



Global University Entrepreneurial Spirit Students' Survey



Student Entrepreneurship at the University of Auckland 2018

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**CENTRE for
INNOVATION and
ENTREPRENEURSHIP**

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Executive Summary

This report draws on information from the Global University Entrepreneurial Spirit Student's Survey (GUESSS), which explores the entrepreneurial intentions and activities of university students worldwide. Its eighth data collection was conducted in 2018 in more than 3,000 universities across 54 countries, receiving over 208,000 completed responses. New Zealand participated in this project for the first time in 2018, with 1,920 respondents exclusively from the University of Auckland (UoA).

The results show that the UoA is below the GUESSS average for all measures of student engagement with entrepreneurship practice and learning. Despite the availability of a wide variety of extra-curricular activities related to entrepreneurship, and expansion of innovation and entrepreneurship related curricula, most UoA students have yet to participate in either. As a possible consequence, UoA students report on average a less positive attitude toward becoming an entrepreneur, a more externalised locus of control, and lower self-efficacy to undertake entrepreneurial endeavours than do their international peers.

The key findings are:

Career intentions

- On graduation, most students (80% of undergraduate and 85.7% of postgraduate students) would prefer to start their careers as employees. Only 3.9% of undergraduates and 4.9% of postgraduates plan to begin their career as a founder in their own business. These rates are lower than the GUESSS average of 9.3% and 10.2%.
- Five years after graduation, there is a dramatic increase in the proportion of both undergraduate and postgraduate students who consider founding their own business, from 3.9% to 25.2%, and 4.9% to 29.4%, respectively. However, these rates are all lower than the GUESSS average.
- A larger share of male respondents expressed their intention to start their own business than did female respondents, both right after graduation (6% vs 3.3%) and five years later (32.8% vs 23.4%).
- Intention toward entrepreneurship as a career path is similar between fields of study at the time of graduation, but varies significantly after five years. Students in the Faculties of Creative Arts and Industries, Business and Economics, and Engineering expressed a stronger intention towards an entrepreneurial career path than did those from other faculties.

University context

- Most of the respondents (79.9%) have not taken any entrepreneurship education courses so far, which is considerably higher than the GUESSS average (50.3%).
- A larger proportion of male students (43.8%) have participated in an extra-curricular activity related to entrepreneurship than have female students (29.8%).
- Only 4% of the respondents chose UoA because of its entrepreneurial reputation, compared with the international average of 13.5% who chose their university based on its entrepreneurial reputation.

- Respondents rated the climate for entrepreneurship at the UoA less favourably than the GUESS average. On average, they also expressed a less positive attitude toward becoming an entrepreneur, a more externalised locus of control, and lower self-efficacy to undertake entrepreneurial endeavours than did their international peers.

Nascent entrepreneurs

- The share of nascent entrepreneurs at the UoA (16.2%) was lower than in the GUESS sample (27.7%).
- Female postgraduate students are more likely to be nascent entrepreneurs than male postgraduate students, whereas the reverse is the case for undergraduate students.
- 17.5% of respondents reported they will be ready to launch their business within six months, but 42.7% anticipate that 19 or more months will be needed to do so.
- The most popular sectors are other (18.6%), information technology and communication (12.7%) and trade (12.7%).

Active entrepreneurs

- The share of active entrepreneurs at the UoA (7.4%) is less than that in the international sample (12%). Of the active entrepreneurs, 48.6% are men and 51.4% are women. The faculties with the most active entrepreneurs are Arts (24.8%) and Business and Economics (21.3%).
- Only 19.3% of respondents want their existing business to become their main occupation after graduation, but 46.4% see themselves as continuing to be self-employed.

Potential successors in family firms

- A smaller proportion of the UoA respondents (43.2%) had at least one of their parents who are self-employed or the majority owner of a business than is the case in the GUESS sample (50.5%).
- 64.2% of the UoA respondents who are potential successors are women.
- Of those with a family business background, 87.9% do not intend to take over their parents' business, significantly higher than the international average (68.5%).
- Four drivers have a positive effect on students' succession intention: the performance of the parents' business, the environment reaction towards students' succession plan, and instrumental and emotional support from parents.

These results suggest there is considerable opportunity at the UoA to increase awareness of founding a business or taking over an existing business as a career option, and providing students with the knowledge and skills to do so. Demographic differences, especially between genders, have parallels in the international data, and point to systemic challenges that should be considered in the design and delivery of initiatives to enhance engagement with entrepreneurial learning and practice. The dramatic increase in interest in the proportion of students who see themselves as possible founders and successors five years after graduation suggests opportunities for continuing education and engagement with alumni who seek to transition from employment to become a founder or successor.

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1 Introduction

Fostering new entrepreneurial businesses is a goal in many countries (Hafer, 2013; Hahn, Minola, Bosio, & Cassia, 2019; Urbano, Aparicio, & Audretsch, 2019) including New Zealand (MBIE, 2013; Starnes, 2013). A common assumption is that equipping individuals with entrepreneurial skills will increase the likelihood that they will act upon new business opportunities, which, in turn, will make a meaningful contribution to economic and social development. In this context, the phenomenon of student entrepreneurship has caught the attention of policy-makers and researchers alike (e.g., Audretsch, 2014; Bergmann, Geissler, Hundt, & Grave, 2018; Maresch, Harms, Kailer, & Wimmer-Wurm, 2016).

The Global University Entrepreneurship Student Spirit Survey (GUESSS) is an international research project started by the Swiss Research Institute of Small Business and Entrepreneurship at the University of St. Gallen (KMU-HSG) in 2003. It is now coordinated jointly by two Swiss universities, the University of St. Gallen and the University of Bern. GUESSS investigates potential drivers of the entrepreneurial intentions and activities of university students – for example, the role of the university in fostering entrepreneurship, individuals' psychological characteristics (e.g., attitude and self-efficacy), and family and social contexts that might influence students' choice of an entrepreneurial career path. Its theoretical framework is the Theory of Planned Behaviour (Ajzen, 1991), which postulates that an individual's intention to behave in a particular manner is the result of three factors: attitude toward that behaviour, subjective norms and perceived behaviour control.

The eighth GUESSS was conducted in 2018 in more than 3,000 universities across 54 countries, receiving over 208,000 completed responses. New Zealand participated in the project for the first time in 2018, with data collected exclusively at the University of Auckland (UoA). In Semester 2, 2018, an invitation to participate was sent to all UoA students by email, and after one follow-up reminder, a total of 1,920 responses were received, which represents a response rate of 4.3%. Using this unique dataset, the first UoA edition of the GUESSS project offers insights into the entrepreneurial intentions and activities of its students, especially differences between demographic subgroups (gender, nationality and field of study) and differences between students at the UoA, and those at the other universities where GUESSS was administered.

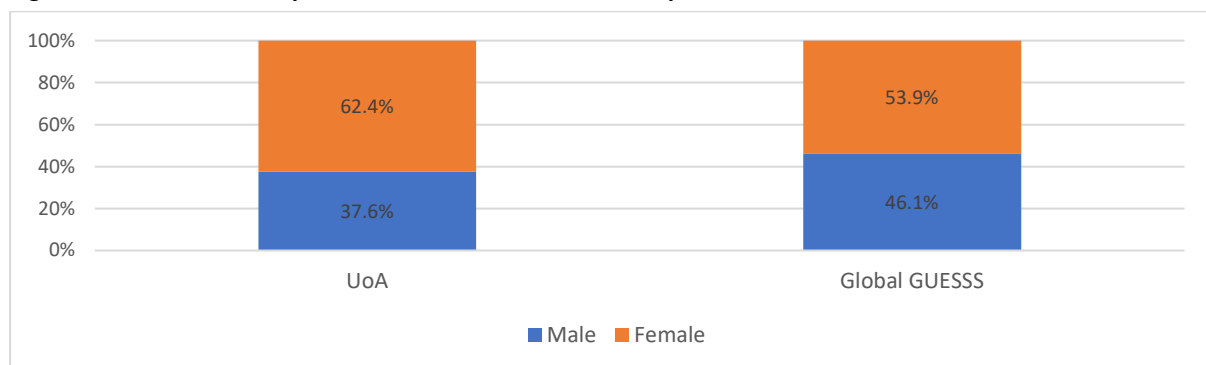
2 Sample demographics

The New Zealand GUESSS sample was collected from students enrolled in all academic programs at the University of Auckland (UoA) during Semester 2, 2018. Out of approximately 45,000 students, 1,920 students¹ responded to the survey, a 4.3% response rate. This section compares the demographic characteristics of the respondents with the university population and the international GUESSS average².

2.1 Personal characteristics

The mean age of respondents is 24.8 years (median = 22 years), which is slightly younger than the international GUESSS average of 27.2 years (median = 22 years). Splitting respondents by enrollment status (87.1% are full-time and 12.9% are part-time students), the mean ages for full- and part-time students are 23.5 and 33.9 years respectively. This difference in mean ages is statistically significant ($p = .000$). As shown in Figure 2.1A, more women (62.4%) participated in the survey than did men (37.6%)³. This gender imbalance is more pronounced in the UoA sample than it is in either the university population (where 56.8% are women) or the international sample (where 53.9% are women).

Figure 2.1A Gender of respondents in UoA and GUESSS samples



Over half of the respondents (51.7%) are New Zealand citizens or residents, followed by those who are citizens of China⁴ (15.1%) and India (5.9%) (see Figure 2.1B). The sample has fewer domestic students and more international students than there are in the university population.

¹ Out of 1,924 original cases, 4 respondents were omitted because they indicated that they attend a university other than the UoA.

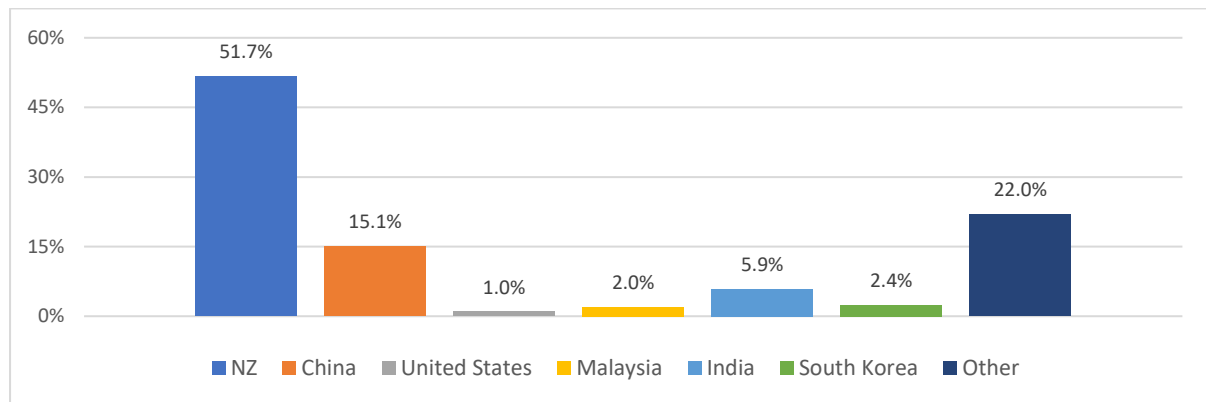
² The comparison is made with the overall GUESSS average, meaning that the UoA cases are included along with those from other countries in the international GUESSS sample. Additional comparisons between New Zealand (which is exclusively represented by the UoA) and other countries are available in the GUESSS Global Report 2018, which can be downloaded from <http://www.guesssurvey.org/publications/publications/international-reports.html>.

³ The GUESSS questionnaire only allows for the binary possibility of male and female genders.

⁴ Following the UoA's classification used for administrative purposes, students who are citizens of Hong Kong, Macao and Taiwan are classified as being Chinese, in addition to those coming from mainland China.

In terms of ethnicity⁵ the largest groups are Asian (46.1%) and Pakeha/European (36.6%). Students of Pacific and Māori heritage make up 6.3% and 5.3% of the sample respectively. Unlike nationality, the overall pattern of ethnic distribution is representative of the university population.

Figure 2.1B Nationality of respondents in UoA sample



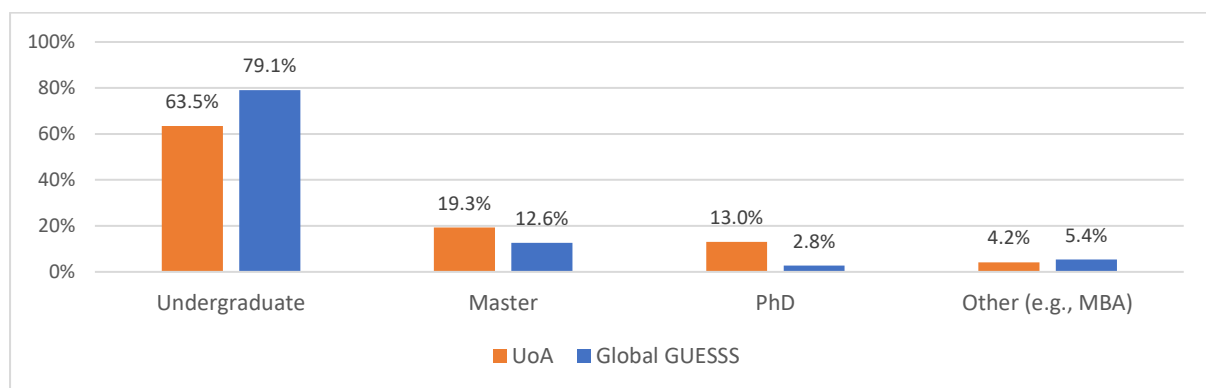
2.2 Level and field of study

Most respondents (63.5%) are undergraduate students, with 19.3% being masters students and 13% being PhD students. Compared with the university population, undergraduate students are under-represented in the data, and those studying toward their PhD are over-represented. Undergraduate students are also under-represented compared to the proportion in the global GUESSS sample (See Figure 2.2A).

More women are enrolled in every course than men: 63% of undergraduate students, 65.9% of master’s students, 54.1% of PhD students and 62.5% of students from other courses (e.g., MBA). These gender imbalances are statistically significant ($p = .025$).

Separating the sample by nationality, more domestic students are enrolled in undergraduate (59.5%) and other (64.5%) programs while the opposite pattern is the case for master’s and PhD programs, where international students make up 61% and 72%, respectively. These differences by nationality are also statistically significant ($p = .000$).

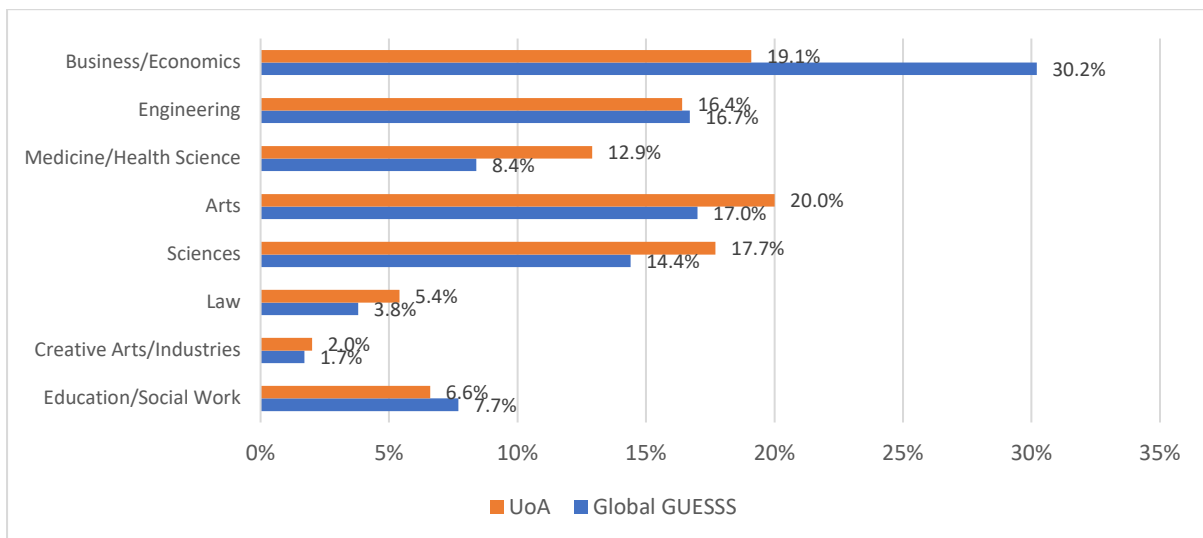
Figure 2.2A Level of studies undertaken by respondents in UoA and GUESSS samples



⁵ To ensure that ethnic groups are mutually exclusive, responses that reported multiple ethnic backgrounds were combined based on the following hierarchy: Māori, Pacific Island, Asian, Other and Pakeha/European. For example, if a student selected both Māori and Pakeha/European options, this student was classified as Māori.

Of the UoA respondents, 20% are in the Faculty of Arts, followed by 19.1% in Business and Economics, 17.7% in Sciences, 16.4% in Engineering, 12.9% in Medical and Health Sciences, 5.4% in Law, 6.6% in Education and Social Work, and 2% in Creative Arts and Industries (CAI) (see Figure 2.2B). Students from Arts, Business and Economics, and Engineering faculties are over-represented in the data compared to the university population. The international sample has a much larger share of business students (30.2%) than does the UoA sample (19.1%). There are two reasons for this. First, some institutions only surveyed their business students (e.g., Atomi University, Shujitsu University, Senshu University and Meiji University). Second, a few of the participating institutions are independent business schools (e.g., Otaru University of Commerce and Zhengzhou Shengda University of Economics, Business & Management).

Figure 2.2B Fields of study of respondents in UoA and GUESSS samples



3 Career intentions

One of the main purposes of GUESSS is to provide insights into the careers that students intend to pursue after their studies. Participants were asked to report their intended career path right after graduation and five years later.

3.1 Career intentions of undergraduate and postgraduate students

This section reports the occupational preferences of undergraduate and postgraduate students separately. Figures 3.1A and 3.1B summarise *undergraduate* students' occupational preferences right after graduation and five years later, while Figures 3.1C and 3.1D summarise the occupational preferences of *postgraduate* students (again, right after graduation and five years later).

Right after graduation, most undergraduate respondents (80%) intend to pursue a traditional career as employees in either the private or public sector: 22.9%, 19.2% and 15.1% respectively want to obtain employment in large-, medium- and small for-profit enterprises; 12.2% seek to be employed in the public service; 3% in the non-profit sector; and 7.6% in academia. Among the remainder, only 3.9% plan to found a business, while 1.5% plan to take over an existing business (0.6% a family business and 0.9% a non-family-related business). The percentage of UoA undergraduate students who intend to found their own business, or take over a family business is lower than the GUESSS average.

Five years after graduation the share of those foreseeing they will be an employee decreased from 80% to 53.4%: 17.7%, 8.4% and 4.4% expect to be employed in large, medium and small firms; 8% in public service; 5.5% in the non-profit sector; and 9.4% in academia. Students who anticipate founding a business within five years comprised 25.2% of the sample, and those who plan to take over a business account for 4.1% (1.6% in a family business and 2.5% in another business). UoA's share of prospective entrepreneurs and family-business-successors five years after graduation is substantially lower than the GUESSS average.

Figure 3.1A Career intentions of undergraduate students right after graduation

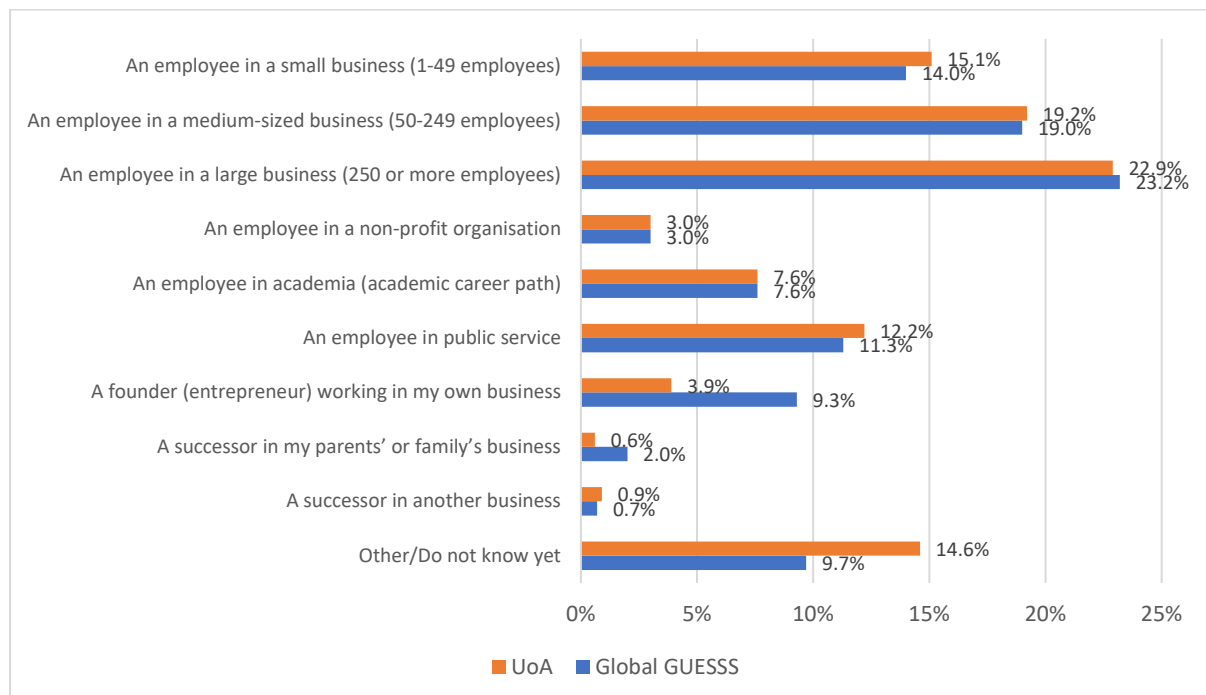
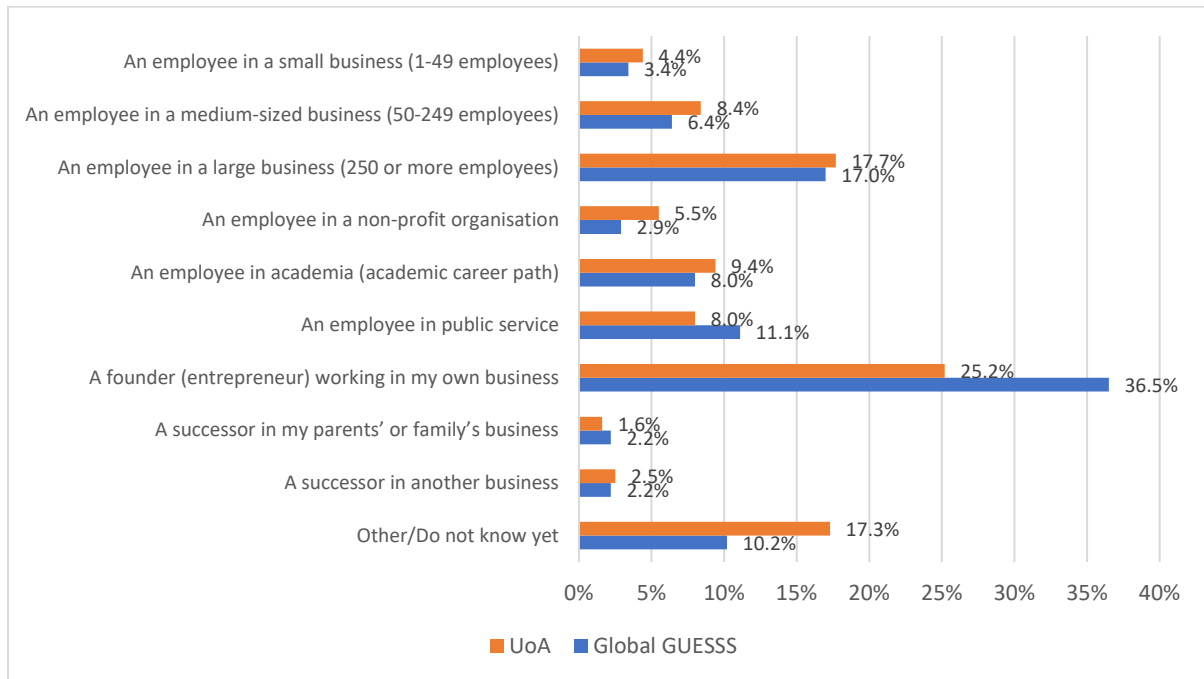


Figure 3.1B Career intentions of undergraduate students five years after graduation



Upon graduation, most postgraduate respondents (85.7%) also seek traditional careers, with 18.5%, 14.3% and 11.1% planning to work in large, medium and small firms, respectively. Those who want to work in the public service sector comprised 11.7% of the sample, and those targeting non-profits 4%. Compared to undergraduate students, a significantly larger share (26.1%) are considering an academic career path. This is also higher than in the GUESSS sample (15.8%). Only 4.9% of UoA respondents want to found their own business, compared with 10.2% in the GUESSS sample, while 0.7% are interested in taking over an existing business (0.1% family business and 0.6% non-family), which is lower than in the GUESSS sample.

Five years after graduation, 54.6% of postgraduate respondents seek traditional career paths. Of these respondents, 11%, 5.8% and 3.7% plan employment in large, medium and small firms, respectively. The public service is preferred by 9.1%, and the non-profit sector by 4.6% of respondents. 20.4% of the postgraduate respondents want an academic career, which is much higher than in the international sample. 29.4% of postgraduate respondents hope to start their own business, while 3% foresee taking over an existing business (0.6% a family business and 2.4% another business). The proportion of UoA respondents intending to start a business by five years after graduation is slightly lower than in the international sample (29.4% vs. 32.3%), as is the proportion of intending successors in family businesses (0.6% vs. 1.9%).

Figure 3.1C Career intentions of postgraduate students right after graduation

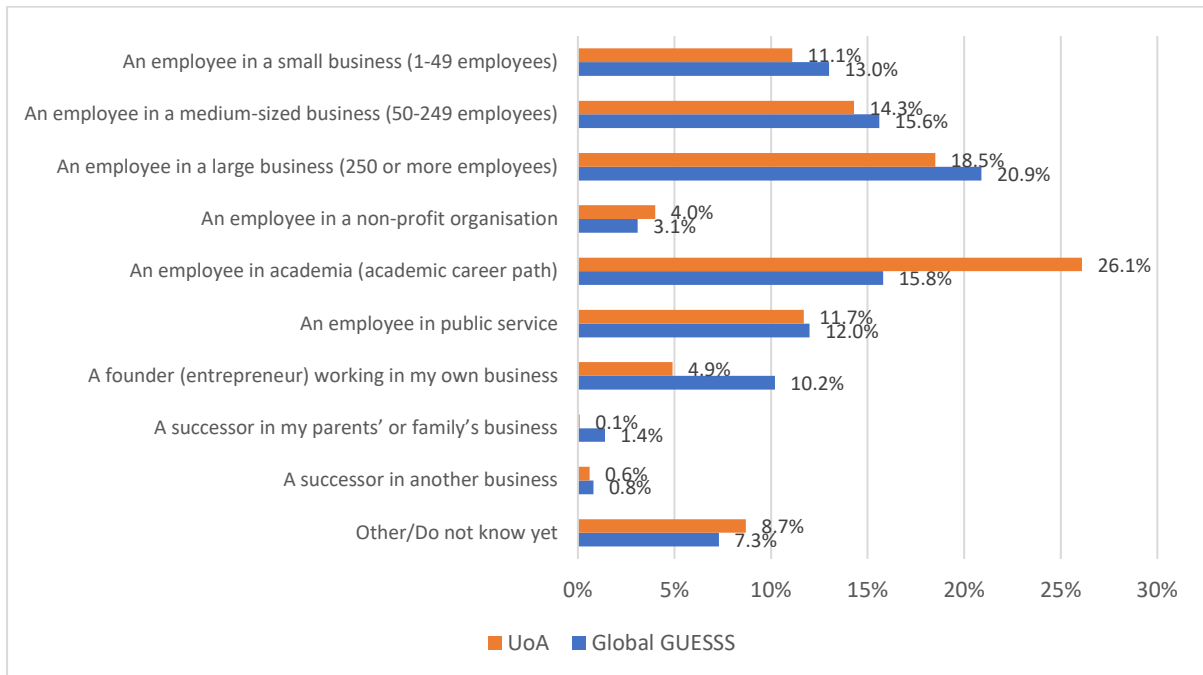
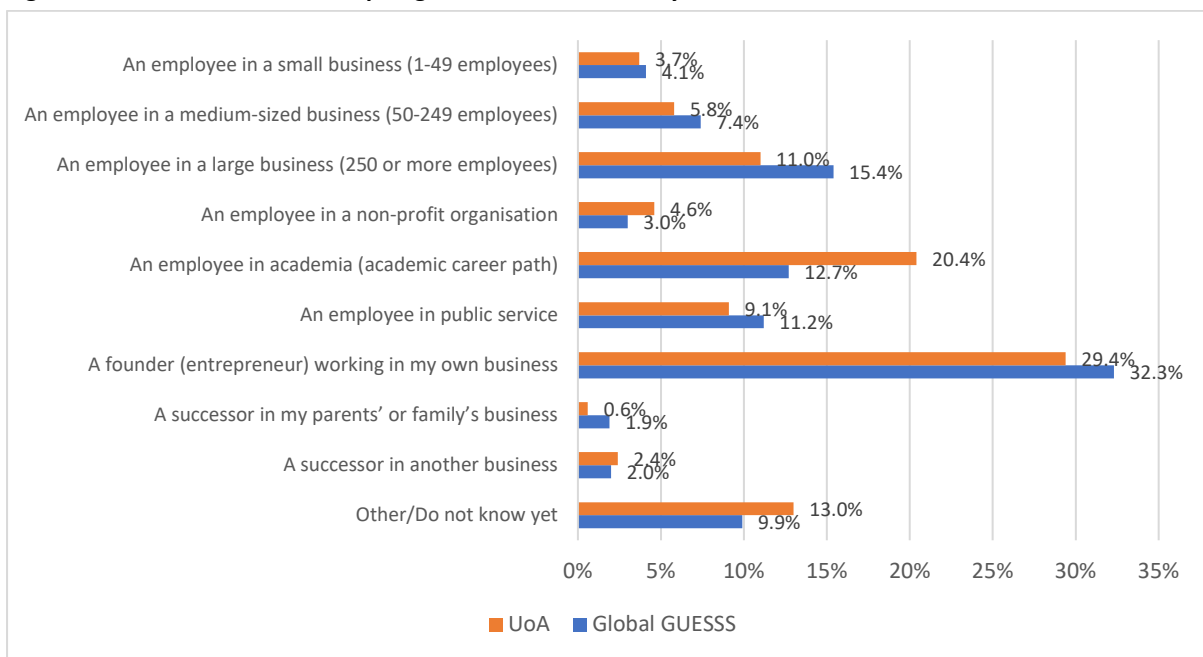


Figure 3.1D Career intentions of postgraduate students five years later



3.2 Changes in career intentions

Table 3.2 shows transitions between initial career intentions and those five years later for all UoA students (i.e., undergraduate and postgraduate students combined). The ten career options from the previous figures are aggregated into four categories (employee, entrepreneur, successor and other). 59.6% of UoA respondents who plan to start their career as employees thought they would remain in that career five years later. However, 26.7% thought they would leave employment within five years to start their own business. Among students who want to found a business right after graduation, 61% still saw themselves being an entrepreneur after five years. However, only 17.4% of students who

expect to immediately take over an existing business anticipate that they will still work there five years later, but 56.5% of them think they will be running their own business as a founder within five years.

Table 3.2 Expected changes in career by UoA students over 5 years

Right after graduation	Five years after graduation			
	Employee	Entrepreneur	Successor	Other
Employee	59.6%	26.7%	3.5%	10.2%
Entrepreneur/founder	20.7%	61%	9.8%	8.5%
Successor	8.7%	56.5%	17.4%	17.4%
Other	31%	12.1%	2.1%	54.8%

n = 1920

3.3 Career intentions by gender

Table 3.3 shows the career intentions of the UoA respondents by gender. Looking first at students' occupational preferences right after graduation, a greater share of male students (6%) want to be entrepreneurs/founders when compared to female students (3.3%). However, the opposite is the case among students who anticipate taking over an existing business (0.6% for males and 1.5% for females). Five years after graduating, both genders increase their intention towards founding a business, but the gender difference remains (32.8% of men vs. 23.4% of women).

Table 3.3 Career choice intentions of UoA students by gender

	Right after graduation		Five years after graduation	
	Male	Female	Male	Female
Employee	81.9%	82.3%	50.7%	55.6%
Entrepreneur/founder	6%	3.3%	32.8%	23.4%
Successor	0.6%	1.5%	2.9%	4.1%
Other	11.5%	12.9%	13.6%	16.9%
Total	100.0%	100.0%	100.0%	100.0%

n = 1920

3.4 Career intentions by field of study

The career intentions of UoA participants right after graduation when grouped by field of study shows that students from different faculties have broadly similar career intentions (see Figure 3.4A). The most preferred career path for each faculty is to be an employee: 88.2% of Engineering students, 86.2% of Medicine and Health Science students, 85% of Business and Economics students, 84.5% of Law students, 81.9% of Education and Social Work, 78.9% CAI, 77.8% of Science students, and 75.1% of Arts students. Students in the Faculties of CAI (10.5%) and Law (6.8%) have the strongest intention toward founding a business. Students in Business and Economics (2.2%) are more likely than students in other faculties to foresee becoming a successor by taking over an existing business.

Five years later (see Figure 3.4B), students in every faculty had a stronger intention towards founding a business. CAI (39.5%), Business and Economics (36.3%), and Engineering (34.8%) had the largest proportions of students who thought they would start a business within five years of graduating. Students in Business and Economics (6.6%) and Education and Social Work (4.7%) are more likely than others to think they will be a successor in an existing business.

Figure 3.4A Career intentions of UoA students by field of study (right after graduation)

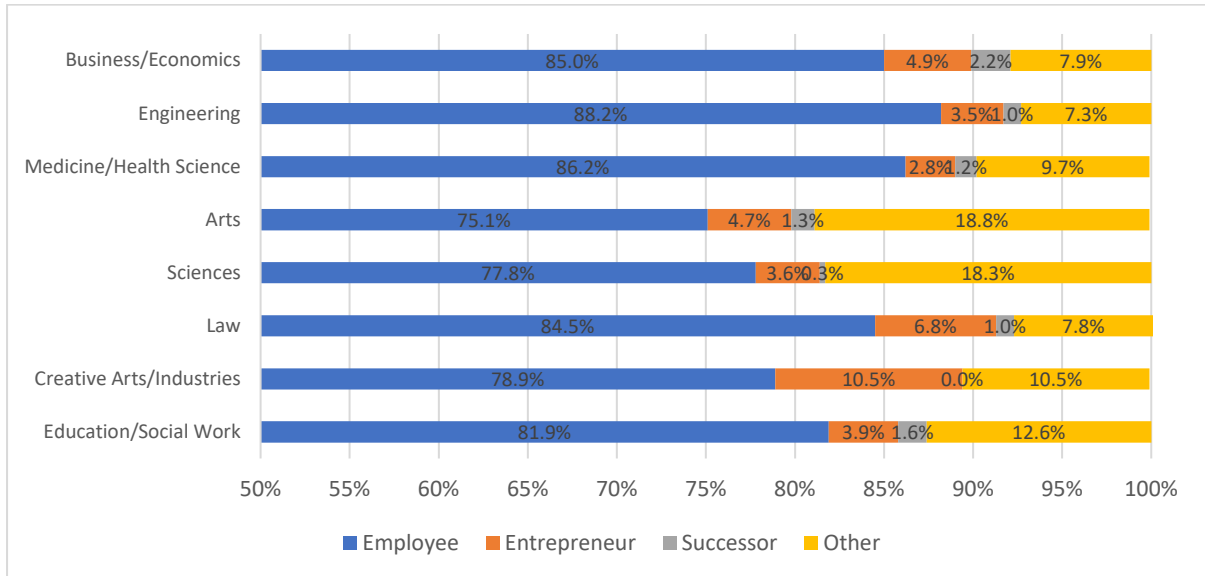
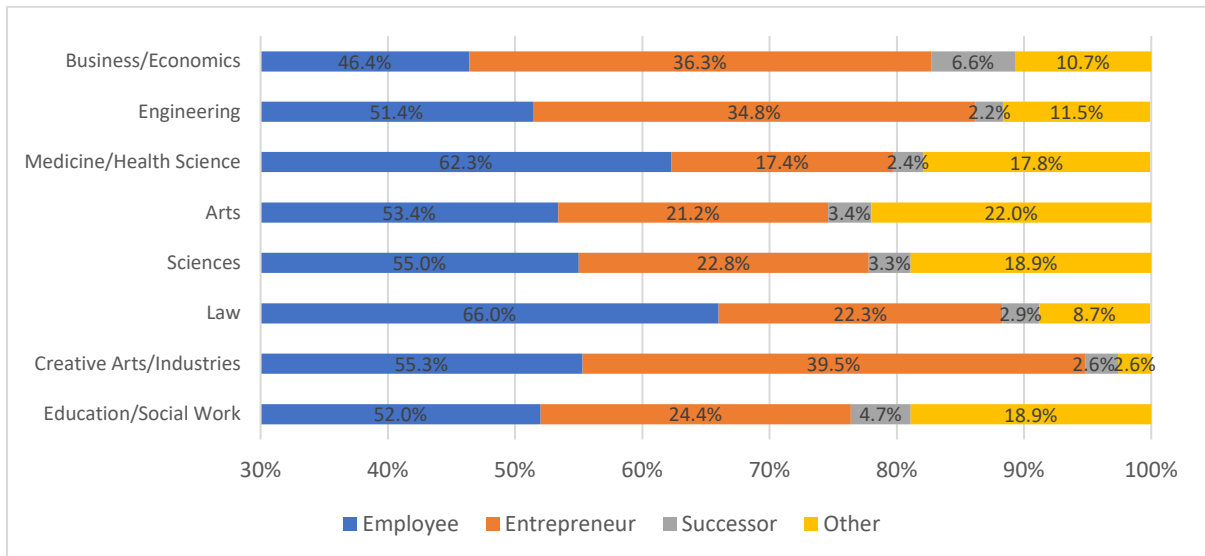


Figure 3.4B Career intentions of UoA students by field of study (five years after graduation)



4 Drivers of entrepreneurial intentions

This section addresses some of the factors that shape the entrepreneurial intention of students: university context, the students' psychological characteristics, and family and social context.

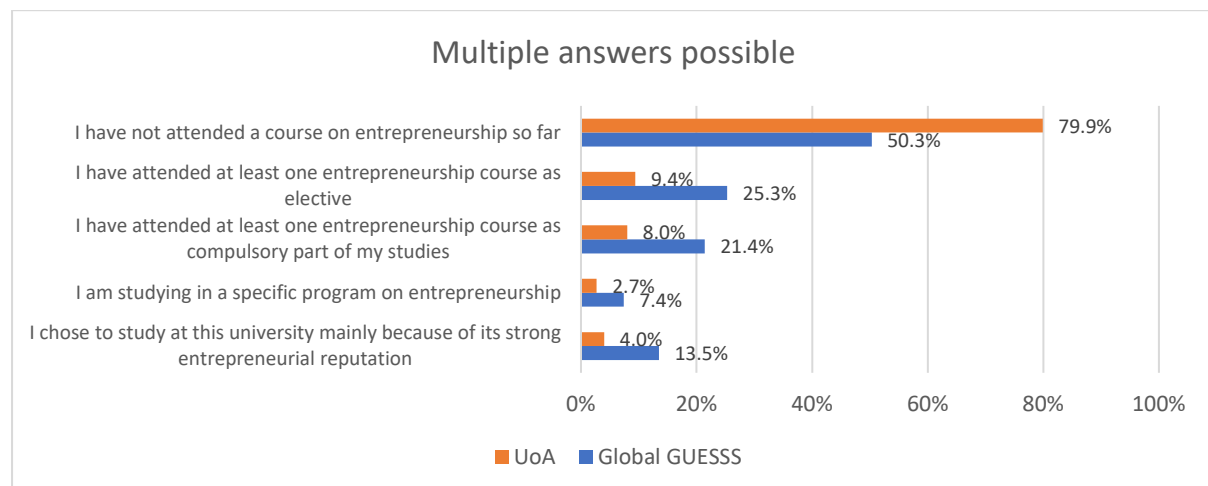
4.1 The university context

An underlying assumption of the GUESSS study is that universities play an important role in providing opportunities for students to be engaged in entrepreneurial learning, which in turn stimulates the entrepreneurial intention of students (e.g., Audretsch, 2014; Bergmann et al., 2018; Hahn et al., 2019; Maresch et al., 2016).

4.1.1 Taking entrepreneurship courses

Students were asked if they have taken entrepreneurship courses during their university program. Figure 4.1.1 summarises the responses. Most UoA respondents (79.9%) had not yet attended any entrepreneurship courses, which is considerably higher than the international average (50.3%). UoA students have lower rates of taking entrepreneurship courses than do students in the GUESSS sample. For example, 2.7% are studying entrepreneurship in a specific program, 8% are studying it as a compulsory course and 9% as an elective. This compares with 7.4%, 21.4% and 25.3% respectively of students in the GUESSS sample. Similarly, only 4% of the respondents reported that they chose UoA because of its entrepreneurial reputation, compared with the international average of 13.5%.

Figure 4.1.1 Proportion of students in UoA and GUESSS samples taking entrepreneurship courses



4.1.2 Engagement in extra-curricular activities related to entrepreneurship

UoA offers students a wide range of extra-curricular activities related to innovation and entrepreneurship (see Table 4.1.2). 56.2% of male and 70.2% of female respondents indicated that they have not participated in any of these extra-curricular activities. This gender difference is statistically significant ($p = .000$). 66.6% of domestic students and 63.3% of international students have not participated in extra-curricular activities related to innovation and entrepreneurship. However, the difference in these participation rates is not statistically significant.

Table 4.1.2 Participation in entrepreneurship and innovation extra-curricular activities at UoA

	Overall	Male	Female	Domestic student	Inter-national student
I have not participated in any extra-curricular activities at the University of Auckland related to innovation and entrepreneurship	64.9%	56.2%	70.2%	66.6%	63.3%
I have participated in Velocity	7%	10.2%	5.1%	6.7%	7.4%
I have participated in any program run by the Centre for Innovation and Entrepreneurship (CIE) (e.g., Solve It, Idea Bootcamp, Summer Lab, Innovation Squad, Get Good Done)	5.5%	7.1%	4.6%	4%	7.1%
I have used the Unleash Space (makers' space)	13.5%	17.8%	11%	13.2%	14%
I have participated in any program in the Innovation Hub (e.g., Startup School, Unleasher meetups, Founder Stories, speaker series or seminars)	5.9%	6.9%	5.4%	5.2%	6.7%
I have participated in competitions and/or activities in the innovation and entrepreneurship area (e.g., Social Innovation group, First Cut Ventures, Management Consulting Club, MIND/UoA Marketing Club, University of Auckland Formula SAE, etc.)	6.1%	8.7%	4.7%	7.2%	5.2%
I have participated in the PhD Research Innovation and Commercialisation Course	2.9%	3.5%	2.5%	1.2%	4.6%
I have research experience or research work extra to my degree program (i.e., commercial and/or academic research)	9.1%	10.9%	8.2%	9.4%	8.8
Number of observations	1920	714	1186	962	900

4.1.3 Entrepreneurial learning outcomes

Respondents who had taken entrepreneurship courses or participated in extra-curricular activities were asked to evaluate their learning on a seven-point scale (1 = not at all, 7 = very much). Table 4.1.3 shows the mean scores of UoA students by gender and nationality. Male and female students scored entrepreneurial learning outcomes similarly, and are not statistically different. On average, domestic students scored all five items lower than did international students, and all the differences between domestic and international students are statistically significant ($p=.000$, $p=.000$, $p=.000$, $p=.005$, and $p=.000$).

Table 4.1.3 Learning outcomes from entrepreneurship courses and extra-curricular offerings at UoA

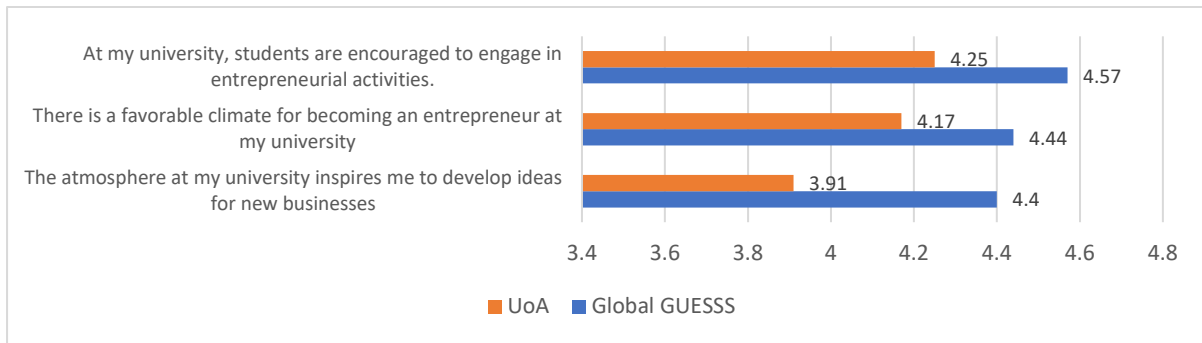
	Overall	Male	Female	Domestic student	Inter-national student
... increased my understanding of the attitudes, values and motivations of entrepreneurs	4.22	4.25	4.18	3.93	4.47
... increased my understanding of the actions someone has to take to start a business	3.97	3.98	3.96	3.58	4.32
... enhanced my practical management skills to start a business	3.87	3.91	3.83	3.57	4.13
... enhanced my ability to develop networks	4.56	4.61	4.51	4.37	4.7
... enhanced my ability to identify an opportunity	4.47	4.46	4.46	4.22	4.69
Number of observations	833	376	450	384	424

Note. 1=not at all, 7=very much

4.1.4 The entrepreneurial climate of the university

Respondents were asked to evaluate the extent to which their university provides a favourable environment for entrepreneurship using a seven-point scale (1=not at all, 7=very much) (see Figure 4.1.4). The UoA respondents assessed the university's entrepreneurial climate as moderate (ranging from 3.91 to 4.25), with the scores being lower than the GUESSS average for all three items (ranging from 4.4 to 4.57).

Table 4.1.4 Entrepreneurial climate at UoA compared with GUESSS average

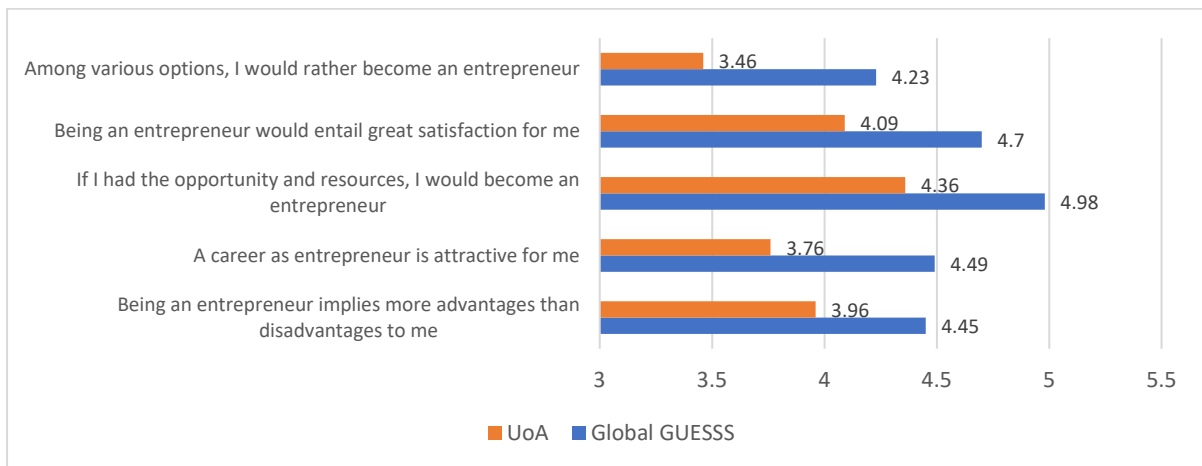


Note. 1 = not at all, 7 = very much

4.2 Attitude, locus of control and entrepreneurial self-efficacy

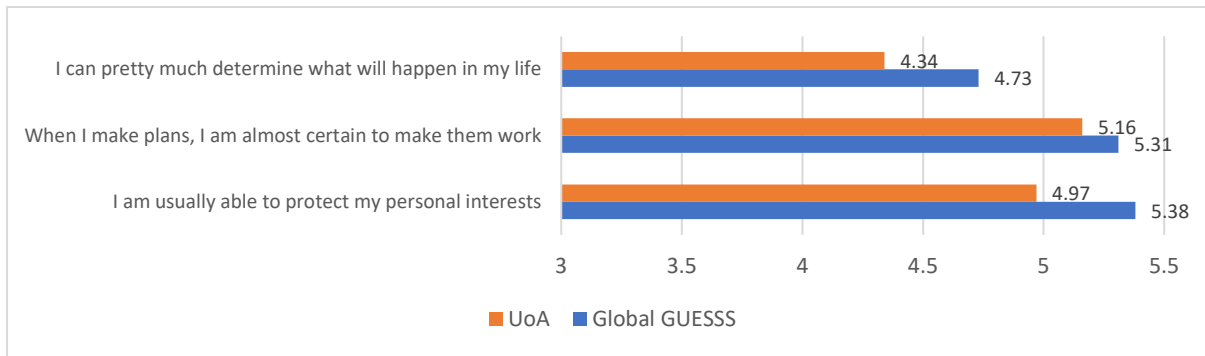
The literature suggests that psychological characteristics such as attitude toward becoming an entrepreneur, locus of control, and self-efficacy impact the entrepreneurial intentions of students (Shirokova, Osiyevskyy, & Bogatyreva, 2016). Figure 4.2A shows five items related to attitude. Respondents were asked to indicate to what extent they agree with each statement using a seven-point scale (1 = strongly disagree, 7 = strongly agree). Overall, UoA students have a lower level of aspiration to be entrepreneurs than do students in the GUESSS sample. Similarly, participants were asked to evaluate their ability to guide their own life (locus of control) using a seven-point scale (see Figure 4.2B). The mean ratings by UoA respondents are less than those from the GUESSS sample. Finally, to measure self-efficacy, participants were asked about their competence to perform seven entrepreneurial tasks (see Figure 4.2C). On average, UoA students scored their competence in performing the entrepreneurial tasks lower than the mean for the international sample.

Figure 4.2A Students’ attitude towards being an entrepreneur



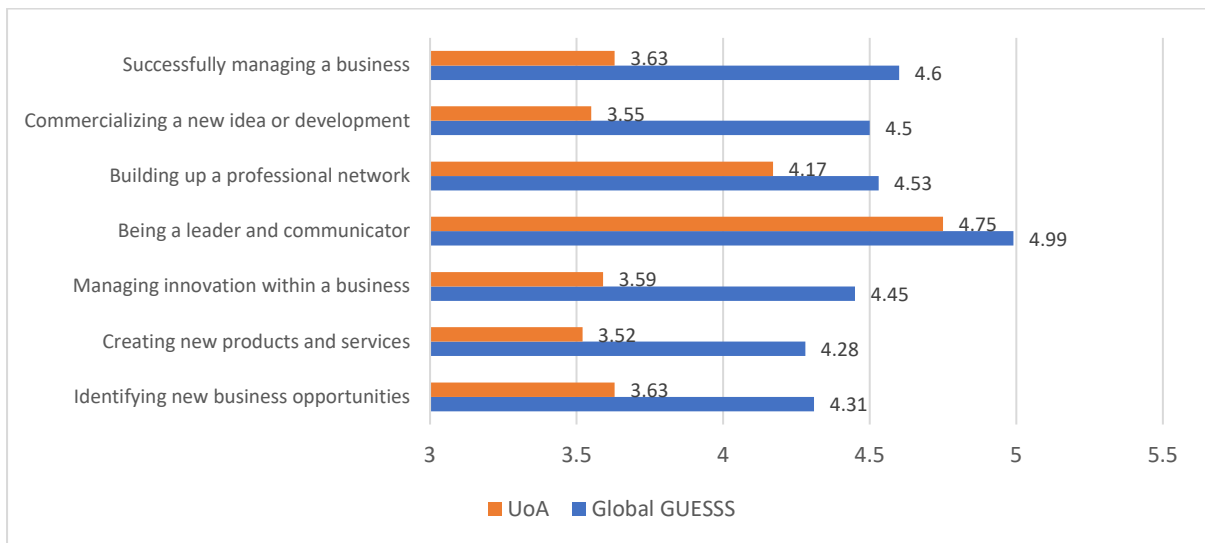
Note. 1 = strongly disagree, 7 = strongly agree

Figure 4.2B Students’ locus of control



Note. 1 = strongly disagree, 7 = strongly agree

Figure 4.2C Students’ entrepreneurial self-efficacy

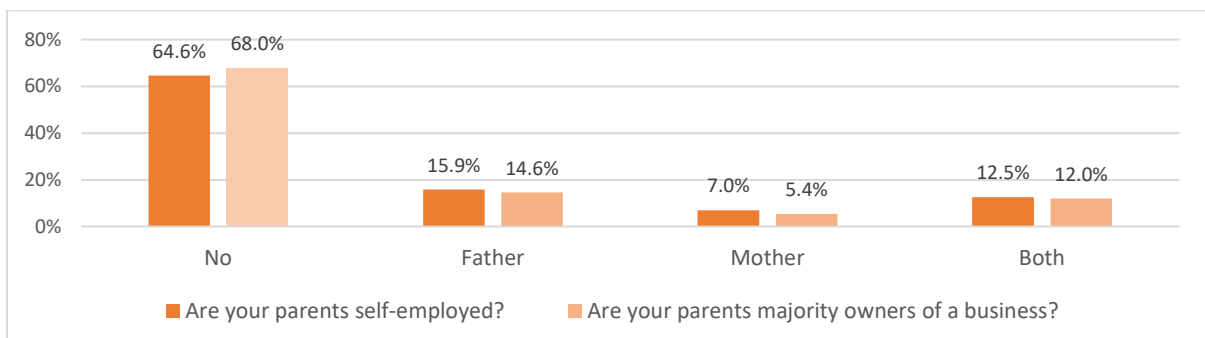


Note. 1 = strongly disagree, 7 = strongly agree

4.3 Family context

Having a family business background can be a proxy for entrepreneurial intention (Bae, Qian, Miao, & Fiet, 2014; Campopiano, Minola, & Cassia, 2017). The GUESSS survey defines a family business background as having parents who are either self-employed or the majority owners of a business. Overall, the majority of UoA students responded that their parents are neither self-employed (64.6%) nor majority owners of a business (68%) (see Figure 4.3). These proportions are similar to those in the GUESSS sample.

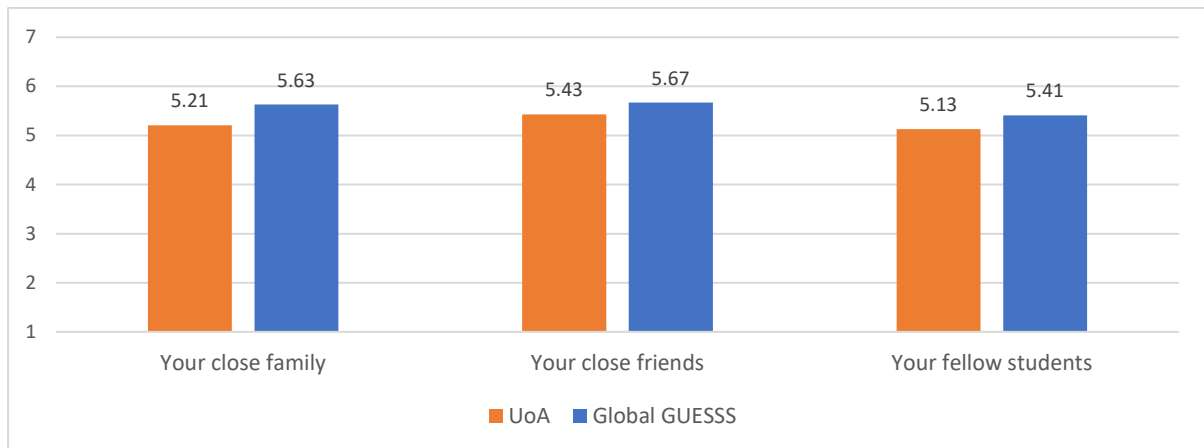
Figure 4.3 Family business background



4.4 Social context

Social influences, for example, the reaction of others to a student’s career decision, can play an important role in shaping entrepreneurial intention. Respondents were asked to anticipate how people in their environment (i.e., close family, friends and fellow students) would react if they say they would like to become an entrepreneur (see Figure 4.4). Students in both the UoA and GUESS samples expect a similar (though the UoA means are slightly lower) and reasonably favourable reaction from others.

Figure 4.4 Expected environmental reaction to being an entrepreneur



Note. 1 = very negative, 7 = very positive

5 Nascent entrepreneurs

This section focuses on the 16.2% of UoA respondents who indicated that they are currently engaging in “pre-organisational” activities to become self-employed (i.e., are nascent entrepreneurs according to Aldrich, 1999; Kessler, Korunka, Frank, & Lueger, 2012). This share is lower than that of the GUESSS sample in which 27.7% are nascent entrepreneurs.

5.1 Characteristics of nascent entrepreneurs

The mean age of UoA nascent entrepreneurs is 31.5 years (median = 29 years), reflecting that 61.7% of them are postgraduate students. Figure 5.1A shows the distribution by gender and level of study. Female postgraduate students are more likely to be nascent entrepreneurs than male postgraduate students, whereas female undergraduate students are less likely to be nascent entrepreneurs than their male counterparts. The differences in levels of nascent entrepreneurship by gender and level of study are statistically significant ($p = .032$).

Figure 5.1A Nascent entrepreneurs by level of study and gender

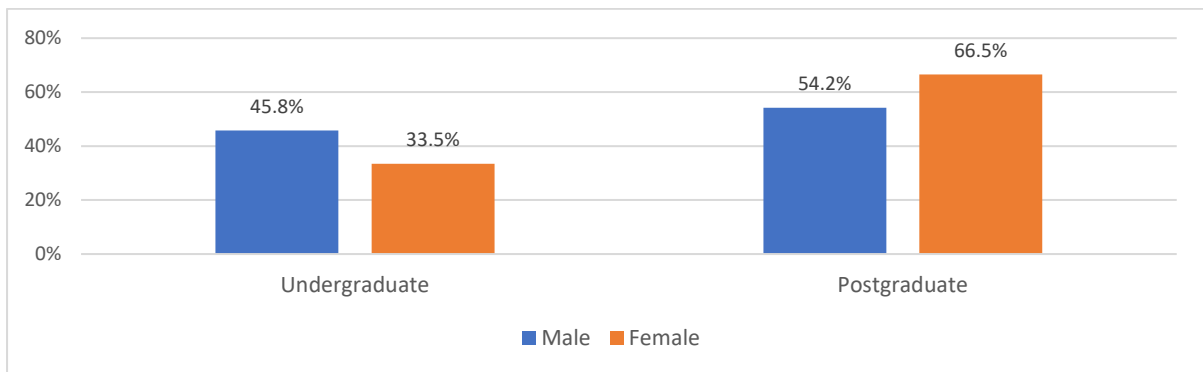
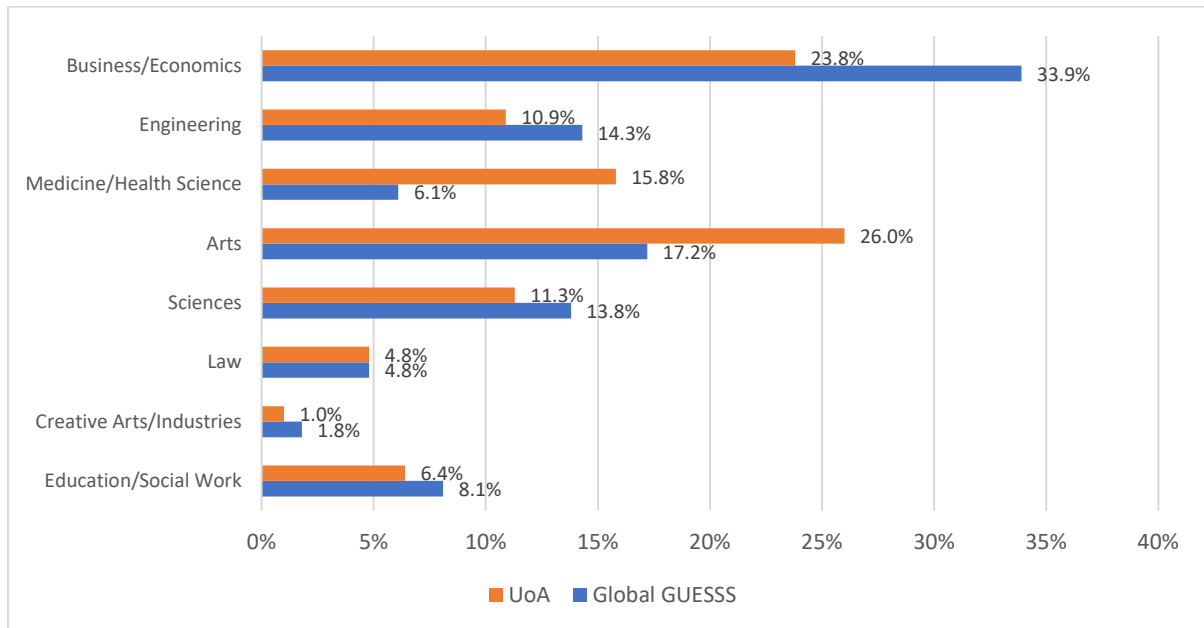


Figure 5.1B shows the distribution of nascent entrepreneurs by field of study. Among the eight faculties, Arts (26%) and Business and Economics (23.8%) have the largest shares of nascent entrepreneurs. These two areas of study also have the most nascent entrepreneurs in the GUESSS sample. Nearly 40% of UoA nascent entrepreneurs were international students (which is high considering limitations on business activities while on a student visa and distance from the business community in their home country).

Figure 5.1B Study fields of nascent entrepreneurs

5.2 Characteristics of planned businesses

When asked how many months before they plan to found their business, 17.5% reported that they will be ready to launch their business within the next six months. Meanwhile, 42.7% anticipate 19 or more months will be needed to do so. 30.8% of the UoA respondents reported that they are planning to start the business alone, 49% have one or more co-founders, and 20.2% are seeking but have not yet found co-founders. 41.2% reported that they developed the new business idea solely themselves. The majority of UoA nascent entrepreneurs want to start their business in other (18.6%), information technology and communication (12.7%) and trade (12.7%) industries (see Figure 5.2A).

Nascent entrepreneurs were also asked what steps they have taken towards starting their business (see Figure 5.2B). Among the UoA students, only a small percentage (3.2%) have registered their business. Most are at an early-stage, having collected information about market/competitors (16.4%), discussed the product or business idea with potential customers (15.1%), and/or having written a business plan (13.8%).

Figure 5.2A Distribution of nascent businesses by industry

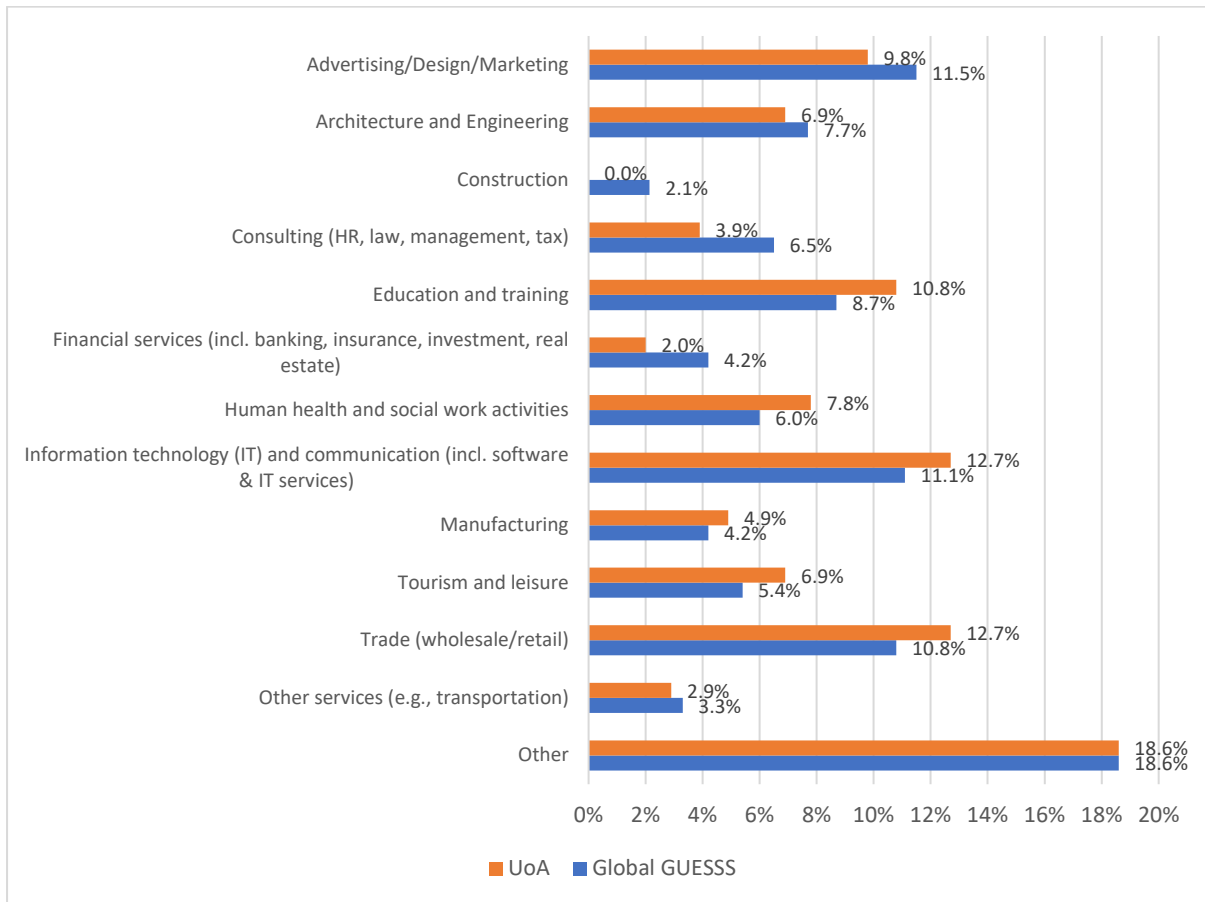
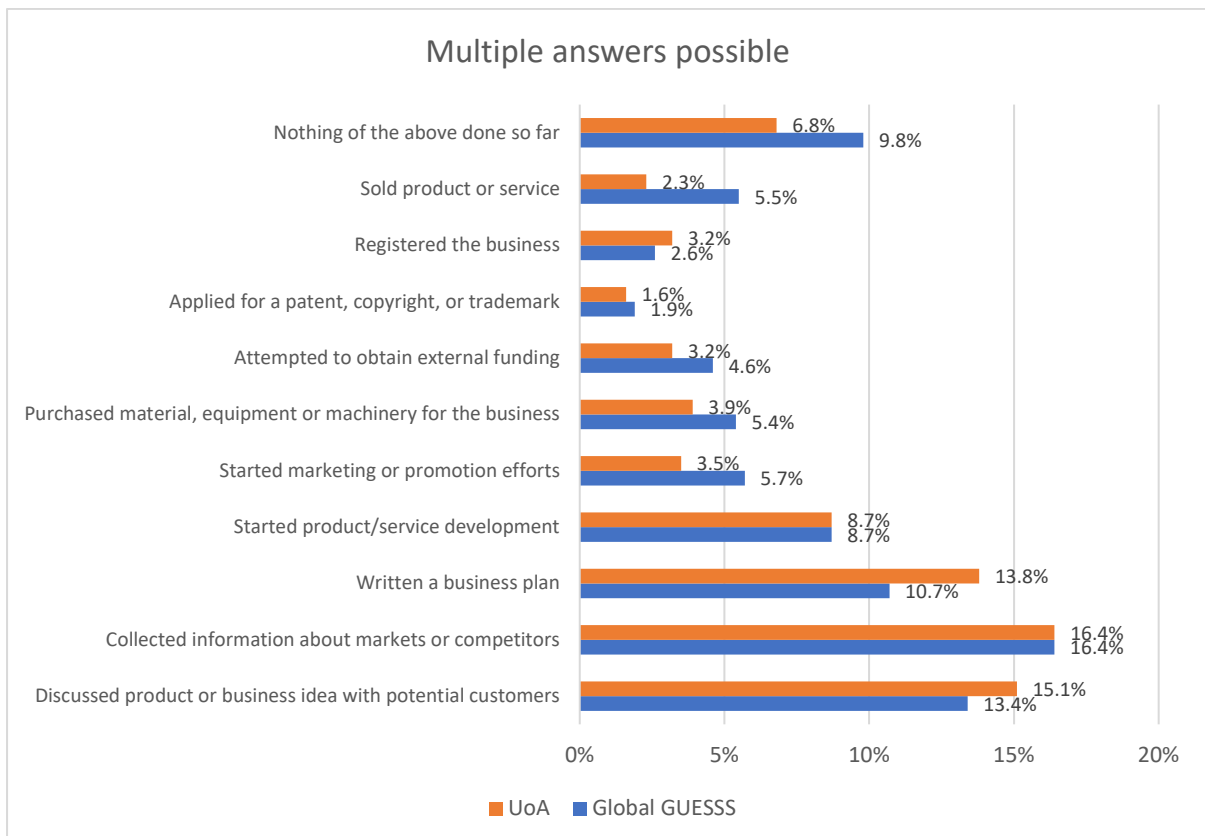


Figure 5.2B Activities undertaken to find a new business



6 Active entrepreneurs

This section focuses on the 7.4% of respondents in the UoA sample who answered yes to the question “Are you already running your own business or are self-employed?” and are thus active entrepreneurs. The proportion of active entrepreneurs is lower than in the GUESS sample, in which about 12% are active entrepreneurs.

6.1 Characteristics of active entrepreneurs

The mean age of UoA active entrepreneurs is 29.3 years (median = 25.5 years), reflecting that 52.8% of them are postgraduate students. Figure 6.1A shows that female postgraduate students are more likely to be active entrepreneurs than are male students at the same level of study. However, the opposite is the case for female undergraduate students. The difference in the levels of active entrepreneurship by gender and level of study are statistically significant ($p = .03$).

Figure 6.1A Active entrepreneurs by gender and level of study

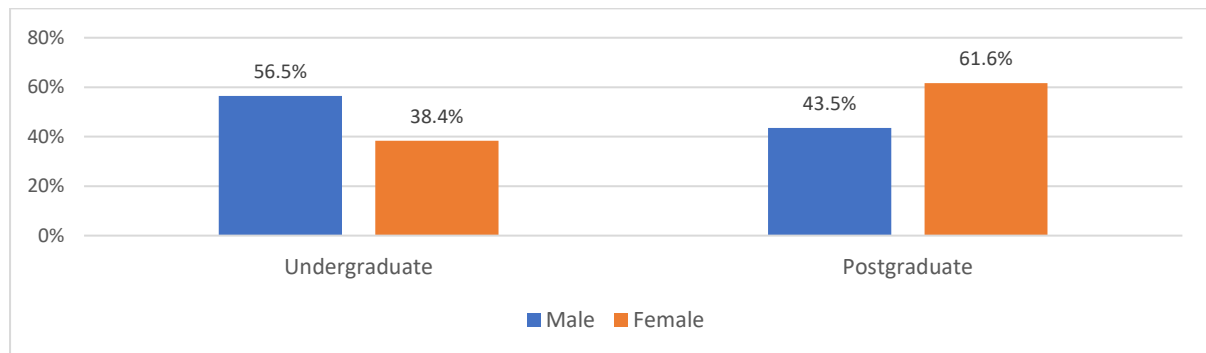
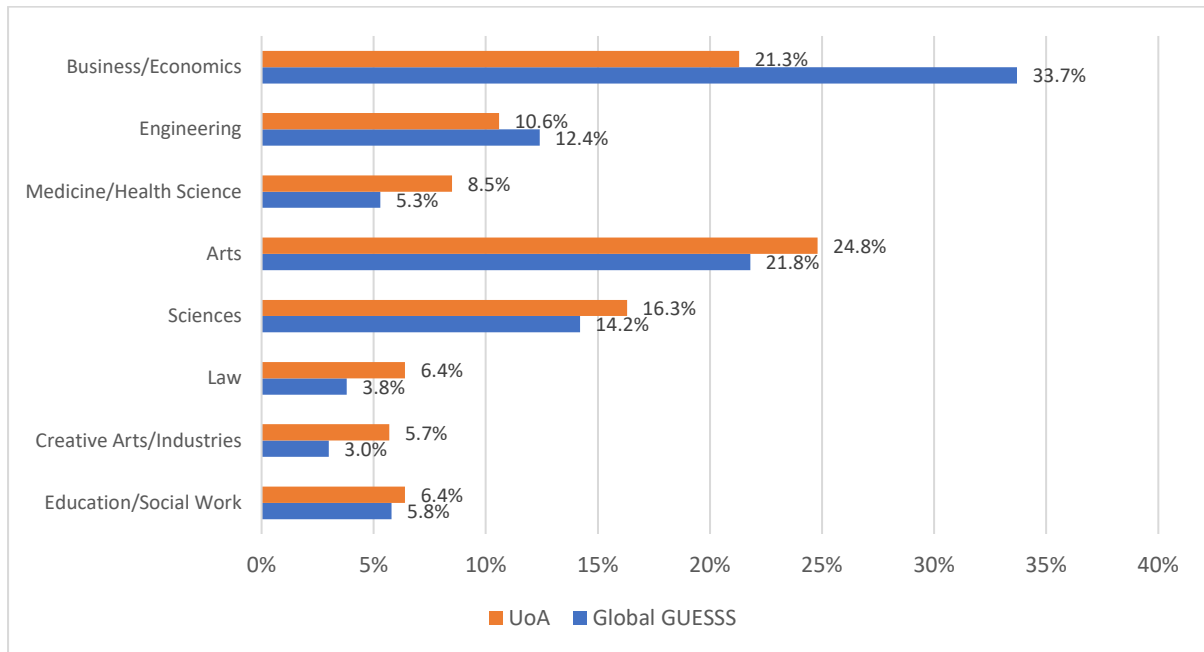


Figure 6.1B shows the proportion of active entrepreneurs by faculty. Most UoA active entrepreneurs study in either Arts (24.8%) or Business and Economics (21.3%). These two faculties represent more than half of the active entrepreneurs in the GUESS sample, with 33.7% being business students and 21.8% being arts students. 44.6% of UoA active entrepreneurs reported that they are international students. There are no statistically significant differences in the levels of active entrepreneurship between domestic and international students. When asked whether they will pursue the existing business as their main occupation after graduation, only 19.3% responded yes, while 46.4% want to continue on a part-time basis. The share of UoA active entrepreneurs who intend to continue in their business after graduation is much lower than in the GUESS sample (30.9%).

Figure 6.1B Active entrepreneurs by field of study

6.2 Characteristics of existing businesses

60.7% of active UoA entrepreneurs reported that they had established their business within the last three years. The average number of full-time employees that these active entrepreneurs have hired is three, which is lower than the international average of 10.2 employees. 29.5% of UoA active entrepreneurs have no employees, another 33.1% have one, and 14.4% have two. 55.7% of UoA active entrepreneurs reported that they have no co-founders, with 22.1%, 9.3% and 6.4% of them having one, two and three co-founders. Most of the businesses are in the education and training (20.3%), other (18.1%), information technology and communication (12.3%), or trade (12.3%) sectors (see Figure 6.2A). This pattern of sectors differs from the GUESSS sample, especially in having higher proportions in education and training and in information technology and communications sectors.

Active entrepreneurs were also asked to rate the performance of their business compared with competitors on a seven-point scale. Figure 6.2B summarizes the average performance for five dimensions. On average UoA entrepreneurs rated the performance of their business lower than did those in the GUESSS sample.

Figure 6.2A Distribution of businesses by industry

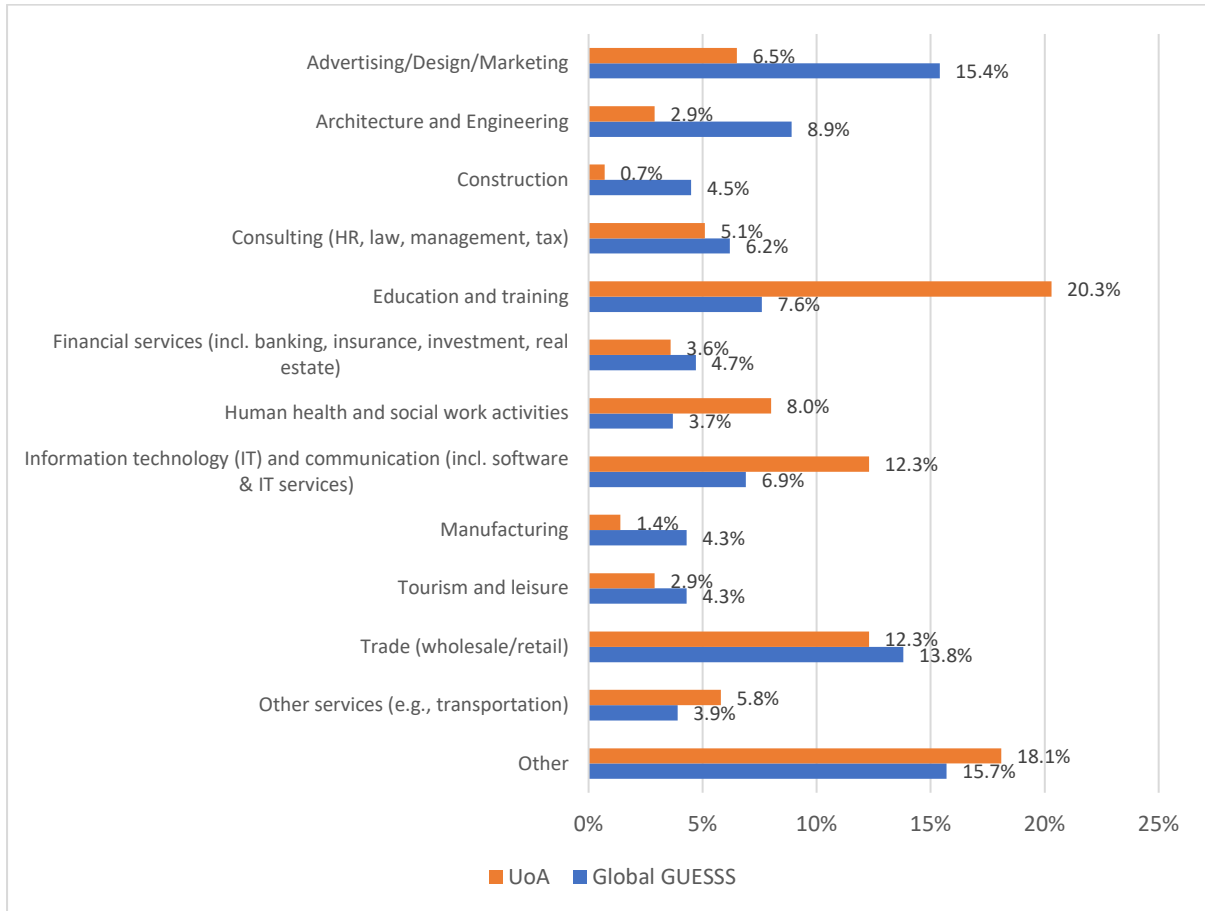
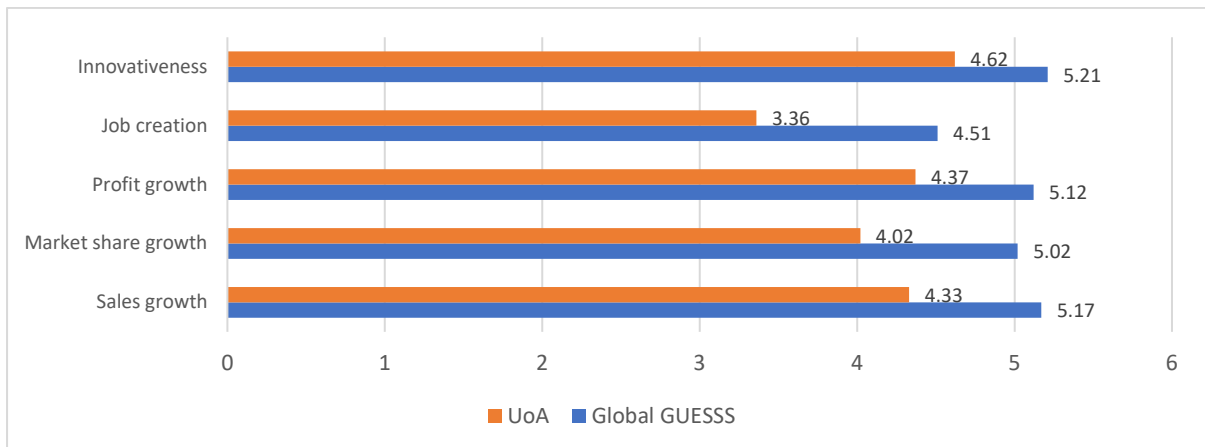


Figure 6.2B Perceived performance of business compared to competitors



Note. 1 = much worse, 7 = much better

7 Potential successors in family firms

This section focuses on the 43.2% of respondents in the UoA sample who are potential successors in family firms. Potential successors are those with at least one parent who is self-employed or the majority owner of a business. The proportion of UoA potential successors is slightly lower than in the GUESS sample (50.5%).

7.1 Characteristics of potential successors

Of the UoA respondents who are potential successors, 64.2% were women. Figure 7.1A shows the proportions of potential successors by gender and level of study. There are no statistically significant differences by gender or level of study.

Figure 7.1A Potential family successors by gender and level of study

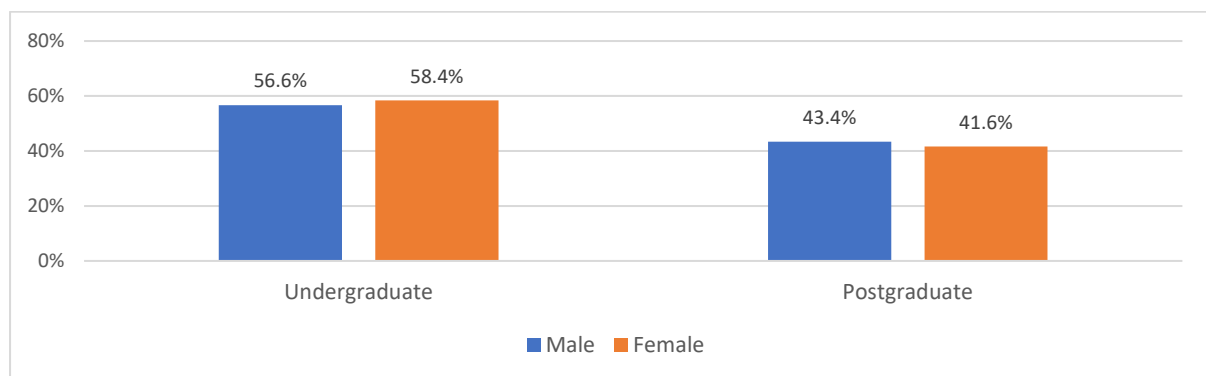
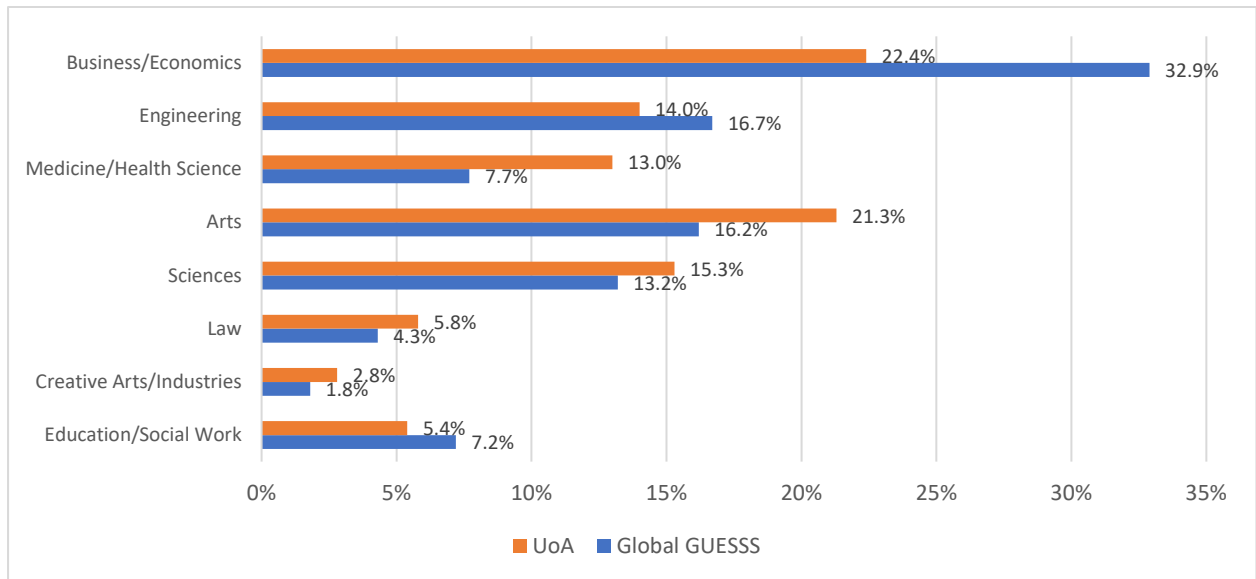


Figure 7.1B shows the distribution of potential successors between faculties, with the largest proportions being in Business and Economics (22.4%) and Arts (21.3%). While the former is lower than in the GUESS sample (32.9%⁶ are Business students), the latter is higher (16.2% study Arts).

⁶ Overall, the GUESS sample has a larger share of business students (30.2%) than does the UoA sample (19.1%). There are two reasons for this: some institutions only surveyed their business students, and a few of the participating institutions are independent business schools.

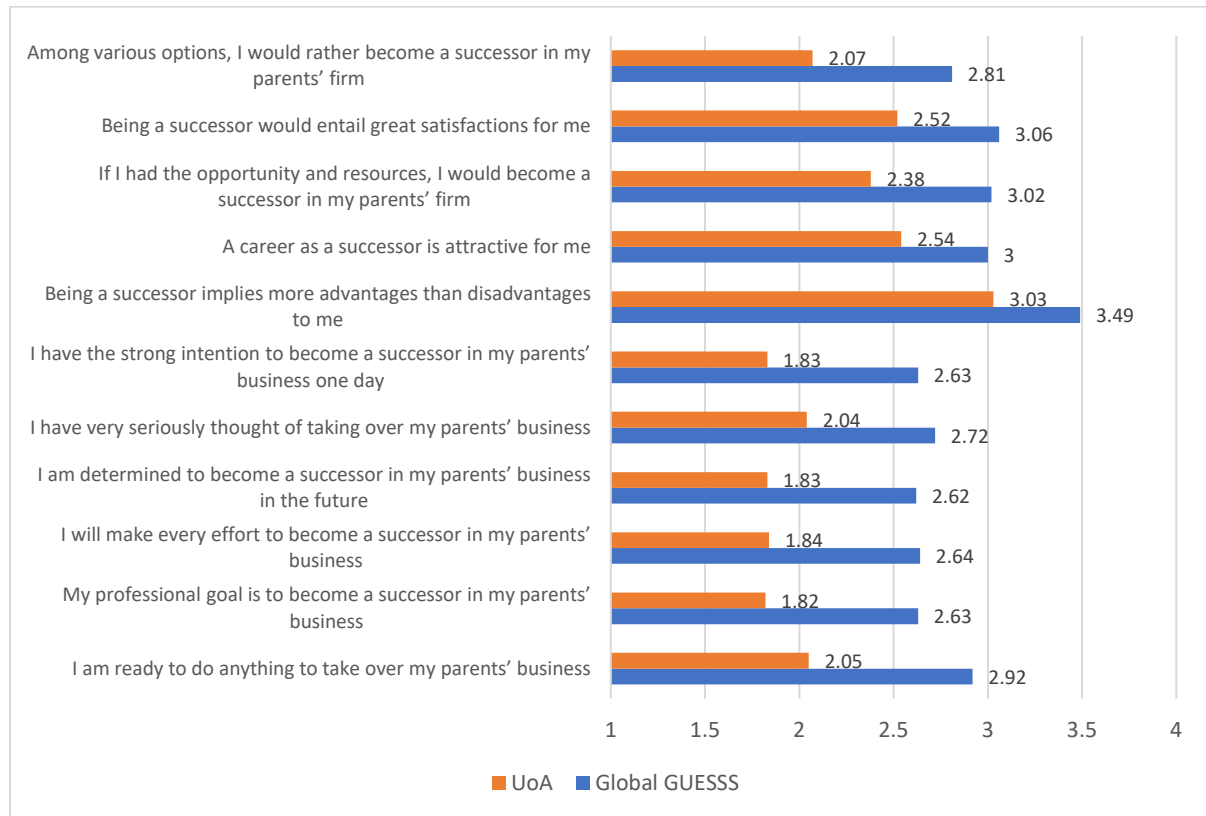
Figure 7.1B Potential family business successors by field of study

7.2 Characteristics of parents' business

On average, UoA respondents' parents have been self-employed or the major shareholders of a business for 18.3 years (median = 16 years). Most of these businesses (46.3%) have three or fewer employees while 3.1% have no employees. 65.4% of the UoA respondents said their parents have 100% ownership of the business, and 88% do not currently have any ownership position in their parents' business. 43.9% of the UoA respondents perceive their parents' business to be a family business. However, 58.6% do not have experience working in their parents' business. Of all potential family business successors in the UoA sample, 87.9% expressed their intention not to take over their parents' business. This is considerably higher than the international average (68.5%). Among the remaining 12.1% who are interested in being successors, most (7.2%) anticipate that the transition in business ownership from their parents is likely to happen after more than five years.

7.3 Attitude and intention toward succession

Potential successors were also asked to evaluate their attitude and intention towards succession on a seven-point scale. The results are presented in Figure 7.3. (The first five items relate to attitude, and the last six are measures of intention.) The ratings suggest that being a family successor is not attractive. The mean UoA scores are all lower than in the GUESS sample.

Figure 7.3 Students' attitude and intention towards succession

Note. 1 = strongly disagree, 7 = strongly agree

Potential successors were asked to rate, using a seven-point scale, the extent of their agreement with a range of statements about potential drivers of the intention to take over a family business. Table 7.3 compares the means of these five drivers for students who indicated that they are likely to take over the family business and those who did not. There are statistically significant differences in the perceived level of performance of the parents' business ($p = .000$, $p = .009$, $p = .003$, $p = .000$ and $p = .02$). The students who plan to take over their parents' business have a more positive perception about the performance of their parents' business than the students who do not. Similarly, differences in the expected environmental reaction towards students' succession between unlikely and likely successors are significant (all $p = .000$). The likely successors expect a more positive reaction to their succession than do the unlikely successors. The effect of the parents' verbal encouragement does not facilitate succession intention, as on average likely successors scored all three items lower than did unlikely successors. However, the means are only significantly different for the first two items: "... encouraged me to learn as much as I can at school", and "... encouraged me to make good grades" ($p = .036$ and $p = .014$). Instrumental and emotional support from the parents is important to succession intention, as the means are statistically higher for likely successors for all six items (all $p = .000$).

Table 7.3 Potential drivers of students' succession intention

	Overall	Unlikely successor	Likely successor
Performance of parents' business			
Sales growth	4.29	4.2	4.88
Market share growth	4.07	4	4.49
Profit growth	4.23	4.14	4.74
Job creation	3.47	3.35	4.18
Innovativeness	3.85	3.77	4.29
Environment reaction			
Your parents	4.34	4.14	5.78
Close family members (e.g. siblings)	4.06	3.9	5.31
Other family members (e.g. uncles and aunts)	4.04	3.88	5.25
People outside the family (e.g. friends, colleagues)	3.99	3.86	4.87
Verbal encouragement from parents			
... encouraged me to learn as much as I can at school	6.19	6.25	5.88
... encouraged me to make good grades	6.01	6.07	5.62
... told me they are proud of me when I do well in school	5.81	5.82	5.69
Instrumental support from parents			
... talked to me about how what I am learning will someday be able to help me in their business	2.55	2.31	4.25
... taught me things that I will someday be able to use in their business	2.94	2.7	4.65
... gave me chores that taught me skills I can use in my future career in their business	3.01	2.83	4.31
Emotional support from parents			
... talked to me about what fun my future job in their business could be	2.8	2.63	4.07
... said things that made me happy when I learned something I might use in their business	2.97	2.75	4.52
... and I get excited when we talk about what a great job I might have someday in their business	2.59	2.34	4.37
Number of observations	830	557	80

8 Conclusions

UoA participated in the GUESS for the first time in 2018. 1,920 students from across all faculties and programs participated in the survey, representing a 4.3% response rate. Responses from the UoA students are compared with those of more than 208,000 students from 3,000 universities in 54 countries, providing an international benchmark.

The UoA is below the GUESS average for all measures of student engagement with entrepreneurship practice and learning, beginning with career intention. Only 3.9% of UoA undergraduate students and 4.9% of postgraduate students see founding their own business as their preferred career right after graduation. This compares with 9.3% and 10.2% in the GUESS sample. A pattern of “first employee, then entrepreneur” is evident, consistent with the findings of previous GUESS projects in other countries (e.g., Sieger, Fueglistaller, Zellweger, & Braun, 2018). Thus, within five years of graduating, 25.2% of undergraduates and 29.4% of postgraduates think they will be working in their own business as a founder. However, these rates are also below the GUESS averages of 36.5% and 32.3%.

Despite the availability of a wide variety of extra-curricular activities related to entrepreneurship, and expansion of innovation and entrepreneurship related curricula, most UoA students have yet to participate in either. Almost 80% of the UoA respondents had yet to take an entrepreneurship course, which compares with 50.3% internationally; and only 35.1% of UoA respondents have participated in any extra-curricular activities related to innovation and entrepreneurship. As a possible consequence, UoA students report on average a less positive attitude toward becoming an entrepreneur, a more externalised locus of control, and lower self-efficacy to undertake entrepreneurial endeavours than do their international peers.

In contrast to the small proportion of students who see founding a business as their likely career right after graduating, almost a quarter of the UoA respondents are nascent (16.2%) or active (7.4%) entrepreneurs (though only 19.3% of the active entrepreneurs want to pursue their current business as their primary career when they graduate). These proportions are lower than in the international sample, in which 27.7% are nascent entrepreneurs and 12% are active entrepreneurs. 43.2% of the UoA respondents are potential successors in a family business (compared to 50.5% internationally), however, only 12.1% are interested in doing so and most of these anticipate that the transition in business ownership from their parents will likely happen after more than five years.

These results suggest there is considerable opportunity at the UoA to increase awareness of founding a business or taking over an existing business as a career option, and providing students with the knowledge and skills to do so. The report highlights some notable demographic differences between gender, nationality and field of study, many of which have parallels in the international data. These point to systemic challenges that should be considered in the design and delivery of initiatives to enhance engagement with entrepreneurial learning and practice. The dramatic increase in interest in the proportion of students who see themselves as possible founders and successors five years after graduation also suggests opportunities for continuing education, and engagement with alumni who seek to transition from employment to founder or successor.

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