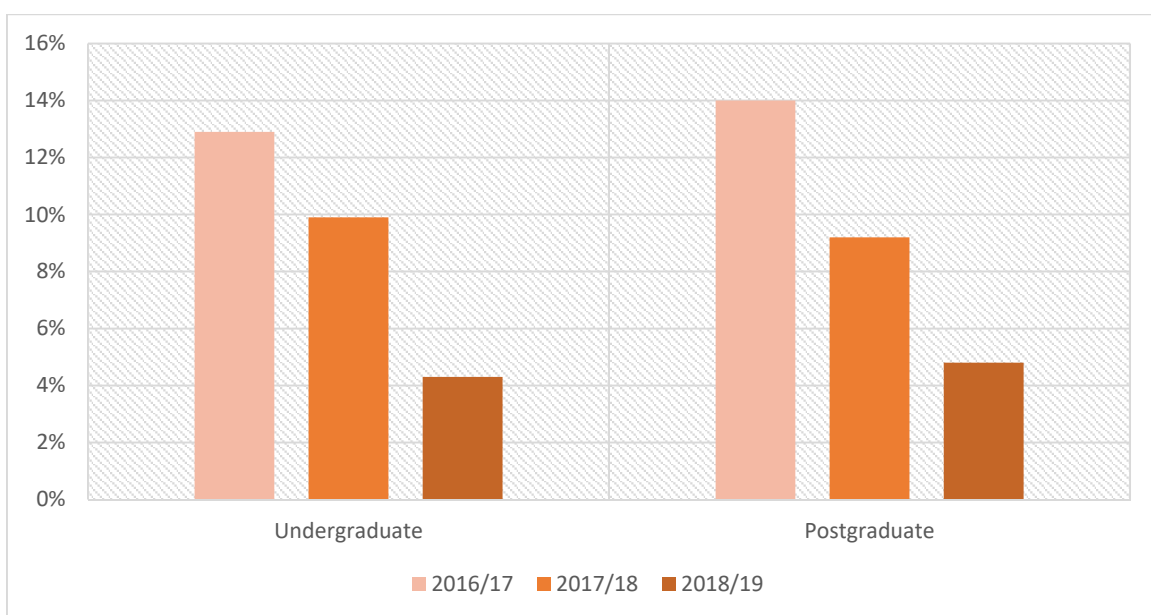


As highlighted in the literature review of the current Master's dissertation, media attention is an impactful factor towards boosting entrepreneurial activity. As indicated by Figure 5.10 above, media attention in Cyprus is consistently below the EU average, providing ample room for improvement in capturing such attention from media, and directing it towards advertising success stories and promoting the importance and the benefits of entrepreneurship and innovation.

As the current Master's dissertation examines the engagement of higher education students and graduates in entrepreneurial activity, data relating to the contribution of this type of workforce is reviewed. GEM generated data, indicate that the percentage of the population involved in Early-Stage Entrepreneurial Activity and holding an undergraduate degree is

4,3%, while the percentage of those involved in ESEA and have a postgraduate degree is 4,8%. The respective numbers for Europe are significantly higher, 6,8% and 9,9% respectively. It has to be noted, that degree holders form the largest component of potential entrepreneurs, as only 1,7% of the Cypriot population involved in ESEA are just high-school leavers. The annual trend of university leavers' involvement in ESEA also provides meaningful insights regarding the success of recent actions towards enhancing entrepreneurial activities. This trend is depicted Figure 5.11.

Figure 5.11: Percentage of the population that received higher education and is involved in Early-Stage Entrepreneurial Activity



As shown above, higher education graduates' involvement in Early Stage Entrepreneurship in Cyprus is continuously decreasing, raising the flag as action needs to be taken in order to overturn this trend and achieve results closer to those of its European counterparts. Universities, through their own ecosystems, should find ways to train their students, and set up the necessary nurturing environment for establishing a culture of entrepreneurship.

Building on what has already been discussed regarding university students, data from the GEM report provide further insights as to the existence and adequacy of measures taken by higher education institutions in Cyprus to enhance Early Stage Entrepreneurship. These are depicted in the following table.

Table 5.2: Measures by Education Institutions to Enhance Entrepreneurship*

	2017	2018	2019
Colleges and universities provide good and adequate preparation for starting up and growing new firms.	4.5	4.5	5.2
The level of business and management education provides good and adequate preparation for starting up and growing new firms.	5.5	5.0	6.1
The vocational, professional, and continuing education systems provide good and adequate preparation for starting up and growing new firms.	5.0	3.9	4.4

* (scale: completely false =1, completely true = 9)

Considering that UCY serves as the single largest institution where Cypriots go to study, the above metrics are expected to be true for UCY. The University seems to be doing a better job in providing business and management education for setting up new firms, than the overall preparation provided to would-be entrepreneurs. This may imply that more needs to be done from individual Departments relating to cultivating ideas creation. A gap also emerges in the continuing education and development areas. Universities need to provide more life-long learning programs, as well as incorporating professional education into their curricula (perhaps through the inclusion of Work Placement courses).

5.2. Benchmarking Analysis

Identifying best practices in promoting entrepreneurship as applied by top ranked Universities can greatly enhance the tools offered by UCY to its students and graduates, in an effort to boost their entrepreneurial prospects. Using the Times Higher Education World Rankings (TIMES) for 2020, the top 10 universities worldwide with the highest overall score have been selected, and the way each university has been promoting Entrepreneurship has been documented in the Table below. The Table also identifies respective entrepreneurial promoting actions taken by the UCY, so as to recognize what more can be done to enhance entrepreneurial activity in the UCY.

Table 5.3: Comparing UCY to top 10 TIMES ranked Universities

TIMES Ranking	University ✓ Entrepreneurship promoting entity	Ways of Promoting Entrepreneurship
1	University of Oxford ✓ The Entrepreneurship Centre	<ul style="list-style-type: none"> ❖ Student-focused programs (workshops designed to offer knowledge, advice and mentoring on how to set up an own business, as well as creating networking and cross-fertilization opportunities) ❖ Access to funds (up to €50,000 for Oxford-affiliated start-ups)
2	California Institute of Technology ✓ Office of Technology Transfer and Corporate Partnerships	<ul style="list-style-type: none"> ❖ Internally funded programs (aimed to move technologies from the lab to the market space) ❖ Summer Undergraduate Startup Internship (offering students the opportunity to work in existing startups) ❖ Entrepreneurs Forum (holding monthly talks on technology-based topics) ❖ Academic Courses on science & technology based entrepreneurship, venture capital, and digital ventures design
3	University of Cambridge ✓ The Entrepreneurship Centre	<ul style="list-style-type: none"> ❖ Evening lectures & networking sessions, tailored to educate potential innovators on how to transform an idea into an enterprise, teach them basic business skills and guide them on how to unleash their entrepreneurial potential. Lectures are offered by both field academics and existing entrepreneurs / practitioners ❖ Accelerate Cambridge (3-month programs for teams of entrepreneurs, offering training, coaching and workspace)

TIMES Ranking	University ✓ Entrepreneurship promoting entity	Ways of Promoting Entrepreneurship
		<ul style="list-style-type: none"> ❖ Ignite (intensive 1-week programs for potential entrepreneurs who want to prepare and commercialize business ideas) ❖ EnterpriseTECH (series of lectures, workshops and supervisions, leading to a feasibility study and pitch strategy) ❖ Venture Creation Weekends (an opportunity for entrepreneurs to identify if their ideas are viable) ❖ EnterpriseWOMEN (educational and mentoring opportunities, tailored especially for women who want to create or expand their own business) ❖ Strategic Business Growth (aimed towards businesses, helping them develop their managerial skills)
4	Stanford University ✓ Center for Entrepreneurial Studies ✓ Stanford Seeds	<ul style="list-style-type: none"> ❖ Entrepreneurial Experiential Courses, offering knowledge on how to evaluate new venture opportunities ❖ Functional courses, teaching functional skills from the perspective of new ventures (e.g. engineering, IT, leadership, marketing) ❖ Industry Specific Courses, where students can learn about innovation in specific industries (e.g. Health care, Energy, Transportation) ❖ Social Innovation Courses, enabling students to learn how to create an impact to the world, beyond shareholder value, through entrepreneurial ventures.

TIMES Ranking	University ✓ Entrepreneurship promoting entity	Ways of Promoting Entrepreneurship
		<ul style="list-style-type: none"> ❖ Startup Garage (intensive course, enabling student teams to design and test new business ideas) ❖ Stanford Venture Studio (entrepreneurship hub for graduate students, connecting interdisciplinary peers and giving access to resources and expertise) ❖ Entrepreneurship Case Studies (sharing best practices and success stories) ❖ Stanford Seeds (Aimed specifically for assisting entrepreneurial projects in Developing Economies)
5	Massachusetts Institute of Technology ✓ Martin Trust Center for MIT Entrepreneurship	<ul style="list-style-type: none"> ❖ Courses (both in class and on line, including speakers series), offering academic and practical knowledge on how to design, develop and commercialize an idea and how to setup and manage a startup. Available courses are both industry generic, and specific to selected booming industry sectors (e.g Medicine) ❖ Entrepreneurship Competitions (offering up to \$100.000 prize money) ❖ Fellowships & Grants (available to students, researchers, alumni and faculty, it offers both cash funding, mentoring, network opportunities and access to tailored resources) ❖ Accelerator programs (in and out of campus intensive events, offering access to funding capital, both from the university and from external donors)
6	Princeton University ✓ Keller Center (Princeton	<ul style="list-style-type: none"> ❖ Academic Courses on entrepreneurial leadership, venture capital & finance of innovations, creativity innovation & design, foundations of engineering and business ❖ eLab Accelerator & Incubator (offering resources, mentoring, funding, as well as internships)

TIMES Ranking	University ✓ Entrepreneurship promoting entity	Ways of Promoting Entrepreneurship
	Entrepreneurial Hub)	<ul style="list-style-type: none"> ❖ Innovation Forum (annual competition and networking event open to faculty, research staff, post-docs and graduate students, offering prizes of up to \$15.000) ❖ Princeton Startup Immersion Program (summer program for talented students seeking real-world experience at emerging startups in New York City, Shanghai and Tel Aviv) ❖ Student Project Funding (awarded through a competitive procedure, funding is offered by the university to support entrepreneurial activities outside the classroom in STEM - science, technology, engineering and mathematics - fields) ❖ Tiger Challenge (aiming to make an impact in the society through innovative, entrepreneurial social projects)
7	Harvard University ✓ Harvard Innovation Labs ✓ Arthur Rock Center for Entrepreneurship	<ul style="list-style-type: none"> ❖ Venture Incubation Program (12-week program offering mentoring and access to resources) ❖ Launch Lab X (available only to Harvard alumni, offering support from idea conception, until product maturity) ❖ Harvard i-lab (available to all Harvard students, it provides access to physical and intellectual resources necessary for incepting and pursuing innovative, entrepreneurial ideas) ❖ Pagliuca Harvard Life lab (15,000-square feet fully equipped facility, available for Harvard students, faculty and alumni pursuing innovative research) ❖ Funding Opportunities (opportunities for ventures to win funding of up to \$285,000, while offering access to a \$6 million fund for start-ups)

TIMES Ranking	University ✓ Entrepreneurship promoting entity	Ways of Promoting Entrepreneurship
8	Yale University ✓ Yale Entrepreneurship Collaborative	<ul style="list-style-type: none"> ❖ Academic courses on entrepreneurship, under the umbrella of the School of Management, on how to set up and manage a startup, tackling issues relating to finance, human resources, marketing and accounting ❖ Courses aiming in assisting students to work in teams in order to develop creative solutions for the real world. Such courses include Engineering Innovation and Design, Musical Acoustics and Instrument Design, Green Engineering and Sustainable Design, Medical Device Design and Innovation ❖ Sobotka Seed Stage venture Grants (2 funding opportunities of up to \$10.000 for students and faculty for entrepreneurial ventures) ❖ Entrepreneurship & Innovation Clinic (providing mainly legal advice to entrepreneurial activities led by Yale students, faculty and alumni) ❖ Startup Yale (two-day event that brings together Yale's potential entrepreneurs, who try to pitch their ideas to get access to awards and funding) ❖ Scholarships (for MBA students who portray entrepreneurial spirit) ❖ Networking events (such as the Yale Women Innovators Breakfast Series)
9	University of Chicago	<ul style="list-style-type: none"> ❖ Academic Courses, offering holistic entrepreneurial knowledge. These courses are specially designed to cater the needs of prospective entrepreneurs, offering knowledge on how to design and develop an idea, how to setup and manage a startup, how to secure the necessary funds and

TIMES Ranking	University ✓ Entrepreneurship promoting entity	Ways of Promoting Entrepreneurship
	✓ Polsky Center for Entrepreneurship and Innovation	<p>how to tackle potential issues (growth management, leadership, taxes and business strategy, buyout and exit prospects)</p> <ul style="list-style-type: none"> ❖ Polsky Exchange (34.000 square feet start-up hub, featuring co-working space and a fabrication lab, enabling the transfer of an idea into a physical object. Available for free to faculty, students and staff) ❖ Mentorship ❖ Funding & Scholarships (money provide by both the University and various donors / business angels) ❖ Networking Events (such as the Women & Entrepreneurship Conference, New Venture Challenge, Start-Up Networking Night, Innovation Fest, Entrepreneurship Through Acquisition Symposia)
10	Imperial College London ✓ White City Incubator ✓ Think Space	<ul style="list-style-type: none"> ❖ Innovation Academy (series of courses offering basic knowledge for building, growing an exiting a startup company) ❖ Hub space (54.000 square feet which includes meeting rooms, offices and labs. The latter are equipped with adjustable benches and sinks, gas, electricity and water supply and high-speed communication networks.) ❖ Networking and events ❖ Access to service providers and suppliers, offering preferential rates and payment terms

TIMES Ranking	University ✓ Entrepreneurship promoting entity	Ways of Promoting Entrepreneurship
		<ul style="list-style-type: none"> ❖ White City Innovators Program (6-week program open to would-be entrepreneurs, offering essential insights of the process between idea inception and product commercialization, leading into a pitch event offering the chance to win £15.000 worth of prizes)
401-500	University of Cyprus ✓ C4E Centre for Entrepreneurship	<ul style="list-style-type: none"> ❖ Lecture series offering broad, basic knowledge on innovation and entrepreneurship, providing information on how students can incept innovative ideas and transform them into products or services that can be commercialized. It covers, amongst others, aspects of finance, law, strategy and leadership. ❖ Technology Entrepreneurship course, available to UCY postgraduate students with an appetite of transforming technological (software and internet-based) ideas into marketable products or services ❖ Mentoring ❖ Events (Annual Innovation & Entrepreneurship Forum) ❖ C4E Young Scholars (providing partial financial support to selected students of UCY, for attending the summer entrepreneurship accelerator program of the European Innovation Academy)

Table 5.3 above serves as a benchmarking tool, from which the UCY can extract ideas on how to promote entrepreneurship within its Community (students, faculty, researchers, alumni). The primary actions currently employed by top universities to motivate and push students and graduates to engage in entrepreneurial activity, and how UCY compares to them, are identified below:

- i. Hub Space: setting up a dedicated physical space for promoting innovation and entrepreneurship offers an opportunity for multidisciplinary students to come together, exchange ideas and collaborate towards common endeavors. Cross-fertilization will both enhance existing ideas (making them marketable) but also create new ones. Such hubs can be found in Harvard University, The University of Chicago and the Imperial College London. Even though UCY has a number of labs spread within the city of Nicosia, it does not have a single hub space. This space could incorporate equipment currently found in various individual labs in UCY (e.g. 3D printers currently only found in the Architecture department, may be used to transform an idea to an object, irrespective of the inceptor's department).
- ii. Funding: as already established earlier on in this Master's dissertation, problems securing finance is a major barrier to entrepreneurship. In remedy to this drawback, top universities have found ways to make funding available to entrepreneurial ideas, usually through a competitive process. Such funding is derived both from internal (university money) and external (donors, business angels) sources. Universities that have been very successful on this aspect are Stanford (raising \$2.2 billion capital annually), Harvard (raising \$1.95 billion annually) and MIT (raising \$1.6 billion capital annually). UCY is lacking behind this process, as no funding opportunities are offered to potential entrepreneurs and not much support is given for ensuring access to external funding.
- iii. Events: gatherings create opportunities for networking and socializing while increasing exposure of entrepreneurship. Generic events (open to all) are very important, especially in the early years of setting an entrepreneurship center when creating awareness is a primary objective. As the entrepreneurial ecosystem matures, more focused events are needed, based on the priorities of the university and the community. Events and networking are also a prime opportunity for meeting potential collaborators and financiers (donors, venture capitalists, business angels). UCY

currently only organizes a small range of generic events, with the highlight being the annual Innovation & Entrepreneurship Forum.

- iv. Entrepreneurship Mentoring: all top universities examined above are utilizing their alumni and network to provide ad-hoc and structured guidance to potential entrepreneurs. UCY currently provides such mentoring, but on a very limited scale. Only 30 mentors are involved in this activity, of which approximately half are existing UCY faculty staff.
- v. Industry Specific Courses: cutting-edge industry sectors, whose products are on high demand, need special attention. Similarly, students from different faculties and with different interests need to be catered for. Driven by these two factors, top universities such as Yale, Stanford and the MIT are offering industry specific courses, where students can learn about pursuing entrepreneurial activity on the field closer to their interests, such as Health Care, Green Energy, Transportation, Education, Music. UCY's Centre for Entrepreneurship provides two courses on entrepreneurship, covering broad knowledge on how students can incept innovative ideas and transform them into products or services that can be commercialized. It covers, amongst others, aspects of finance, law, strategy and leadership. In addition, it provides one course for postgraduate students in technology enterprise.
- vi. Social Impact: top universities offer their students knowledge, experience and resources, through which they can make a difference through entrepreneurial projects. Such actions highlight the importance of people's and the environment's wellbeing, portraying the fact that entrepreneurship need not always be applied in pursue of financial wealth. UCY's C4E does not seem to be involved in such projects.

In order to best identify how UCY compares against top universities, the information can be organized in the competitive grid on the next page.

Figure 5.12: Competitive Grid based on data obtained from universities' websites

	UCY	Oxford	CalTech	Cambridge	Stanford	MIT	Princeton	Harvard	Yale	Chicago	Imperial
Access to Financing		√	√			√		√			
Mentoring	√						√	√		√	
Generic Networking / Events	√	√	√	√	√	√			√	√	√
Focused Events				√					√	√	
Space (Hub)					√			√		√	√
Courses (including lectures & workshops)		√	√	√	√	√	√		√	√	√
Internships	√		√				√				
Social Entrepreneurship stimuli					√		√				
Entrepreneurship competitions				√		√	√	√	√	√	√

In addition to identifying best practices in top universities, it is also meaningful to benchmark against universities that are producing the most entrepreneurs and startups. According to data gathered by analysts PitchBook for the years 2006 to 2018, the top 5 universities and their performance in this field are shown in Table 5.4 below.

Table 5.4: Top Universities in creating entrepreneurs and startups (based on PitchBook analysts data)

Rank	University	Entrepreneurs	Startup Companies	Capital raised
1	Stanford University	1,178	1,015	\$ 28.84 billion
2	University of California, Berkeley	1,137	1,012	\$ 20.78 billion
3	Massachusetts Institute of Technology	941	819	\$ 21.24 billion
4	Harvard University	900	799	\$ 25.35 billion
5	University of Pennsylvania	838	757	\$ 15.82 billion

As evident by Table 5.4, the majority of the top 5 universities creating entrepreneurs and startups are also part of the overall-ranked best universities in the world. This indicates the importance of entrepreneurship both as a means of achieving excellence, and as an index for identifying success. It also adds credibility to using best practices of overall top universities for boosting entrepreneurship.

Further analyzing data from PitchBook relating to the most entrepreneurial-productive universities across the world, it can be seen that the only universities ranked in the top 20 which are not in the USA, are Tel Aviv University (640 Entrepreneurs, 531 Startups, \$7.91 billion capital raised) and Technion Institute of Technology (468 Entrepreneurs, 395 Startups, \$7.20 billion capital raised). Both are located in Israel, which has much to share with Cyprus; geographical location, 2019 GDP Growth (Israel: 3.4%, Cyprus: 3.9%), 2019 GDP Per Capita (Israel: \$38k, Cyprus: \$39k), 2019 World Bank Starting a Business Rating (Israel: 94%, Cyprus: 92%). Israel's success seems to be stemming from a combination of factors. Heavy spending on Research & Development is certainly boosting innovation. According to UNESCO, Israel's 2018 R&D as a percentage of GDP was the second highest in the world, reaching 4.2%. For the same year, Cyprus R&D spending was merely 0.5%. In

Israel, the R&D funds are directed to the Universities, which invest them in entrepreneurial setups. For example, in 2019 the government granted \$4 million to Tel Aviv University for launching a center allowing students to discover their inner entrepreneur. Furthermore, Israeli universities have incorporated innovation and entrepreneurship in all the aspects of their activities, and across all academic disciplines.

Another strongpoint of Israeli universities is the mature start-up ecosystem, providing high caliber business partners (Microsoft, Intel, Virgin, etc.), access to funding (donors, investors, government, business angels, venture capital firms) and talent. Support by the State of Israel is also very important. Realizing the importance of entrepreneurship, and the pursuing value added in the local economy, Israel has the set up the Innovation Authority as a means of promoting the local innovation ecosystem. It has been both facilitating the access to finance, and addressing barriers to entrepreneurship (for example, it has recently launched the Innovation Visas scheme, which enables foreign entrepreneurs to stay in Israel for up to 2 years).

6.1. Research Findings

What are the driving forces behind students' and graduates' decision to engage in entrepreneurial activity? How do top universities promote an entrepreneurial culture? How do these factors come into play within the community of the University of Cyprus (UCY)? These questions have been raised at the beginning of this Master's dissertation, in an effort to provide insights on how to promote entrepreneurship among students and graduates at UCY.

The Literature Review has identified specific drivers that promote entrepreneurship, the validity of which and their applicability to Cyprus has been tested as part of this Master's dissertation. Following the data analysis and based on the relevant findings, an effort in answering the raised questions is offered and discussed next.

The literature review has identified early on the importance of **gender** in establishing the likelihood of pursuing entrepreneurial activity. This has been confirmed by this Master's dissertation findings, as both globally and in Cyprus males account for the majority of entrepreneurs. GEM's adult population survey for 2019, has indicated that within the male population of the countries surveyed, there is 14,81% probability to find entrepreneurs. For women this percentage falls to 10,80%. In Cyprus, male entrepreneurs account for 15,6% of the total male population, while women entrepreneurs account for only 8,9% of the total female population. The gender bias in Cyprus is significant, especially considering that women in Cyprus account for the largest part of the population (52% in 2018, according to Cyprus Statistical Service). As such, gender appears to be a barrier to pursuing entrepreneurship for women. Action must be taken to transform the Cypriot culture into becoming more welcoming towards women entrepreneurs, as well as empowering women and offering them the necessary tools to be able to get involved into entrepreneurial and innovative activities. This is especially important for UCY, where two thirds of students and graduates are female.

In trying to promote gender equality in entrepreneurship, top universities are making a focused effort in enhancing women involvement in entrepreneurial activity, through

organizing female-specific events, such as those run by the universities of Cambridge, Chicago and Yale. UCY does not appear to be taking any specific actions towards gender equality in entrepreneurship.

Previous studies have identified access to **finance** as a make-or-break element for pursuing entrepreneurial activity. Potential entrepreneurs are usually at the start of their career (46% of total entrepreneurs both worldwide and in Cyprus are less than 34 years of age, according to GEM's 2019 global report) and as such have limited access to own funds. Their limited experience and lack of business footprint makes it very difficult to secure finance, either from banks, sponsors or investors (such as venture capitalists or business angels).

Data analyzed as part of the current Master's dissertation, has highlighted lack of financing as one of the two top reasons, both globally and in Cyprus, why entrepreneurs fail. Financing issues disrupt entrepreneurial activity, both because they do not enable would-be entrepreneurs to set up their own business, and also because they result in failures of startups. Universities who are considered top both academically and in entrepreneurship, have been trying hard to facilitate access to funding for their students and graduates. Similarly, startup-friendly nations, such as Israel, have set up ecosystems that promote funding opportunities, either from public or private money. UCY is lacking behind on this process, as very limited funding opportunities are offered to potential entrepreneurs and not much support is given for ensuring access to external funding

As suggested by the literature review, a **person's upbringing**, as well as, **early-on experiences** appear to predispose her or him towards future choices relating to entrepreneurship. Such experiences include the person's exposure to entrepreneurial activities through friends or close family, as well as entrepreneurial stimuli occurring from close surroundings, such as schools. Role-models both in house and at school govern an individual's propensity towards entrepreneurship. Previous research, points out that individuals whose parents have been entrepreneurs stand a higher chance of becoming entrepreneurs themselves.

In the context of the current Master's dissertation, a relationship has been established between the urge to continue **family tradition**, and the likelihood of becoming entrepreneur. Continuing family tradition has been one of the motivating factors to become an entrepreneur, as individuals follow into the footsteps of close family members who have portrayed entrepreneurial activity themselves. In Cyprus, the effect of this specific factor

has been found to be much weaker than other factors, and less impactful compared to the EU average. Only 30% of entrepreneurs have identified that they have chosen their path in order to continue family tradition. The small impact of this factor may be attributable to Cypriot culture, whereby newly graduates set off to their own pursuits, trying to create a self-established career.

Data analysis has indicated the importance of **earning a living and creating personal wealth** in boosting entrepreneurial pursuits. These two factors are the most prominent reasons why Cypriots enter the entrepreneurial path. 74% of entrepreneurs in Cyprus have set up their own startups, in order to build greater wealth. This is much higher than the European average of 44%. Being the most highly ranked factor, it indicates the importance placed, and also seems to point towards a lurking perception that entrepreneurs in Cyprus enjoy substantial financial returns.

Stemming from the data analysis, it is deduced that **job scarcity** seems to boost entrepreneurship. As individuals do not manage to secure well-paying jobs, they turn to setting up their own business. This results in a surge in entrepreneurship. For example, the Greek financial crisis, and the resulting high unemployment rate, may be the driving force behind Greece's top performance in the Established Business Ownership Rate depicted in Figure 5.2. In Cyprus, 58% of entrepreneurs argue that they have chosen their path in order to earn a living at times of job scarcity. This fact further indicates the importance of entrepreneurship towards economic growth; at recessionary times, when jobs are scarce, society and the state can turn into entrepreneurship as a means of reducing unemployment and also creating new jobs and economic activity.

The **role of the state** has been identified during literature review as a factor which affects entrepreneurial activity. This has been further tested within the data analysis, to investigate how government actions impact innovation and entrepreneurship. Government actions do seem to have an effect on people's decision to pursue entrepreneurial activity. Bureaucracy in particular, appears to be an important deterring factor of entrepreneurship. This negative impact has been increasing all around the EU over the last 3 years, reaching 21% in 2019. In Cyprus, a smaller percentage, amounting to 7,5% in 2019, of entrepreneurs considers government policies and bureaucracy as a reason for discontinuing newly founded business operations.

Social impact of innovative ideas drives the younger generations towards entrepreneurial projects. The prime motive here is not to accumulate wealth, but to help the society and the planet, while improving the wellbeing of the community, and the quality of life of current and future generations. Data from the current Master's dissertation indicate that Cypriot entrepreneurs are keen on **making a difference**, stressing this is as a prime motive for pursuing entrepreneurial activity. Specifically, 45% of Cypriot entrepreneurs have highlighted that "making a difference" is one of the reasons that has turned them into entrepreneurs. This is higher than the corresponding EU average of 42%, indicating the social responsibility persistent in Cypriot culture. Unlike top universities, UCY has not yet employed actions and activities to cater for such social concerns.

Data analyzed as part of this Master's dissertation indicate that as people climb the ladder of **education**, they have a higher chance of becoming entrepreneurs. Globally, 16% of university degree holders are Nascent Entrepreneurs or new Business Owners. For high-school leavers, this percentage is only 5%. Data for Cyprus are even more polarized. Out of university graduates, 9,1% go on to become early entrepreneurs, while only 1,7% of high-school leavers follow a similar path. The data also points out that postgraduate graduates are more likely to pursue entrepreneurial endeavors than holders of only an undergraduate degree.

These findings indicate that skills and knowledge obtained during university time, enhance a person's likelihood of becoming an entrepreneur. In addition, the various stimuli and stakeholders present in the university-based entrepreneurship ecosystem appear to motivate and facilitate the process of turning individuals into entrepreneurs. Statistically, this is proven by the fact that in Cyprus, individuals who have attended university make up 84% of total Cypriot entrepreneurs, compared to only 16% who are high-school leavers (globally these percentages amount to 76% and 24% respectively).

As previous studies suggest, the **student experience** is pivotal for a would-be entrepreneur. Students have a lot more to gain from university years, than just academic knowledge. Advancing interpersonal skills is highly important, acquiring soft skills like team working, leadership, effective communication. These skills have been found to enhance one's propensity to become a successful entrepreneur, as evident by the fact that the Entrepreneurship Centers / Offices set up by top global universities are offering such courses. Similarly, students of all backgrounds and faculties can take advantage of courses offered relating to technical issues, such as how to set up a business, and introductory

courses on economics, law and digital transformation. The students' appetite for entrepreneurship has also been found to correlate positively with work placements during university years, as they enhance students' business mindset. The importance of work placements is being increasingly explored by top universities, which, like the California Institute of Technology, are setting up Internship Schemes offering students the opportunity to work in existing startups.

Having established that attending university increases the probability of becoming an entrepreneur, we move on to see what the university needs to offer in order to motivate students and graduates to become entrepreneurs, i.e. the **university infrastructure**.

On an academic level, universities which appear highly on rankings are offering courses on entrepreneurship, offering insights on how to design and develop an idea, how to setup and manage a startup, how to secure the necessary funds and how to resolve potential issues. Ideally, these should be coupled with industry specific courses, covering cutting edge issues which are in high industry demand.

Top universities have also set up entrepreneurial hubs, where students, graduates, researchers and industry can work together, from idea inception to product or service delivery. Such hubs, found in Harvard University, University of Chicago and Imperial College London, enable multidisciplinary students to exchange ideas and collaborate towards common endeavors. All stakeholders of University entrepreneurship ecosystems can fit in such a hub, providing value-added opportunities for all involved. In the case of UCY, such a central space has not yet been set up.

Would-be entrepreneurs in top universities are also offered direct access to mentoring opportunities. In setting up such schemes, universities are utilizing their alumni base, as well as faculty and research staff. This is enhanced by industry leaders and existing entrepreneurs, who can share their experiences and provide valuable guidance to those making their first steps into innovation and entrepreneurship activities. UCY currently provides limited mentoring opportunities, while the mentors involved are mainly faculty staff.

Furthermore, top universities have been found to create a plethora of networking and socializing opportunities, where potential entrepreneurs can meet collaborators, sponsors, investors as well as successful entrepreneurs. Such opportunities serve a dual purpose; bringing the innovation ecosystem together, opening up new opportunities for all, and

promoting the concept of entrepreneurship and innovation, in an effort to create an entrepreneurial culture.

6.2. Conclusions for Enhancing Entrepreneurial Activity and the E&I ecosystem

Stemming from all of the above, specific conclusions can be reached which can also serve as recommendations for all stakeholders, in an effort to enhance UCY students' and graduates' engagement in entrepreneurial activities. These stakeholders include the university, the students and graduates themselves, and the government, which can set the framework, policies and procedures to support an entrepreneurial ecosystem.

A. Supporting and developing the entrepreneurial ecosystem: University of Cyprus

UCY has a lot to gain from the experience of other, top caliber universities, with a successful track record in entrepreneurial outputs (as measured by startups and entrepreneurs generated, and funding secured). In addition, global and local research provides meaningful insights in causal relationships between university actions and students/graduates entrepreneurial prospects. Stemming from these, UCY can pursue the following actions:

- i. *Operate a visible MakerSpace*: set within UCY campus, this space will bring together individuals (students, graduates, researchers, faculty, industry) with common interests, enabling them to work together while sharing ideas, knowledge and resources. This space can house equipment currently found scattered in various university labs, facilitating economies of scale and improved utilization of resources. Bringing together people from different backgrounds and disciplines, will enable access to a full range of knowledge and support (technical, legal, business, etc.). Serving also as a gathering / socializing place, it will be a constant reminder of the importance placed by UCY on entrepreneurship and innovation. Industry's involvement can increase visibility of ideas and opportunities for financing and commercialization.
- ii. *Facilitate Access to Funding*: access to funding is proving to be one of the major challenges for pursuing entrepreneurial activities. In assisting students and graduates,

UCY can set up a support system, for ensuring access to finance. Such a system could include:

- competitive procedures which lead to university funding for marketable ideas,
 - establishment of a business incubator which can invest in startups, providing the necessary kickstart funds and standing to gain from any future successes of these startups,
 - capitalizing on its well-established reputation and excellent track record of securing external donations (recipient of donations totaling €23 million for the years 2015-2018 as per the 2018 Annual UCY Report), to secure financing for entrepreneurial students and graduates.
- iii. Focused Events: identifying specific target groups, relevant to the demographics of UCY, and targeting these groups with specific actions will maximize the impact of entrepreneurship promotion. For example, considering that 65% of UCY students are female, while GEM Gender statistics indicate that women in Cyprus only account for 37% of entrepreneurs, there is great potential in female-specific events, such as those run by the University of Cambridge, Yale University and the University of Chicago.
- iv. Mentoring: in line with other top universities, UCY can enhance its mentoring base, taking advantage of the large alumni base of UCY (25000+ alumni to date), some of which have reached top positions in both the local and the global business arena, reaching a gender balanced database. Providing free advice and networking opportunities is expected to expand entrepreneurial activity.
- v. Industry Specific Courses: entrepreneurship activity should be accessible to students and graduates from all faculties. Top universities such as Yale, Stanford and the MIT are offering industry specific courses, where students can learn about pursuing entrepreneurial activity on their area of interest. Similarly, Israeli universities have incorporated innovation and entrepreneurship in all aspects of their activities, and across all academic disciplines. UCY's Centre for Entrepreneurship can collaborate with the university's Medical School, Engineering School and Social and Educational Sciences School, to develop courses or lecture series focusing specifically to students of these schools, planting the entrepreneurial seed into students of all academic backgrounds.

- vi. *Social Impact:* In line with what is important for Generations Y & Z (today's 20 to 40 year old's), and following from best practices, UCY can highlight and promote the fact that entrepreneurship need not always lead merely to financial wealth. Its outcomes can have an impact on people's quality of life, as well as on the wellbeing of the planet.

B. Supporting and developing the entrepreneurial ecosystem: the Government

The Government sets the framework, policies and procedures which govern and regulate the arena in which entrepreneurial firms operate. It also directs public funding into the various sectors / activities of the economy. Bureaucracy and government interference are proving to be one of the main reasons why entrepreneurial endeavors fail. Cyprus has a long way to go in improving its current standing of assisting the ease of doing business. According to the World Bank Ease of Doing Business rating, in 2019 Cyprus ranked 57th globally and 23rd across the 27 EU countries. In motivating students and graduates to engage in entrepreneurial activity, the government could pursue the following policies:

- i. *Promotion of e-government:* electronic government will enable entrepreneurs to avoid the hassle and time of visiting the various departments for obtaining and filing never-ending forms. In line with an entrepreneur's mindset and best practices applied in the US, Europe and Israel, all procedures of setting up a startup should be made available on line, with easy access and monitoring of all stages of the procedure. This is also expected to speed up the process of starting and doing business, saving up on valuable time and money. In addition, through automation the processes will be restructured and streamlined.
- ii. *Public Spending:* government's spending on Research & Development (R&D) boosts funding opportunities for would-be entrepreneurs, and signals the importance placed by the state on innovation and entrepreneurship. Cyprus currently maintains one of the lowest R&D spending as a percentage of the country's Gross Domestic Product within the EU (0.5% compared to an EU average of 2.2%). This spending should be increased to at least EU average, which is expected to have long-term benefits for the country's economy through future revenue deriving from taxes of profitable firm and wealthy individuals, as well as increased employment rates, since entrepreneurship is seen as a means of providing jobs to educated youth and boosting the economic

climate. The state may provide easy access to funding for newly established entrepreneurs, in an attempt to promote such activity. Increased public spending on entrepreneurial projects could be funneled through universities, in line with Israel's practice. Such funding could be provided from EU funding as well, through the Framework Programs (e.g. H2020, and Horizon Europe), the Union's Structural Funds, or through grants distributed via the Research & Innovation Foundation (such as the RESTART 2016-2020 SEED and PRE-SEED funding programs that were recently incorporated).

- iii. *Incentives for attracting talent and business:* global firms and talented human capital can be offered incentives to set up base in Cyprus. This will provide funding for entrepreneurial ideas, as well as a marketplace for innovations. Talented individuals can study in UCY (e.g. for their MBA) or collaborate with students and graduates to evolve ideas into products and services. Such incentives could include an Entrepreneurship Visa program, whereby non-Cypriots can stay and work in Cyprus provided they are employed in innovative companies. Incentives for businesses could include further enhancing the tax breaks for companies investing in startups, as well as extending transferring tax losses for innovative companies from the current 5 years to 10 years.
- iv. *Incorporate Entrepreneurship and Innovation from early on:* entrepreneurial role models produce future entrepreneurs. If these only came from in-house experiences, entrepreneurship would only flourish in houses where the parents run their own business. Instead, the circle of entrepreneurship could be expanded if it was incorporated into early-on education. The basics of innovation and entrepreneurship, and the relevant benefits, both personal and societal, could form part of primary and secondary education curricula.

C. Supporting and developing the entrepreneurial ecosystem: Students & Graduates

Students and graduates are both on the receiving and the ending end of the entrepreneurial stick. They receive information, knowledge and stimuli relating to entrepreneurship, with the utter goal of them becoming entrepreneurs. In the meantime, however, there are actions themselves could take in assisting the process and maximizing their chance of success, as outlined below.

- i. *Get out of your Comfort Zone*: students, especially high performing ones appear to be more willing to get a job as an employee as soon as they graduate, rather than set up their own business, or start something new. This is a combination of the fact that UCY graduates enjoy high employability rates (80% of graduates have secured a full-time job within 3 months of graduation, while overall employment rate stands at 95,5%) while they appear reluctant to take risky leaps. Considering that the average wage rises as you stay longer in a company, students and graduates should be aware that switching to an entrepreneur becomes more “costly” (and thus difficult) over time.

- ii. *Get involved*: studies indicate that students taking entrepreneurship courses are more likely to set up their own business in the future. Similarly, an adequate social support system has been found to foster entrepreneurship. Students and graduates should utilize what is on offer for them by their university; entrepreneurship and skill development courses, student clubs, networking events, placement opportunities.

Chapter 7

Epilogue

7.1. Overall Conclusion

Both available literature and data analysis indicate that there are specific factors which promote entrepreneurial activity. The existence of such motivating factors, and the level to which they are present, govern the propensity to entrepreneurship for a person or a group. Academic institutions, having realized their important role in cultivating entrepreneurial intent, have incorporated a number of actions and policies to supplement their efforts in enhancing the entrepreneurial activities of students and graduates.

The current Master's dissertation via analyzing the Global Entrepreneurship Monitor data and via benchmarking analysis of high performing universities' entrepreneurship ecosystem, has reached the following conclusions adding to the literature by verifying the relevance and validity of the determinants in the Cypriot context and offering a best practice approach for enhancing the entrepreneurship and innovation ecosystem in Cyprus.

Gender, exposure to entrepreneurial activity during upbringing and level of education attended, are identified as attributes that signal early-on one's tendency towards entrepreneurship. Such a tendency is further enhanced through university studies; experiences and knowledge obtained as a student, as well as the existence of an entrepreneurial fostering ecosystem within the university, motivates students and graduates to becoming entrepreneurs. Prevailing economic conditions also play a significant part towards a person's ultimate decision to become an entrepreneur. These conditions govern the availability of funding for setting up startups, and the availability of jobs – lack of which makes it more likely to start an own business. Finally, an individual's drive to make an impact in the world has been found to be a significant attribute for pursuing innovative and entrepreneurial activity.

On an *individual* level, people can use this knowledge to enhance their potential and extend the choices available to them, both in terms of career development but also for personal completion and advancement. Other than enhancing their education, knowledge and skills,

taking advantage of the entrepreneurial promoting activities at the University level (for students and graduates) and at the country level (for all), individuals can assist the process and maximize their chance of success by getting out of their comfort zone, as explained above, and getting involved in various activities that foster entrepreneurship (e.g. networking events) available to them.

On a *societal* level, governments can build on the available knowledge for designing and implementing policies which will further foster entrepreneurial activity. This Master's dissertation concluded that policies such as the promotion of e-government, boosting public spending in Research and Development, offering incentives for attracting talent and business and incorporating entrepreneurship and innovation into early-on education, prove helpful in promoting entrepreneurship at the country level.

At the *higher education institutions* level, there are specific measures and actions that can be taken to promote entrepreneurship, both for students and graduates. For the *University of Cyprus in particular*, there are many available tools, stemming from data analysis, literature and benchmarking with best practices, which can expand the entrepreneurial ecosystem, creating more entrepreneurs, startups and value for the institution and the community. Actions such as operating a visible MakerSpace, enabling and assisting access to finance, organizing focused events, establishing an enhanced mentoring scheme, offering industry specific courses and providing support in creating a culture of social impact entrepreneurs, will have a hugely positive impact in enhancing the entrepreneurial activity of students and graduates and in turn of Cyprus as a whole.

7.2. Suggestions for further research

The current Master's dissertation has put forward specific recommendations, which key stakeholders can adopt in order to enhance the entrepreneurial activity of students and graduates. Furthermore, building on the literature review and data analysis carried out, the Master's dissertation can act as a stepping stone for further examining the issue of entrepreneurship. The analysis can be extended for the remaining levels of education (primary and secondary) in order to identify what can be done early on in people's lives to nurture an entrepreneurial environment. Furthermore, the government can build on current findings in order to develop public policy, by developing a long-term plan for promoting entrepreneurship through financially viable actions, setting the country into the

path of a new, improved and sustainable economic model. Additional research as regards the motivating factors, such as gender could be further pursued to study the reasons behind the identified gender polarization, in an effort to augment the entrepreneurship activities.

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APPENDIX

The Global Entrepreneurship Index Rank of All Countries 2019

Global rank	Country	Score	Global rank	Country	Score	Global rank	Country	Score
1	United States	86.8	48	Brunei Darussalam	36.5	94	Moldova	20.2
2	Switzerland	82.2	49	Croatia	36.1	95	Rwanda	20.0
3	Canada	80.4	50	Greece	35.4	96	Kenya	19.8
4	Denmark	79.3	51	Botswana	34.4	97	Bosnia and Herzegovina	19.5
5	United Kingdom	77.5	52	Colombia	34.1	98	Tajikistan	19.4
6	Australia	73.1	53	Tunisia	34.0	99	Kyrgyz Republic	19.2
7	Iceland	73.0	54	Thailand	33.5	100	Côte d'Ivoire	19.1
8	Netherlands	72.3	55	Barbados	32.2	101	Sri Lanka	19.1
9	Ireland	71.3	56	Azerbaijan	32.1	102	Lao PDR	19.1
10	Sweden	70.2	57	Montenegro	31.8	103	Swaziland	18.8
11	Finland	70.2	58	South Africa	31.6	104	Guatemala	18.7
12	Israel	67.9	59	Kazakhstan	31.0	105	Ecuador	18.5
13	Hong Kong	67.9	60	Uruguay	30.1	106	Suriname	18.4
14	France	67.1	61	Bulgaria	30.1	107	Myanmar	18.1
15	Germany	66.7	62	Namibia	30.0	108	Cambodia	17.7
16	Austria	64.9	63	Jordan	29.4	109	Pakistan	17.3
17	Belgium	62.2	64	Iran	29.4	110	Tanzania	17.3
18	Taiwan	62.1	65	Costa Rica	28.8	111	Ethiopia	17.2
19	Chile	58.3	66	Lebanon	28.8	112	Honduras	17.2
20	Luxembourg	58.1	67	Serbia	28.6	113	Gambia, The	17.1
21	Korea	58.1	68	Morocco	28.3	114	Libya	16.6
22	Estonia	57.8	69	Peru	27.7	115	Paraguay	16.6
23	Slovenia	56.5	70	Mexico	27.1	116	Zambia	16.3
24	Norway	56.1	71	Georgia	26.2	117	Guyana	16.3
25	United Arab Emirates	54.2	72	Belize	26.2	118	Brazil	16.1
26	Japan	53.3	73	Vietnam	26.0	119	Nicaragua	16.1
27	Singapore	52.4	74	Argentina	26.0	120	El Salvador	15.7
28	Qatar	51.6	75	Indonesia	26.0	121	Cameroon	15.6
29	Poland	49.5	76	Panama	25.5	122	Guinea	15.5
30	Puerto Rico	48.7	77	Ukraine	25.2	123	Mali	15.3
31	Spain	46.9	78	India	25.1	124	Angola	15.1
32	Portugal	46.3	79	Jamaica	24.8	125	Uganda	14.8
33	Hungary	46.2	80	Russia	24.8	126	Liberia	14.8
34	China	45.9	81	Egypt	24.6	127	Burkina Faso	13.4
35	Cyprus	45.6	82	Armenia	24.3	128	Benin	13.3
36	Italy	45.1	83	Gabon	23.8	129	Venezuela	13.1
37	Lithuania	44.1	84	Dominican Republic	23.6	130	Mozambique	12.8
38	Bahrain	43.8	85	Macedonia	23.1	131	Sierra Leone	12.7
39	Oman	43.6	86	Philippines	23.0	132	Bangladesh	12.5
40	Czech Republic	43.5	87	Albania	22.5	133	Malawi	11.6
41	Slovakia	42.6	88	Algeria	22.4	134	Mauritania	10.5
42	Saudi Arabia	42.1	89	Bolivia	22.1	135	Burundi	10.2
43	Malaysia	40.1	90	Trinidad and Tobago	21.7	136	Madagascar	9.1
44	Turkey	39.8	91	Ghana	21.6	137	Chad	8.8
45	Latvia	39.3	92	Nigeria	20.8			
46	Romania	38.6	93	Senegal	20.3			
47	Kuwait	37.4						

Source: Global Entrepreneurship Index 2019 (Table 3.1 p. 19)