



Global University Entrepreneurial Spirit Students' Survey



## Student Entrepreneurship Across the Globe: A Look at Intentions and Activities

International Report of the GUESSS Project 2013/2014

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## **Preface**

What are students' entrepreneurial intentions and activities across the world? This question is of highest social and economic relevance. Students represent the entrepreneurs of tomorrow; their entrepreneurial plans and activities will shape tomorrow's societies and the overall economic well-being.

Hence, it is of highest interest for different stakeholders such as academics, practitioners, educators, policy-makers, and last but not least students how many students intend to pursue an entrepreneurial career and how those entrepreneurial intentions come into being.

The GUESSS project (Global University Entrepreneurial Spirit Students' Survey) addresses this question on a global level. For that purpose, the 6<sup>th</sup> data collection wave in the history of GUESSS was conducted in 34 countries at more than 700 universities between October 2013 and March 2014. This led to a dataset with more than 109'000 complete student responses.

This report provides an in-depth analysis of this unique dataset, shedding a nuanced light on students' entrepreneurial intentions and concrete activities. We focused in particular on cross-country comparisons, whereby we also consider numerous other relevant aspects, such as gender and specific social and cultural determinants.

Importantly, we also compare our results to those based on the GUESSS data collection in 2011 which allows us to recognize important trends and developments. Most importantly, we see that entrepreneurial intentions in most countries seem to be stagnating or have even declined compared to 2011.

The 2013/2014 edition of GUESSS would not have been possible without the invaluable effort and support of all country teams and of course without the students who responded to our survey invitation. Thank you. We are already looking forward to the next edition of GUESSS in 2015/16.

Yours sincerely,

*Prof. Philipp Sieger*

*Prof. Urs Fueglistaller*

*Prof. Thomas Zellweger*

*KMU-HSG / CFB-HSG*

# 1 Introduction

## 1.1 Starting point and aims of GUESSS

The international research project GUESSS stands for "Global University Entrepreneurial Spirit Students' Survey" and has been founded at the Swiss Research Institute of Small Business and Entrepreneurship at the University of St.Gallen (KMU-HSG) in 2003. Until 2006 it was labeled ISCE (International Survey on Collegiate Entrepreneurship). Its research focus is on students' entrepreneurial intentions and activities.

With every data collection wave, GUESSS has grown and has become more internationally, culminating in the 6<sup>th</sup> edition in 2013/2014 with 34 participating countries.

The aims of GUESSS can be summarized as follows:

- Systematic and long-term observation of entrepreneurial intentions and activities of students
- Identification of antecedents and boundary conditions in the context of new venture creation and entrepreneurial careers in general
- Observation and evaluation of Universities' activities and offerings related to the entrepreneurial education of their students

GUESSS intends to create value for different stakeholders:

- Participating countries generate insights on their respective basic conditions for entrepreneurship in general
- They also learn more about the entrepreneurial power of their students
- Participating Universities are enabled to assess the quantity and quality of their offerings in the context of entrepreneurship
- Politics and public are sensitized for entrepreneurship in general and new venture creation in particular, and hopefully identify need for action
- Students can benefit from the implementation of respective actions in the long term

Overall, GUESSS is maybe the largest entrepreneurship research project in the world. We seek to further increase its global scope in the future and aim for an even stronger impact in research and practice.

For more information about GUESSS please see <http://www.guesssurvey.org>



## 1.2 Theoretical framework

The theoretical foundation of GUESSS is the Theory of Planned Behavior (Ajzen, 1991, 2002; Fishbein & Ajzen, 1975). Its underlying argument is that the intention to perform a specific behavior is influenced by three main factors: attitude toward the behavior, subjective norms, and perceived behavioral control.

At GUESSS, we focus on career choice intentions in general and entrepreneurial intentions in particular. We investigate additional factors that may impact the evolvement of career choice or entrepreneurial intentions through the three main elements of TPB. Examples are the university context, the family context, personal motives, and the social/cultural context. The overall theoretical framework is illustrated in the following figure.

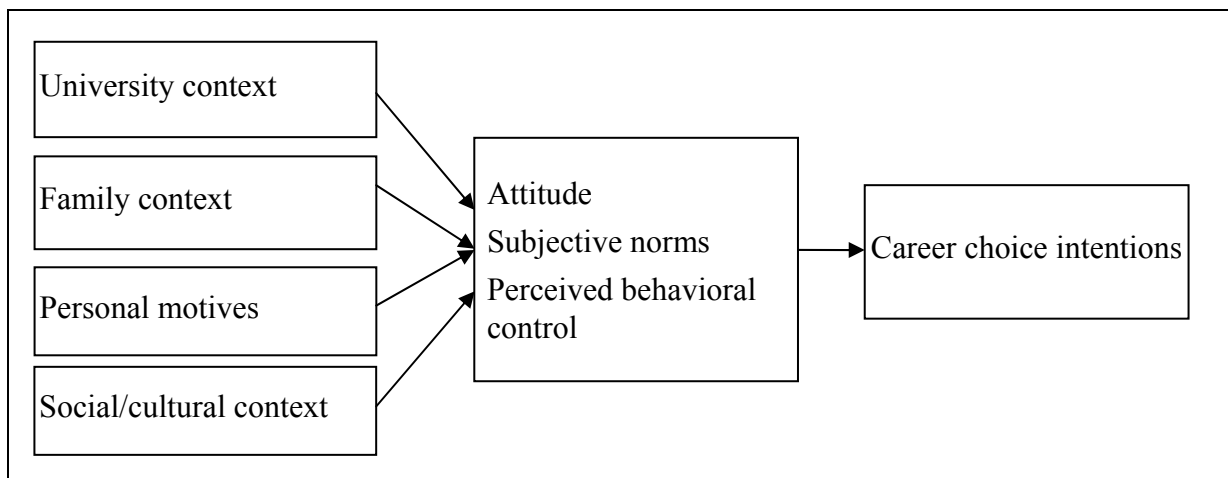


Figure 1: Theoretical framework of GUESSS 2013/2014

## 1.3 Project organization and data collection procedure

The GUESSS project is organized by the KMU-HSG at the University of St.Gallen (Switzerland). The responsible project manager is Assistant Professor Philipp Sieger. The supervisory board consists of Prof. Urs Fueglistaller (President), Prof. Thomas Zellweger, Prof. Norris Krueger, and Dr. Frank Halter.

Every participating country is represented by one main country team. These country teams, in turn, recruit other universities in that country who also would like to take part in the data collection.

For each data collection wave since 2003, the GUESSS core team at the University of St.Gallen has been developing a comprehensive survey that meets the highest academic standards. The link to the online survey is then sent out to the different country teams who then forward it to their own students or to their university partners (who then also forward it to their respective students). Data is collected and prepared centrally.

## 2 Participants and Sample

### 2.1 Country representatives

#	Country	Representative	University
1	Argentina (ARG)	Prof. Silvia Carbonell Aranzazu Echezarreta	IAE Business School
2	Australia (AUS)	Prof. Paul Weber Louis Geneste	Curtin University of Technology
3	Austria (AUT)	Prof. Norbert Kailer Birgit Wimmer-Wurm	Johannes Kepler University Linz
4	Belgium (BEL)	Prof. Dr. Hans Crijns Karen de Visch	Vlerick Leuven Gent Management School
5	Brazil (BRA)	Prof. Edmilson Lima	UNINOVE - Universidade Nove de Julho
6	Canada (CAN)	Prof. Alexandra Dawson	Concordia University, Montreal
7	Colombia (COL)	Prof. Claudia Alvarez	Universidad de Medellin
8	Denmark (DEN)	Prof. Britta Boyd Prof. Kristian Philipsen	University of Southern Denmark
9	England (ENG)	Prof. Robert Blackburn Arif Attar	Kingston University, Kingston
10	Estonia (EST)	Prof. Urve Venesaar	Tallinn University of Technology
11	Finland (FIN)	Prof. Asko Miettinen Sampo Kokkonen	Lappeenranta University of Technology
12	France (FRA)	Prof. Alain Fayolle Emeran Nziali	EM Lyon Business School
13	Germany (GER)	Dr. Heiko Bergmann	University of St.Gallen
14	Greece (GRE)	Prof. Katerina Sarri	University of Western Macedonia
15	Hungary (HUN)	Dr. Szilveszter Farkas	Budapest Business School
16	Israel (ISR)	Prof. Brian Polin	Jerusalem College of Technology
17	Italy (ITA)	Prof. Tommaso Minola Giovanna Campopiano	University of Bergamo
18	Japan (JAP)	Prof. Tomoyo Kazumi	Senshu University
19	Liechtenstein (LIE)	Prof. Dr. Urs Baldegger Simon Zäch	University of Liechtenstein
20	Luxembourg (LUX)	Prof. Pol Wagner Frédéric Ternes	Institut Universitaire International Luxembourg
21	Malaysia (MAL)	Prof. Raja Suzana Kasim	Universiti Malaysia Kelantan
22	Mexico (MEX)	Prof. Juan Arriaga	EGADE Business School, Tecnológico de Monterrey
23	Netherlands (NED)	Prof. Roy Thurik Dr. Ingrid Verheul Sofia Karali	Erasmus University, Rotterdam
24	Nigeria (NIG)	Prof. Tomola Obamuyi	Adekunle Ajasin University
25	Poland (POL)	Prof. Adrianna Lewandowska Lukasz Tylczynski	Family Business Institute Poznań
26	Portugal (POR)	Prof. Joao Leitao Prof. Miguel Amaral	Technical University of Lisbon Instituto Superior Tecnico
27	Romania (ROM)	Dr. Lilian Ciachir	University of Bucharest
28	Russia (RUS)	Prof. Galina Shirokova Tatyana Tsukanova	St.Petersburg State University Graduate School of Management
29	Scotland (SCO)	Dr. Erik Monsen	University of Strathclyde, Glasgow
30	Singapore (SIN)	Prof. Poh Kam Wong Low Pei Chin	National University of Singapore
31	Slovenia (SLO)	Prof. Jaka Vadnjal Predrag Ljubotina	GEA College of Entrepreneurship
32	Spain (ESP)	Prof. Joan Batista Prof. Ricard Serlavos Maika Valencia	ESADE
33	Switzerland (SUI)	Prof. Philipp Sieger Prof. Rico Baldegger	University of St.Gallen HEG Fribourg
34	USA	Prof. Torsten Pieper Prof. Pramodita Sharma	Kennesaw State University (KSU) University of Vermont (UVM)

Figure 2: List of country representatives

## 2.2 Universities and respondents

The following table lists all countries and the characteristics of the respective data collection efforts. We note that the number of students that have actually received a personal invitation to take part in the GUESSSS survey is sometimes relatively difficult to tell. The reason is that not all universities that took part in GUESSSS sent out personal emails to students. In many cases, the GUESSSS survey was announced in newsletters, on websites, or on Facebook pages. If personal emails were sent to the students' university email account, it is also not always guaranteed that those accounts are used regularly. Also, universities did not always send out those emails to the total student population, but only to a subgroup of students.

As a whole, the numbers given below have been provided to the best knowledge of the country teams and university partners. However, the overall response rate is likely to be an underestimation.

	Responses	Valid Percent	# of universities	# addressed students	Response rate
ARG	190	.2	14	1800	10.6
AUS	495	.5	6	3500	14.1
AUT	4220	3.9	34	149587	2.8
BEL	402	.4	16	n.a.	n.a.
BRA	12561	11.5	104	220000	5.7
CAN	509	.5	2	7436	6.8
COL	801	.7	22	5700	14.1
DEN	1027	.9	10	28000	3.7
ENG	654	.6	20	n.a.	n.a.
ESP	10545	9.7	21	126870	8.3
EST	1391	1.3	23	33880	4.1
FIN	704	.6	12	33943	2.1
FRA	332	.3	14	14450	2.3
GER	10570	9.7	44	292000	3.6
GRE	435	.4	8	2500	17.4
HUN	8844	8.1	31	161000	5.5
ISR	1086	1.0	17	4500	24.1
ITA	7765	7.1	46	142698	5.4
JPN	890	.8	19	5835	15.3
LIE	203	.2	2	607	33.4
LUX	153	.1	4	6457	2.4
MEX	637	.6	17	5000	12.7
MYS	2452	2.2	21	7400	33.1
NED	9907	9.1	67	268808	3.7
NGR	7	.0	1	n.a.	n.a.
POL	11860	10.9	37	115000	10.3
POR	213	.2	3	3000	7.1
ROM	277	.3	10	n.a.	n.a.
RUS	4578	4.2	35	26400	17.3
SCO	280	.3	11	68900	0.4
SIN	6471	5.9	9	88990	7.3
SLO	903	.8	44	22000	4.1
SUI	7419	6.8	33	87200	8.5
USA	245	.2	2	25768	1.0
Total	109026	100.0	759	1959229	5.5

Figure 3: Countries, universities, and respondents

## 2.3 Student demographics

Before we start with detailed analyses of students' entrepreneurial intentions and activities across the globe, we need to know whom we are actually talking about. Hence, it is imperative to take a closer look at the demographic characteristics of our respondents.

The respondents' mean age is 23.1 years (median = 22 years); 58.4% of them are female. This is comparable to the last GUESSS data collection in 2011. On average, the students have 1.6 siblings. Given the increasing interest in gender research, we note that the share of female students varies significantly across countries. Female students are most dominant in Slovenia and Scotland, whereby male students dominate particularly in Portugal and Liechtenstein.<sup>1</sup>

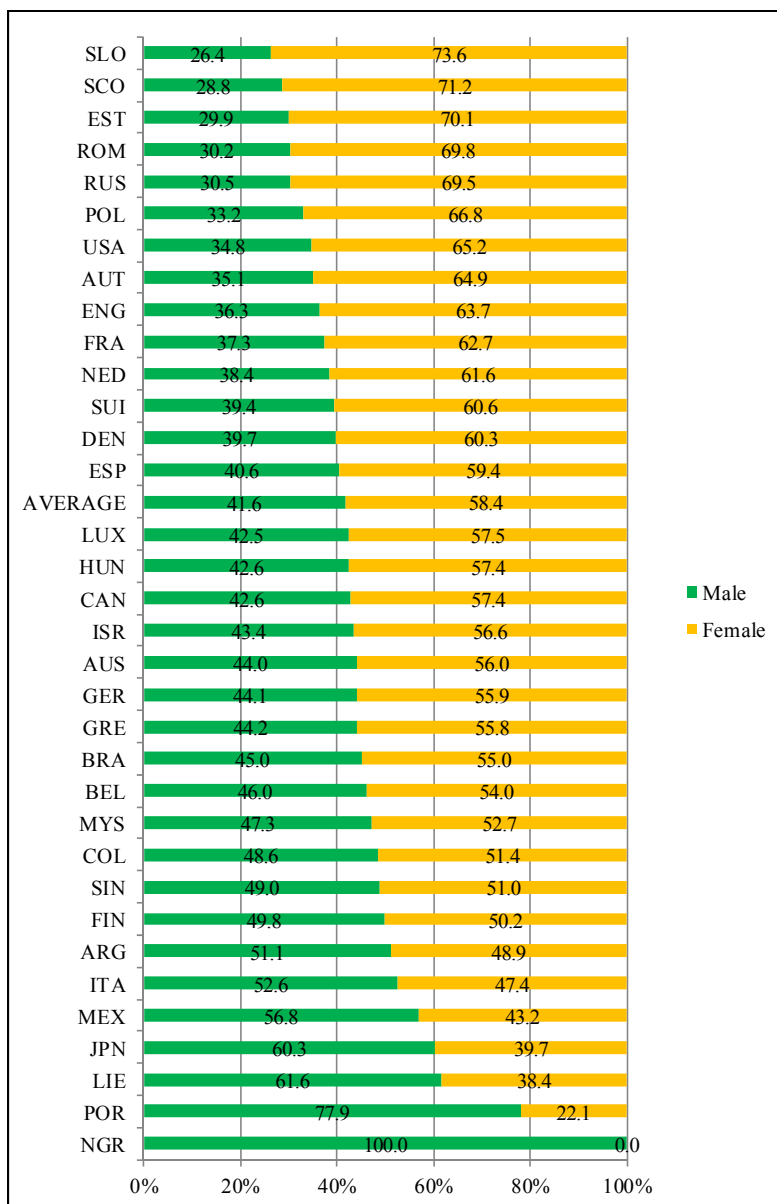


Figure 4: Male and female students across countries

<sup>1</sup> We note that the share of male students in Nigeria is 100%. Given that only 7 responses were collected there, we do not discuss this number here. Throughout the report, Nigeria is excluded for several analyses to avoid biases and misinterpretations that are due to the very small sample size in that country.

## 2.4 University studies

Next, we take a closer look at the student characteristics with regard to their actual studies. First of all, we note that 76.1% of all students are undergraduate (Bachelor) students, with 19.9% being graduate (Master) students. The share of students on other levels (e.g., PhD, MBA) is negligibly small.

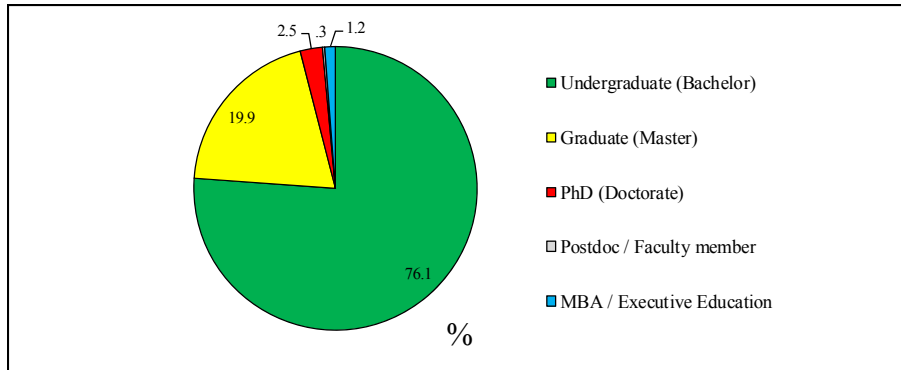


Figure 5: Students' study level

22.4% of all students are studying in the field of “Business / Management”, which constitutes the largest group in our sample. While considerable 15.6% of all students are studying in a field that is not captured by our comprehensive selection of choices, the second largest group is “Engineering and architecture” (15.1%) followed by “Economics”. As we will outline later in this report, the field of study is a decisive factor when it comes to career choice intentions in general and to entrepreneurial intentions in particular.

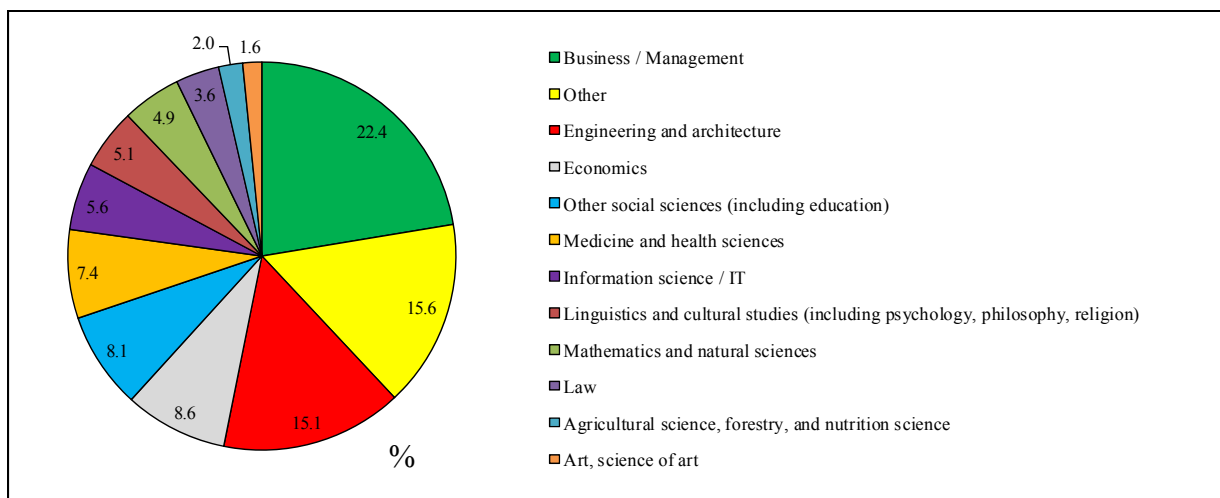


Figure 6: Study fields on the global level

To facilitate a comparative analysis, we follow the procedure commonly used at GUESSS and group the study fields into three main categories: “Business, economics, and law” (BECL), “Natural sciences and medicine” (NSM), and “Social sciences” (SSC).

BECL includes “Business / Management”, “Economics”, and “Law”; NSM includes “Engineering and architecture”, “Mathematics and natural sciences”, “Information science /

IT”, “Agricultural science, forestry, and nutrition science”, and “Medicine and health sciences”; and SSC comprises “Linguistics and cultural studies (including psychology, philosophy, religion)” as well as “Other social sciences (including education)”. “Other”, finally, includes the actual “Other” category plus “Art, science of art”.

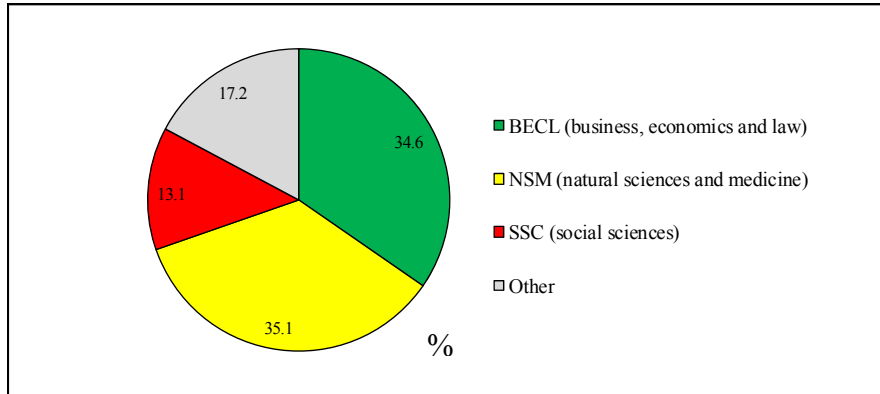


Figure 7: Study fields in groups on the global level

Also here, it is worthwhile to look at students’ gender. As it could be expected, the majority of NSM students is male, whereby female students dominate in BECL and even more in SSC.

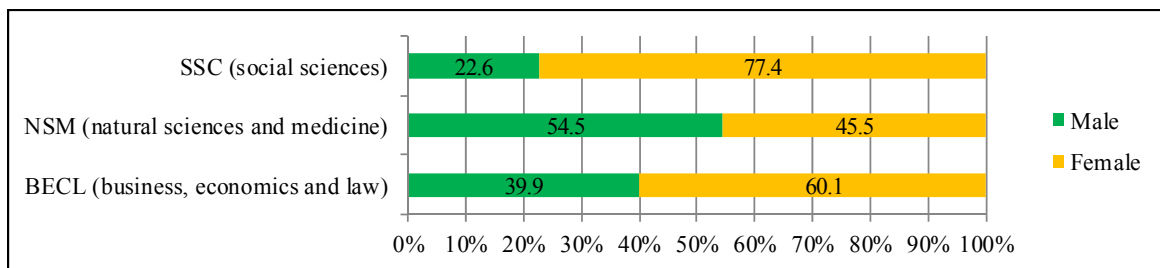


Figure 8: Students’ gender across study fields

We were also interested if students have a regular job next to their studies. 36.3% report that this is the case, whereby they spend 25.7 hours per week on their job (average).

Also, students were asked how they would rate their own average study performance on a scale from 1 (far below average) to 7 (far above average). The average value of 4.78 suggests that students generally see them as performing slightly above average. Only 9.3% of the students see themselves as being below average. Approximately every fourth student (25.4%) sees him- or herself as being at least “Pretty above average”.

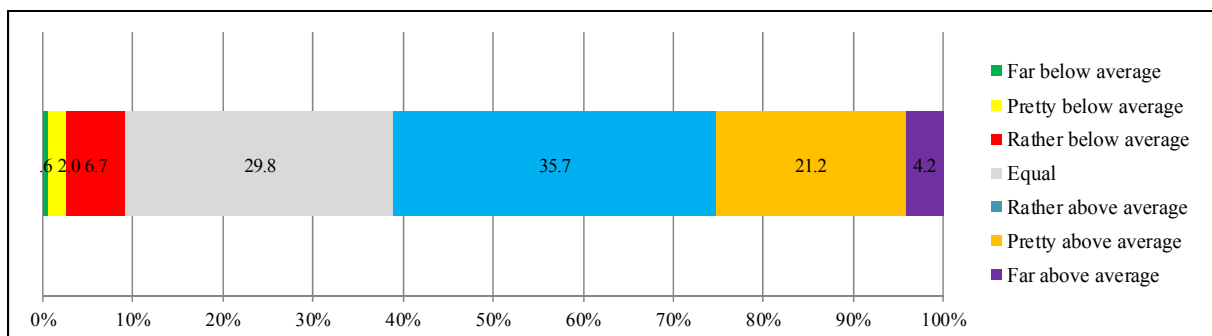


Figure 9: Students’ study performance

Finally, as we expect that the field of study is an important determinant of career choice intentions in general and of entrepreneurial intentions in particular, we investigate the relevance of the different study fields across the GUESSS countries to facilitate later cross-country comparisons. There are obvious differences across countries, which is of course also due to the type and number of participating universities. BECL students constitute more than 75% of the sample in Canada, Australia and France. Portugal, on the other hand, is an exception with 99% of the students enrolled in NSM-related study fields.

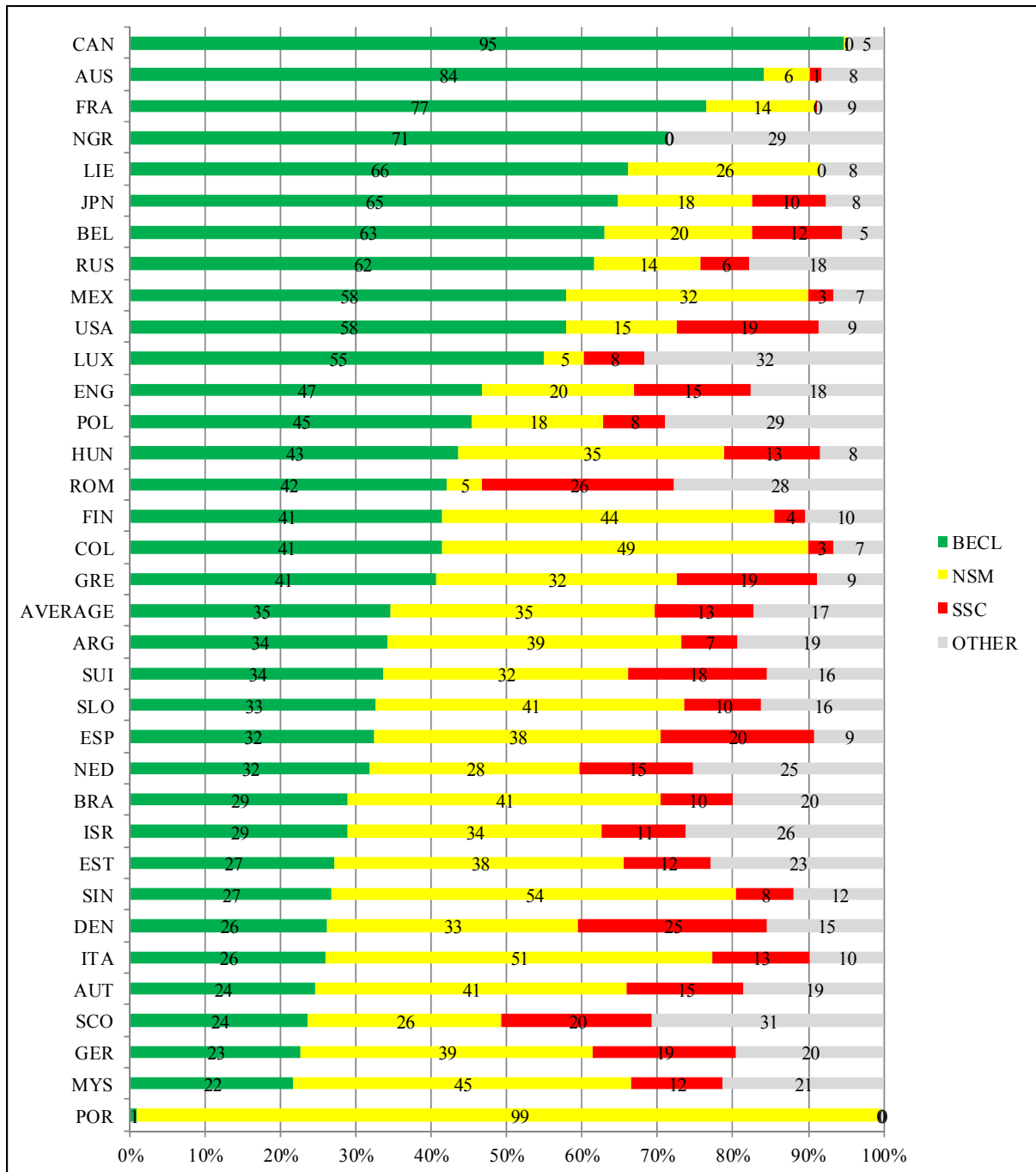


Figure 10: Share of BECL, NSM, and SSC students across countries

### 3 Career Choice Intentions

#### 3.1 The general level

One of the most central questions for GUESSS is what students intend to do after their studies. Which career path do they plan to follow? What do they want to do directly after completion of their studies, and what is their long-term career plan? The following figure reports what the students in our global sample want to be right after completion of their studies (orange bars) and 5 years later (green bars).

The first six options illustrate career paths as an employee, be it in the private sector, in the public sector, or in a non-profit organization. The first three options, namely being employed in a small, medium-sized, or large firm, are clearly the most preferable ones directly after studies. Referring to five years later, we see that their attractiveness decreases significantly.

Referring to entrepreneurial intentions, only 6.6% of all students report that they want to work in their own firm right after studies. 5 years after completion of studies, however, 30.7% of all students want to have their own firm, which is an impressive number. Roughly every seventh student falls into the group of students that are still undecided what to do after studies or 5 years later. More potential entrepreneurs might be found there in addition.

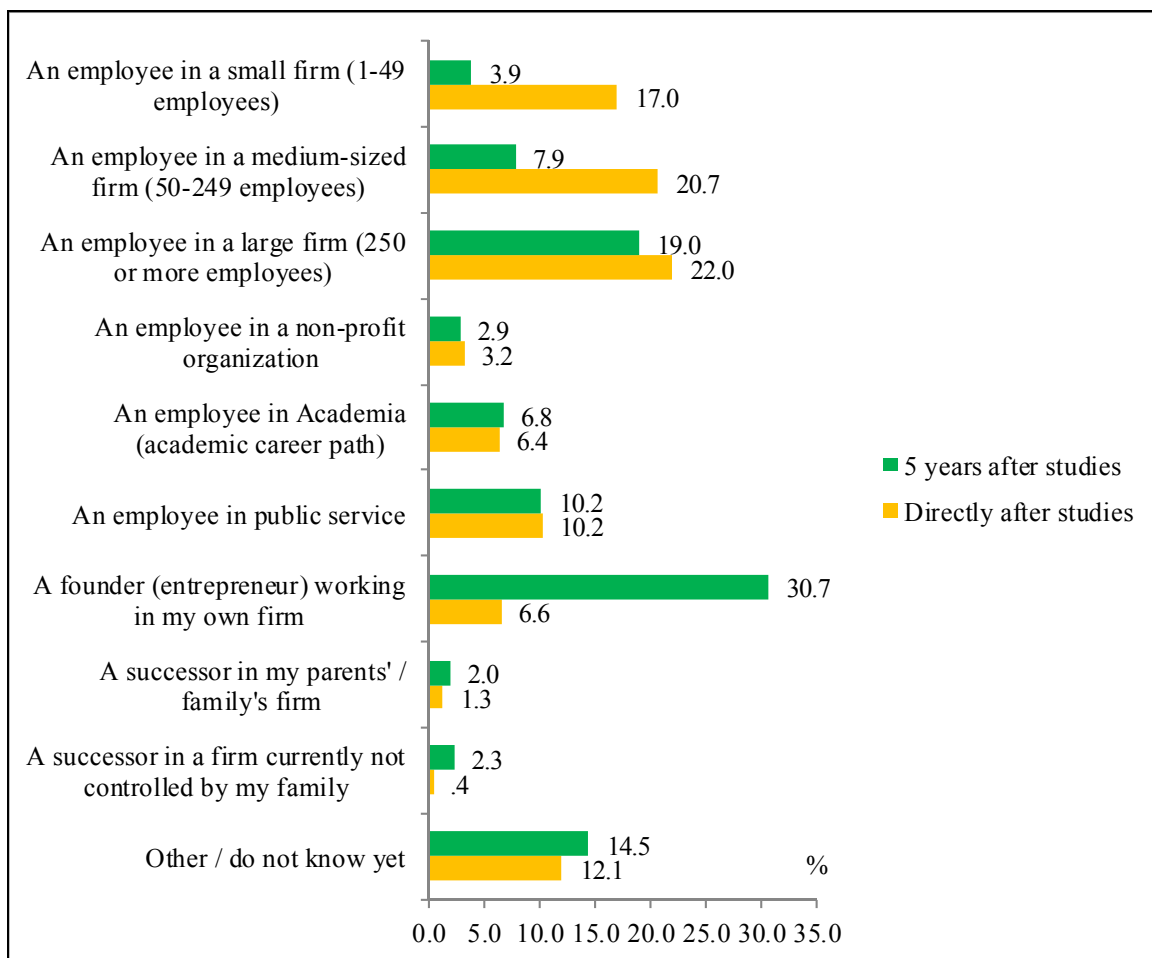


Figure 11: Career choice intentions on the global level



To illustrate the relevance of different types of occupations and the respective shifts depending on the time horizon, we group the different career options into “Employee”, “Founder”, and “Successor”.<sup>2</sup>

Interestingly, almost 80% of all students intend to work as an employee right after studies; 5 years later, this is true for only 50.6%. Most of those “short-term employees” who want to leave employment after a few years intend to become founders. This “first employee, then founder” pattern is consistent with findings of previous GUESSS editions (Sieger *et al.*, 2011).

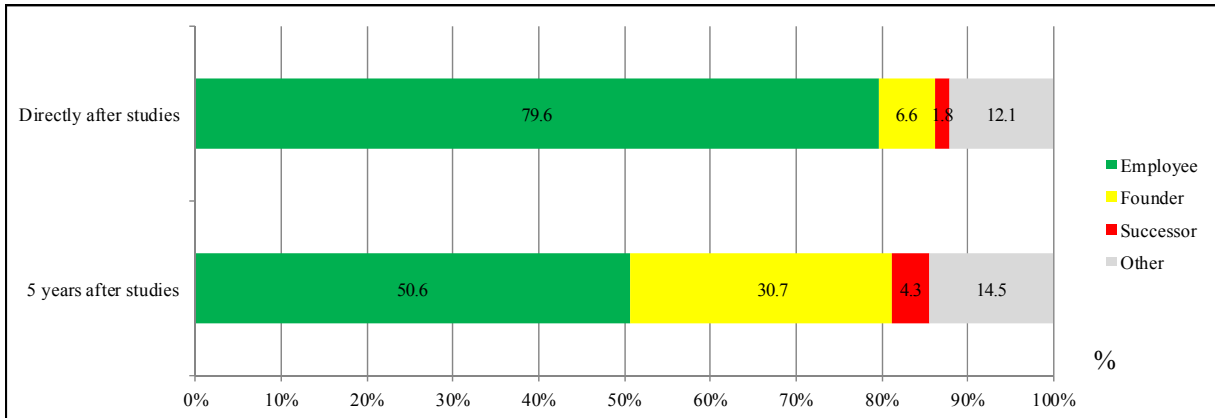


Figure 12: Shift in career groups on the global level

The global sample of the GUESSS project allows us to explore students’ career choice intentions in more detail and to do meaningful cross-country comparisons. Even though the results need to be interpreted with caution due to the differences in sample size, included universities, study levels, and study fields, a first descriptive analysis is helpful here.

Right after completion of studies, we see that the share of intentional founders is highest in Argentina, Poland, Mexico, and Colombia. Overall, despite a few exceptions, there seems to be an underlying pattern that the share of intentional founders is higher in developing countries. Developed and industrialized countries such as Japan, Switzerland, Austria, and Germany can all rather be found at the lower end of the following Figure.<sup>3</sup>

<sup>2</sup> We use the terms “entrepreneurial intentions” and “founding intentions” synonymously. Strictly speaking, also becoming a successor in the parents’ firm or in a firm owned by other persons represents a type of entrepreneurial career. If we use “entrepreneurial intention” to refer to both becoming a founder and/or a successor, we mention this explicitly.

<sup>3</sup> In the following tables Nigeria has been excluded due to the very low number of usable responses.

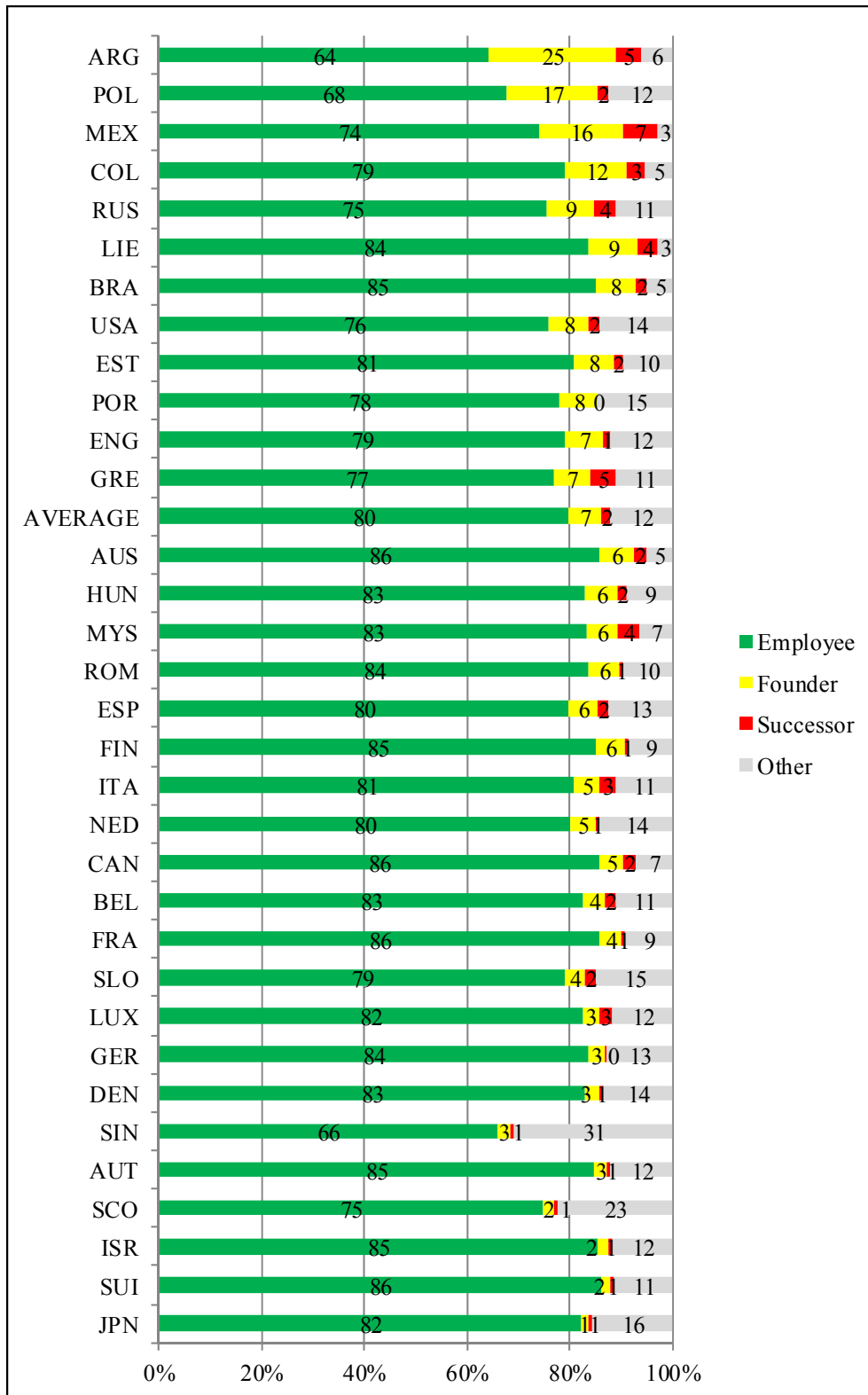


Figure 13: Career choice intentions in groups directly after studies across countries

5 years after completion of studies, the pattern looks similar: the share of intentional founders is highest in Mexico, Argentina, Colombia, and Russia. In those countries, more than half of all surveyed students want to work in their own firm at this point in time. Again, developed countries such as Austria, Switzerland, Germany, and Japan exhibit comparably low numbers.

However, we argue that the fact that 18% of all surveyed students want to create their own firm within 5 years after completion of their studies in Austria, Switzerland, and Germany for instance is still a good number from an entrepreneurial point of view.

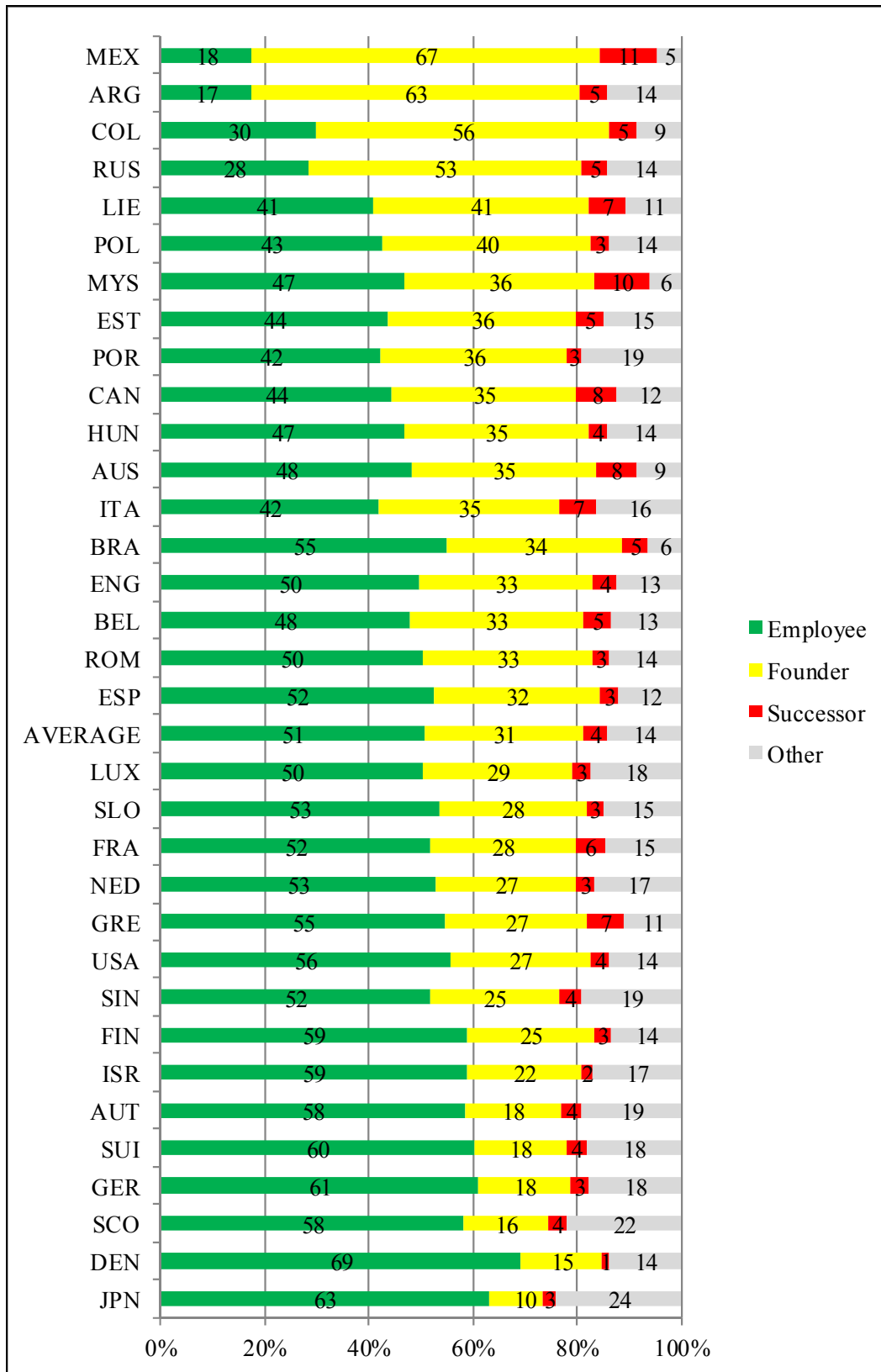


Figure 14: Career choice intentions in groups 5 years after studies across countries

### 3.2 Across fields of study

As noted above, the field of study is a decisive factor in the context of career choice intentions in general and entrepreneurial intentions in particular. Hence, we first split our analysis of career choice groups depending on the field of study.

Right after studies, we observe that the share of intentional founders is of approximately equal size among SSC and NSM students; BECL students exhibit a higher share (7.6%).

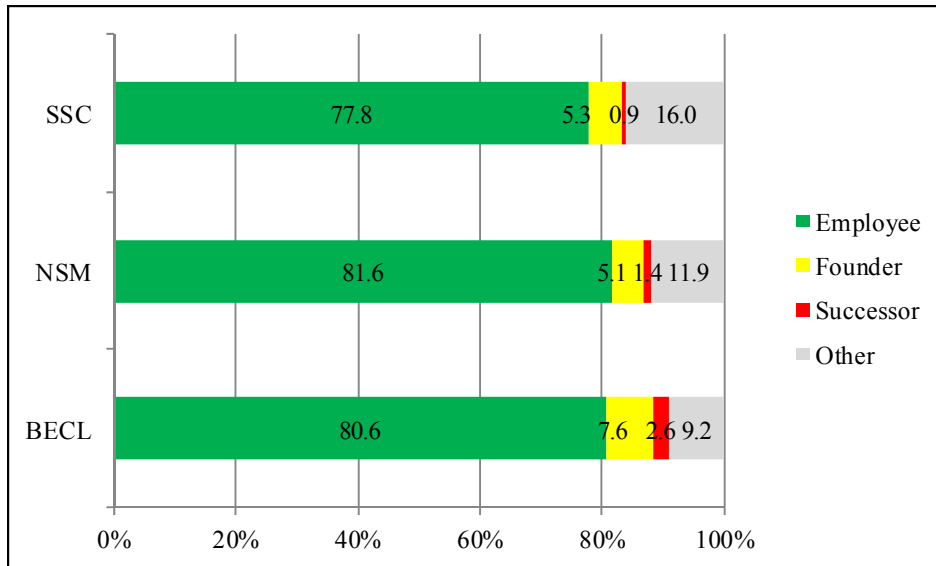


Figure 15: Career choice groups by study field directly after studies

5 years after completion of studies, the situation looks a bit different. The share of intentional founders among NSM students is considerably higher than among SSC students; and among BECL students, the share is considerably higher than among NSM students. In concrete numbers, more than one third of all BECL students (36.2%) want to work in their own firm at that point in time, which we regard as a very impressive number.

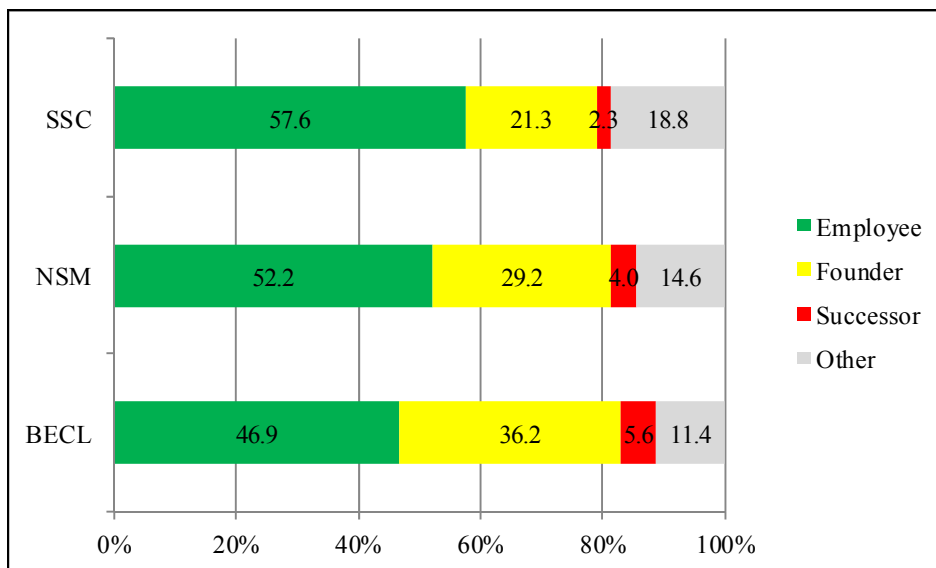


Figure 16: Career choice groups by study field 5 years after studies

Also here, we exploit our global dataset and investigate the relevance of the entrepreneurial career path across countries depending on the field of study. This allows us to draw a more realistic picture of the students' entrepreneurial intentions in the different countries. Given that the differences between study fields are larger when it comes to entrepreneurial intentions 5 years after completion of studies, we focus our analysis on that point in time.

First, we investigate BECL students and find that the share of intentional founders is highest in Argentina, Mexico, Colombia, and Russia (all above 50%). At the lower end, we again find developed countries like Switzerland, Germany, Austria, and Japan. But still, the situation may not be as critical as the table might suggest at first sight. In fact, approximately every fifth BECL student in Switzerland, Germany, or Austria wants to be a founder 5 years after study, which is still an encouraging number.

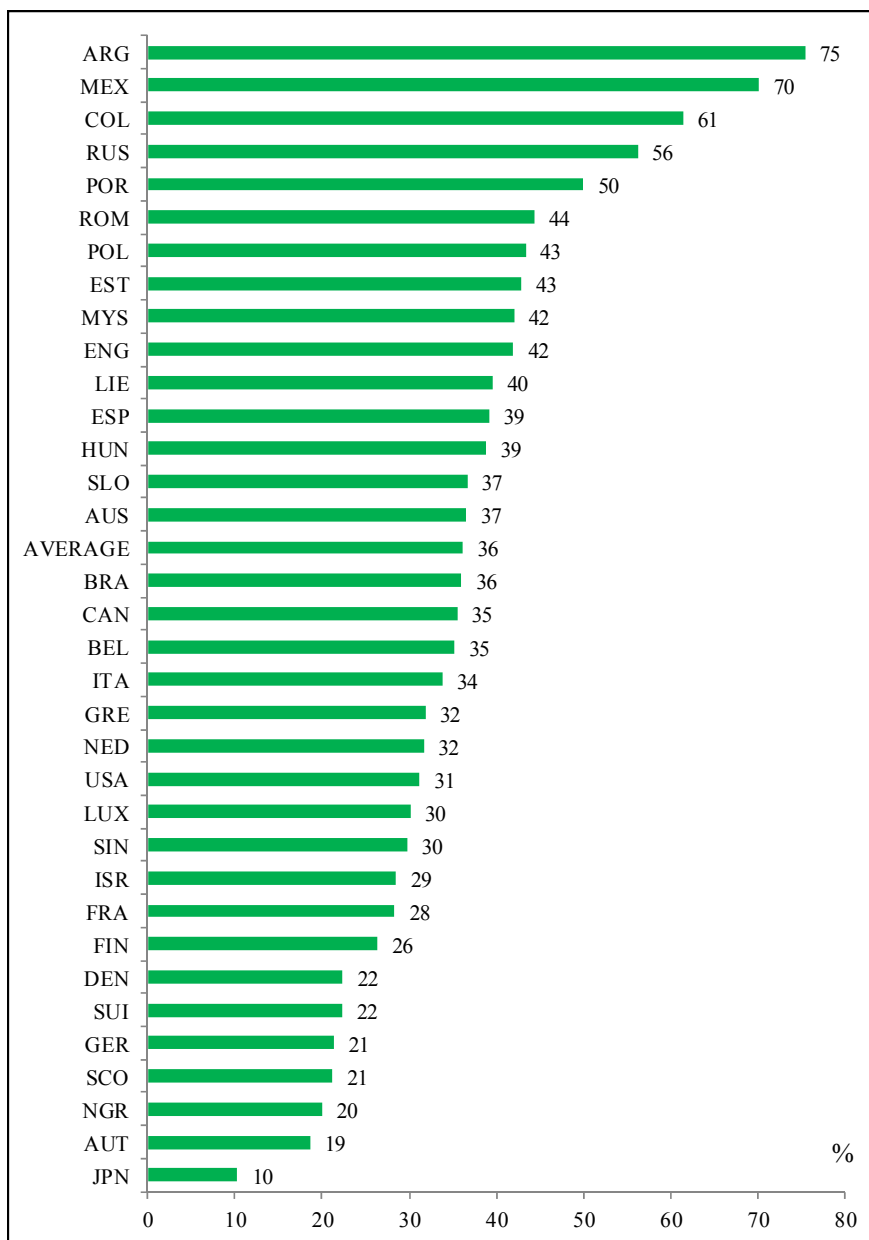


Figure 17: Entrepreneurial intentions among BECL students across countries

Among NSM students, the overall pattern looks very similar: while absolute numbers are lower than for BECL students, developing countries are mostly above-average, and developed countries are below-average in many cases.

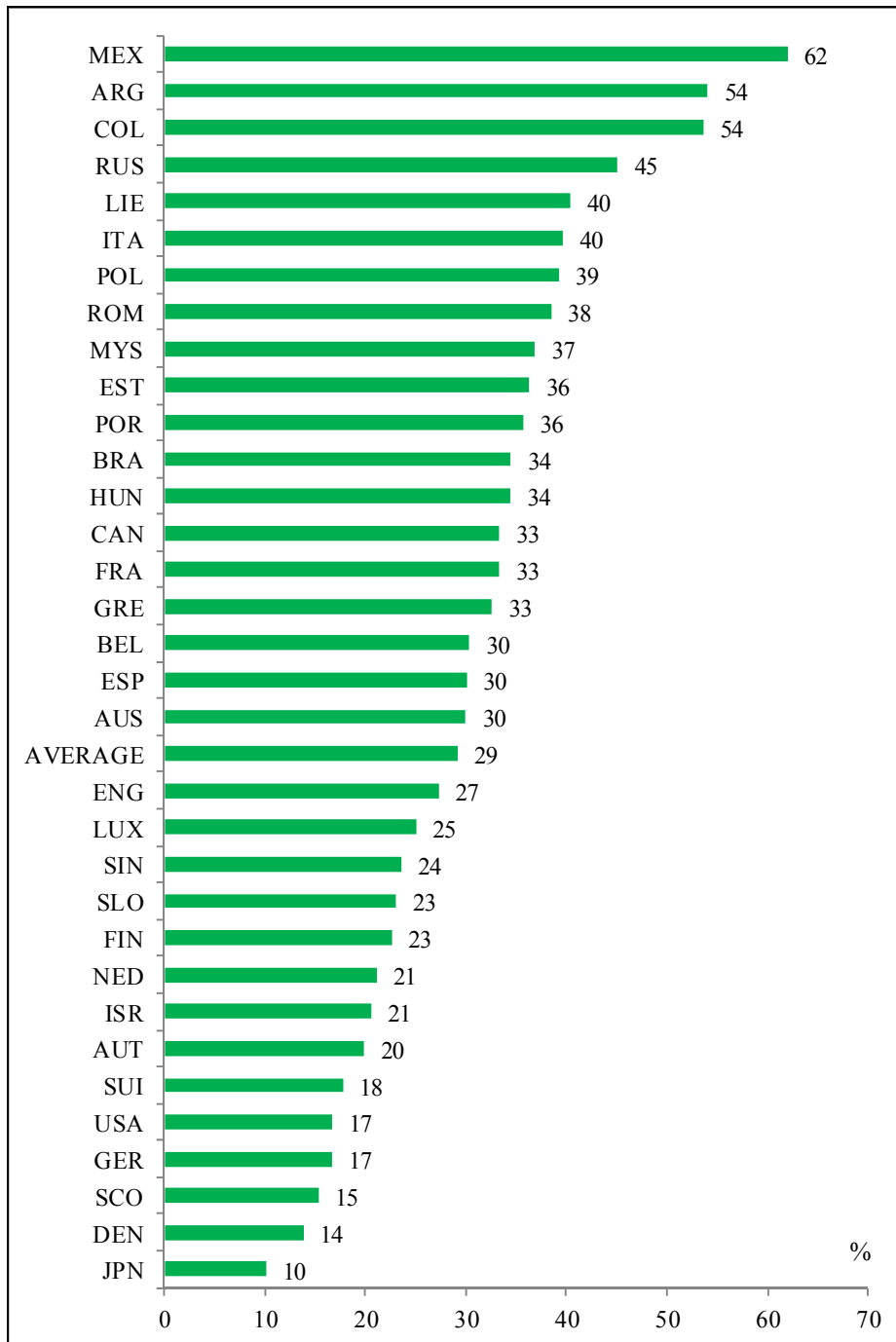


Figure 18: Entrepreneurial intentions among NSM students across countries

Also for SSC students, we note the same main pattern, with absolute numbers being below those of NSM students.

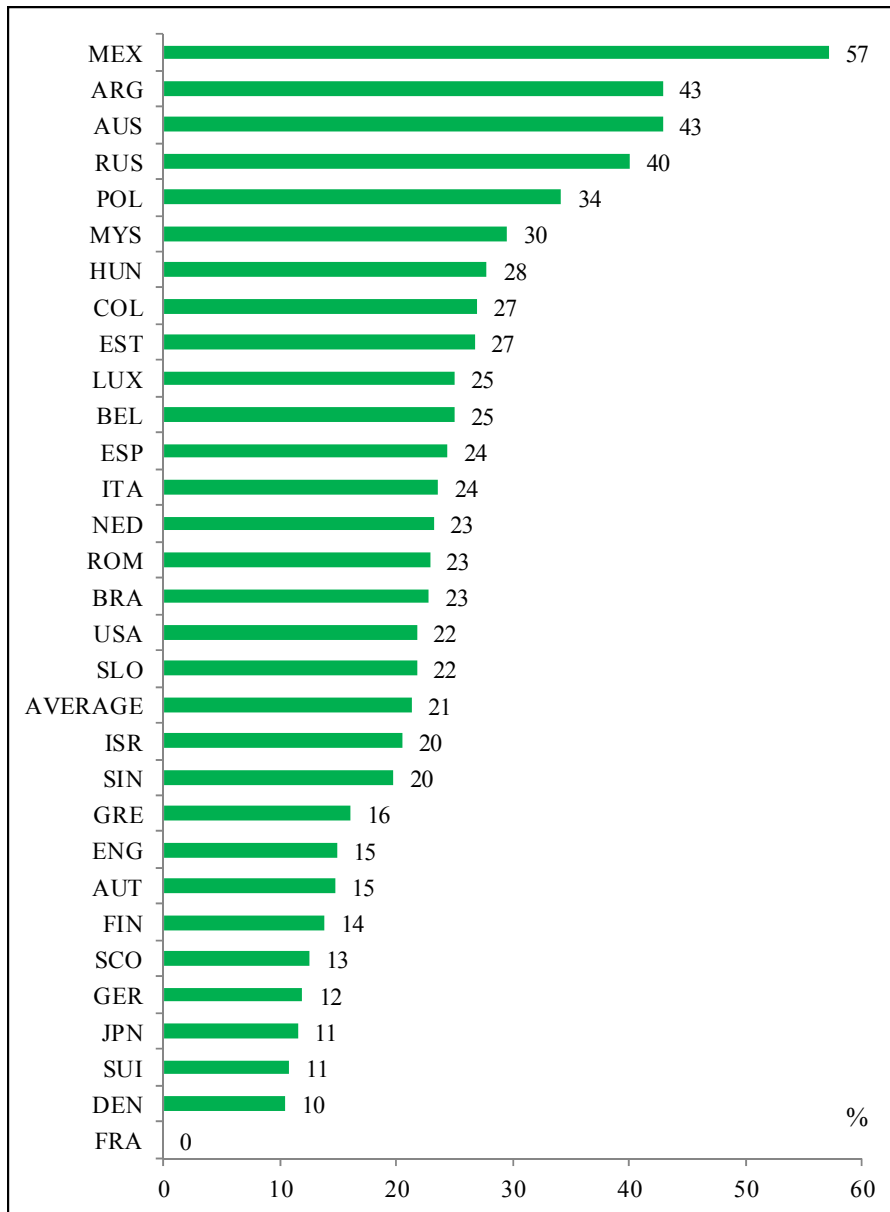


Figure 19: Entrepreneurial intentions among SSC students across countries

### 3.3 Across gender

In recent years, the interest of scholars and practitioners in gender aspects of entrepreneurship has been increasing significantly. Hence, we follow this stream of research and take a closer look at male and female students, respectively.

First, we depict the career choice intentions of male and female students. Directly after studies, the share of intentional founders among males is considerably higher than among females (8.6% versus 5.1%). Also the career path of a successor, be it in the parents' firm (if existing) or in a firm not owned by one's parents, is less attractive for female students (1.5% versus 2.1%). Taken together, 10.7% of all male students strive for an entrepreneurial career path, compared to only 6.6% of all female students.

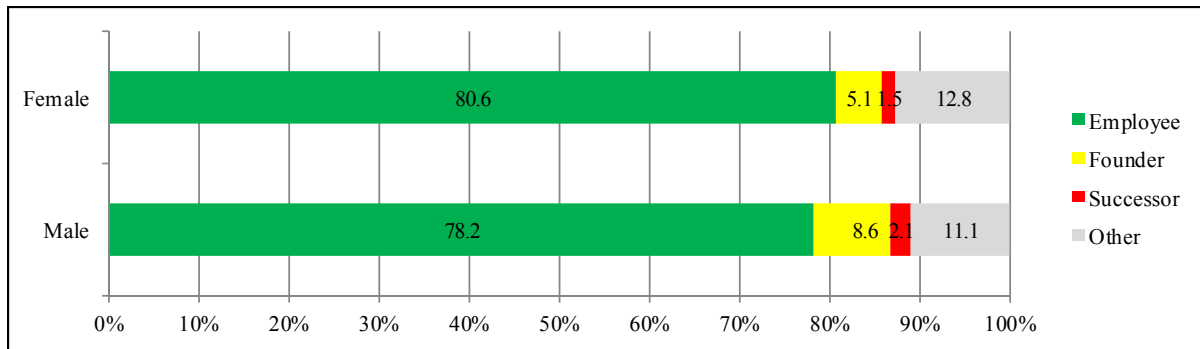


Figure 20: Career choice intentions by gender directly after studies

Related to 5 years after completion of studies, the differences are even larger: 35.1% of all male students want to be entrepreneurs, but only 27.5% of all female students. The share of intentional successors, however, is almost equal.

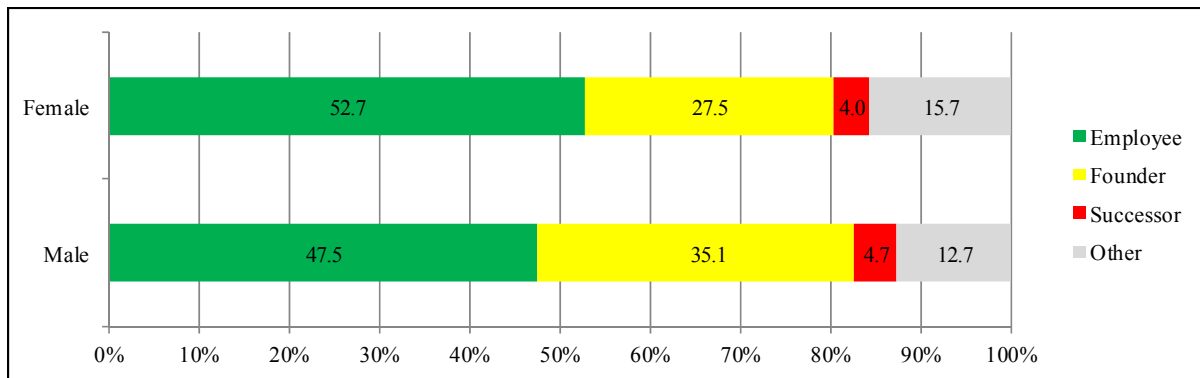


Figure 21: Career choice intentions by gender 5 years after studies

One could argue that this is at least partly due to the varying share of female students in the different study fields. We noted in chapter 2.4 that the majority of SSC and BECL students are female, whereas males dominate in NSM-related fields. Given that the share of intentional founders among BECL students is highest and that 60.1% of all BECL students are female, this would not make us expect that the share of intentional founders among females is systematically lower than among males.

We examine gender differences in the different study fields in the following, focusing on students' intentions related to 5 years after study. For BECL students, males are clearly more entrepreneurial than females. Among NSM students, the share of intentional founders is considerably higher among males as well; there, we note that the "Other" category is much more relevant for females.

Interestingly, gender differences are lowest among SSC students, as the share of intentional employees is equal and as the share of intentional founders among males is only 2.7% higher than among females. Overall, our results indicate that a gender difference indeed exists in the entrepreneurial intentions context. More research is deemed necessary here.



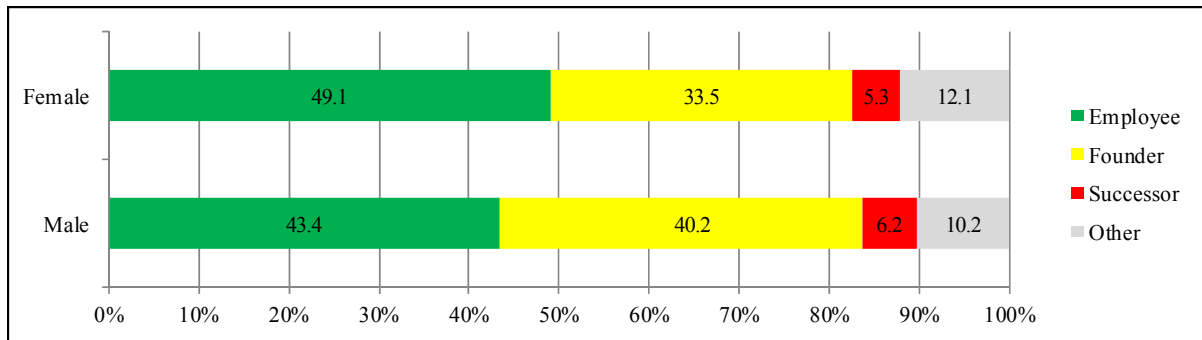


Figure 22: Career choice intentions of male and female BECL students 5 years after study

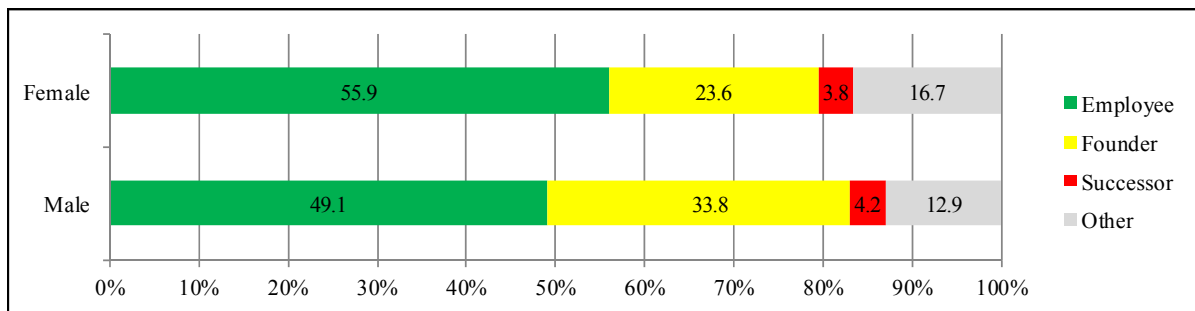


Figure 23: Career choice intentions of male and female NSM students 5 years after study

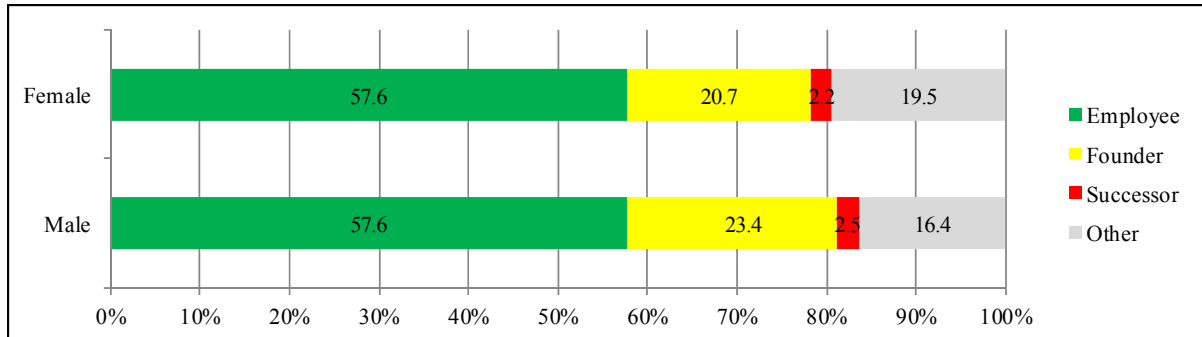


Figure 24: Career choice intentions of male and female SSC students 5 years after study

## 4 Determinants of Entrepreneurial Intentions

### 4.1 A closer look at entrepreneurial intentions

Before we start with a detailed analysis of potential determinants of entrepreneurial intentions according to the GUESSS research model, we note that we have investigated entrepreneurial intentions by using a “black or white” question pertaining to the intention to pursue an entrepreneurial career so far. Put differently, we have considered students as intentional entrepreneurs in case they indicated that they want to work in their own firm at different points in time.

While this approach is common and reliable (Zellweger *et al.*, 2011), a potential weakness is that students who seriously think about becoming an entrepreneur at some point in their career but still prefer other options when asked for a “black or white” decision are regarded as non-entrepreneurs. In other words, such an analysis disregards the entrepreneurial spirit of students whose for instance second choice would be to become an entrepreneur.

To account for this, we take a more nuanced look at entrepreneurial intentions by using a question that asked students to indicate their level of agreement to a number of statements that capture their general intention to become an entrepreneur in the future (Linan & Chen, 2009). The items are listed in the following table. An aggregated entrepreneurial intention measure was generated by calculating the mean of all six answers that were anchored from 1 (strongly disagree) to 7 (strongly agree).

Item number	Text
1	I am ready to do anything to be an entrepreneur.
2	My professional goal is to become an entrepreneur.
3	I will make every effort to start and run my own firm.
4	I am determined to create a firm in the future.
5	I have very seriously thought of starting a firm.
6	I have the strong intention to start a firm someday.

Table 1: Entrepreneurial intention items

In the next step, we calculated the average value of this variable in the different GUESSS countries (see following figure). The results confirm the main pattern that we already obtained when analyzing the concrete career choice intentions of our students. Specifically, many developing countries can be found on top of the figure, such as Mexico, Colombia, Argentina, Malaysia, and Russia. Below the global average there are many developed countries such as France, the Netherlands, Austria, Switzerland, Germany and Japan.

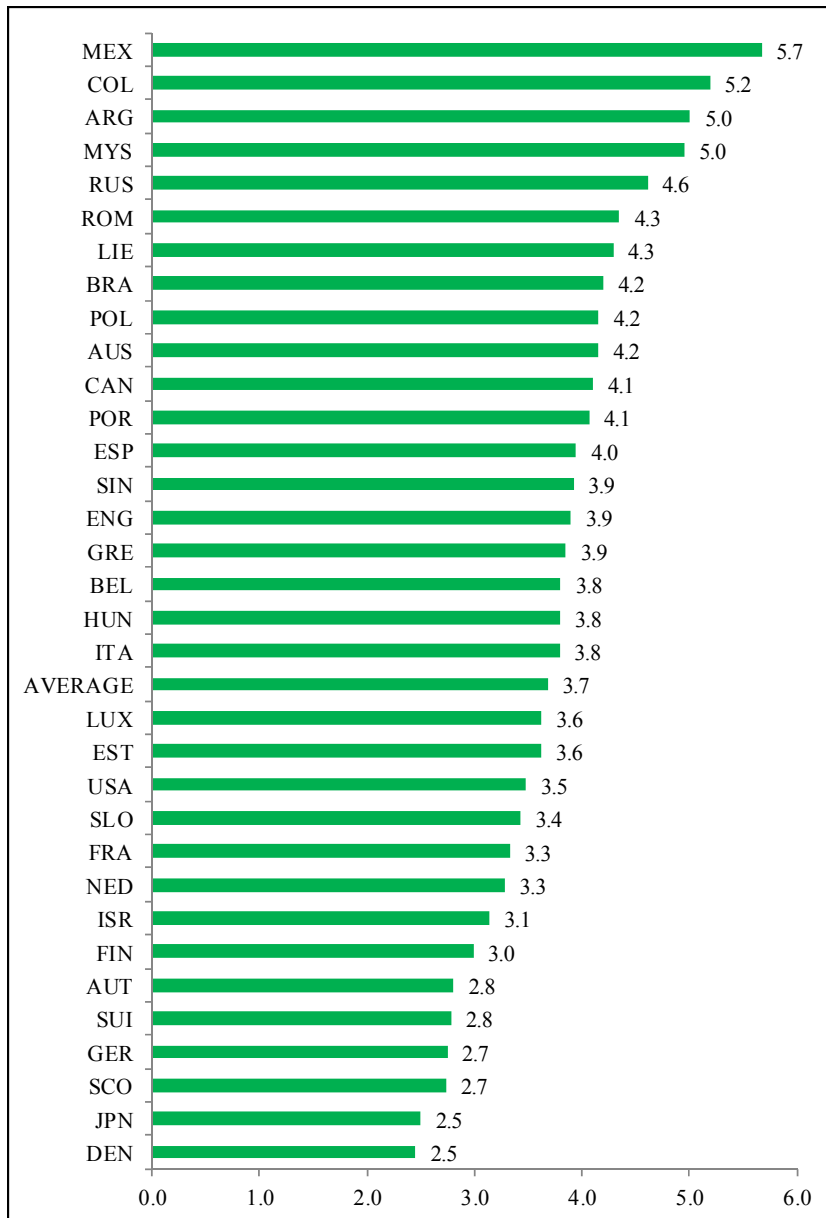


Figure 25: Strength of entrepreneurial intentions across countries

Also an analysis based on field of study confirms our initial findings, as the average value of the entrepreneurial intentions measure just described is highest for BECL students, second highest for NSM students, and lowest for SSC students (see figure below). Country-specific patterns that deviate from our main findings could not be found; therefore, we do not report the country-specific values for BECL, NSM, and SSC students separately here.

Furthermore, we tested for gender differences and confirmed that the aggregated entrepreneurial intention measure exhibits lower average values for female students compared to male students (3.5 compared to 4.0). When testing for gender differences between the different fields of study, we consistently find that the level of entrepreneurial intentions is lower for females than for males across all fields of study, which is in line with our general findings already illustrated above.

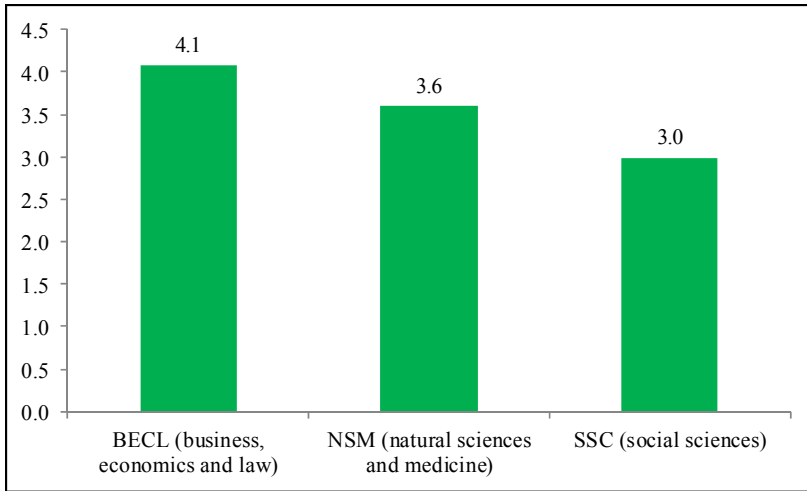


Figure 26: Strength of entrepreneurial intentions across study fields

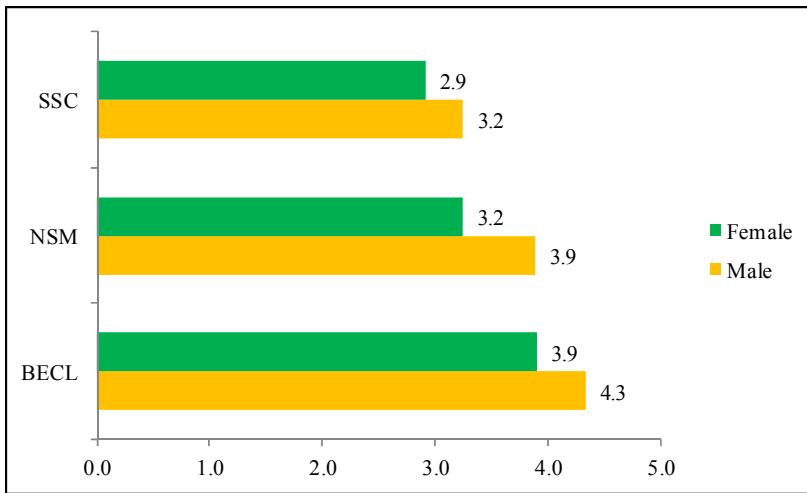


Figure 27: Strength of entrepreneurial intentions across study fields and gender

These analyses show that both types of measures, namely the “black or white” binary measure and the multi-item continuous measure, are valid and reliable across all countries. In the following, we now turn to examining different potential antecedents of entrepreneurial intentions. In that endeavor, we follow the already presented GUESSS research model and take a closer look at four types of antecedents: the university context, the family context, the role of personal motives, and the social/cultural context. Depending on the type of analysis we use either our binary entrepreneurial intention measure or our continuous one.

## 4.2 The university context

An important element of the GUESSS research model is the role of the university in the context of entrepreneurial intentions. In academic research, the design, content, and effects of entrepreneurship education represents a major stream of research (Lima *et al.*, 2014).

Hence, we asked the students to what extent they have been attending entrepreneurship-related courses and offerings. As the following figure shows, less than 10% of all students are studying in a program specifically dedicated to entrepreneurship. Almost two thirds of our respondents did not attend any entrepreneurship-related course at all. Around every fifth student, however, has attended an entrepreneurship course as compulsory or elective course (multiple answers were possible).

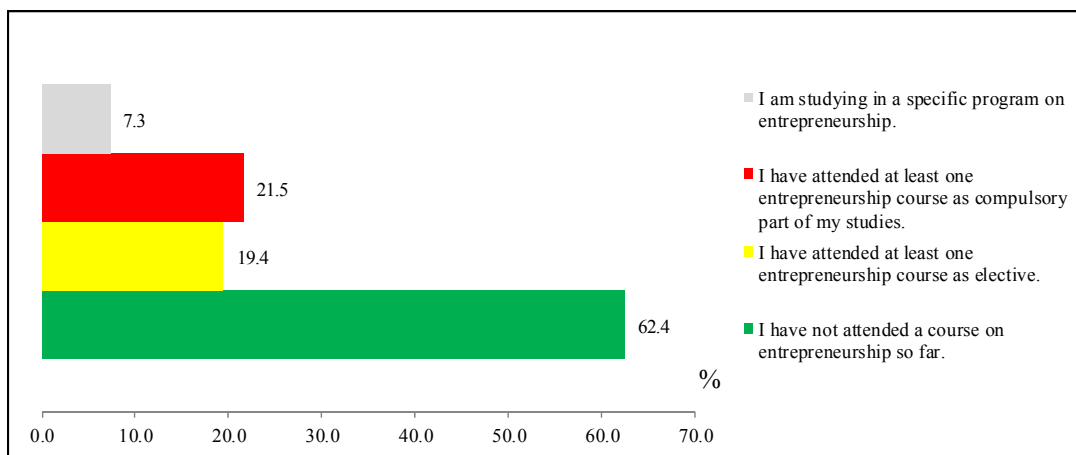


Figure 28: Attendance of entrepreneurship courses

Also, we asked students what percentage of their total study time they did devote to entrepreneurship courses. The global average is 25.9%, with the median being 20. As the following figure shows, 37% of all students have spent 10% or less of their total study time for entrepreneurship courses; 58% have spent up to 20% in this type of courses. This signals that entrepreneurship education is available for the majority of students, whereby the share of students who have barely attended any related offerings at all is still considerable.

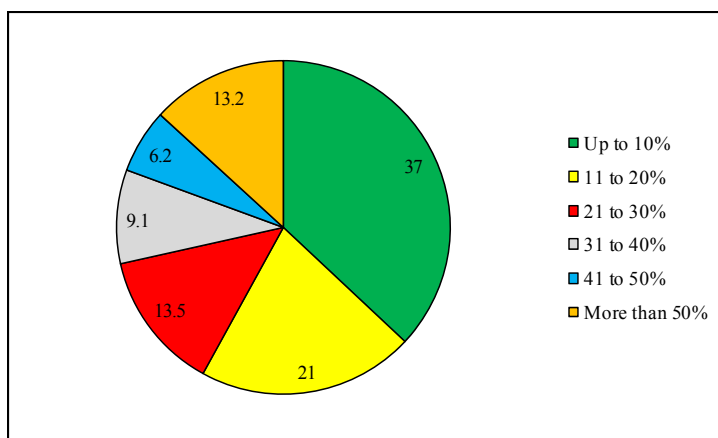


Figure 29: Percentage of study time spent in entrepreneurship classes

Next, we examine the entrepreneurial climate that exists at the different universities. Students were asked to indicate the extent to which they agree to the statements listed in the following table (Luethje & Franke, 2004). Answers ranged from 1 (not at all) to 7 (very much).

Item number	Item text
1	The atmosphere at my university inspires me to develop ideas for new businesses.
2	There is a favorable climate for becoming an entrepreneur at my university.
3	At my university, students are encouraged to engage in entrepreneurial activities.

Table 2: Items to assess university entrepreneurial climate

The global average is 4.0, which constitutes the middle of our scale. The figure below shows that almost 30% of all students show a level of agreement of 3 or lower. Almost half of all students assess the entrepreneurial climate at their university as being between 3 and 5. Overall, this reveals a quite neutral assessment of the universities' entrepreneurial climate on the global level.

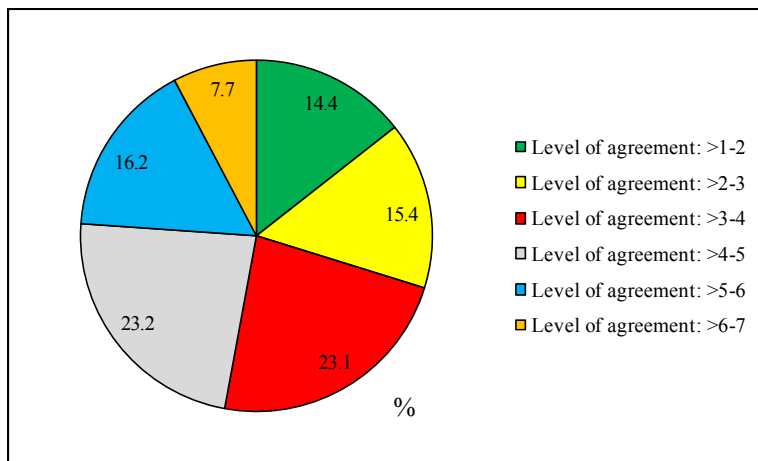


Figure 30: University entrepreneurial climate assessments

We refrained from calculating average values for all the GUESSS countries separately as those numbers strongly depend on the universities that took part in the different countries. For instance, at a small university that offers specific entrepreneurship programs and courses, it is very likely that the overall climate is more entrepreneurship-friendly than at a large university where a wide array of study fields are offered. Given the country-level heterogeneity in terms of number of universities included, types of universities (e.g., public or private), and size of the universities, the corresponding results would be heavily biased and would not allow to draw valid conclusions.

We are not only interested in students' attendance of entrepreneurship classes and in their perceptions regarding the entrepreneurial climate at their university, but also in how much they have been learning at their university with regard to entrepreneurship. We thus asked

them to indicate the extent to which they agree to a few statements about their learning progress during their studies (1=not at all, 7=very much). The question started with “The courses and offerings I attended...” and offered the following statements (cf. Souitaris et al. 2007):

Item number	Item text
1	...increased my understanding of the attitudes, values and motivations of entrepreneurs.
2	...increased my understanding of the actions someone has to take to start a business.
3	...enhanced my practical management skills in order to start a business.
4	...enhanced my practical management skills in order to start a business.
5	...enhanced my ability to identify an opportunity.

Table 3: Items to assess entrepreneurial learning at the universities

Again, the global average is 4.0, and the distribution of the different agreement levels looks pretty similar as with the entrepreneurial climate question.

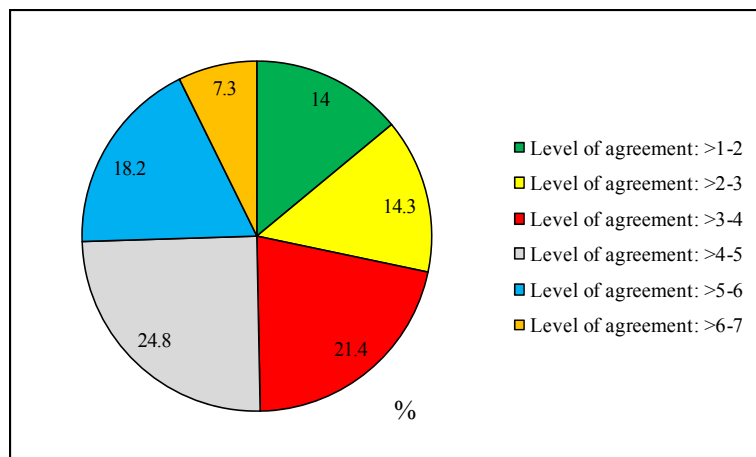


Figure 31: Entrepreneurial learning assessments across the globe

Beyond those initial insights, a key question is to what extent the university, be it through the entrepreneurial climate or through concrete entrepreneurial learnings, can enhance students' entrepreneurial intentions. To get first insights into this relationship we provide two plots below. The first one illustrates the relationship between university entrepreneurial climate and entrepreneurial intentions; the second one does the same for entrepreneurial learning.

The plots indicate a positive relationship between the level of the entrepreneurial climate and entrepreneurial intentions on one hand and between the level of entrepreneurial learning and entrepreneurial intentions on the other hand. This emphasizes the crucial role that the university context plays when it comes to the formation of entrepreneurial intentions.

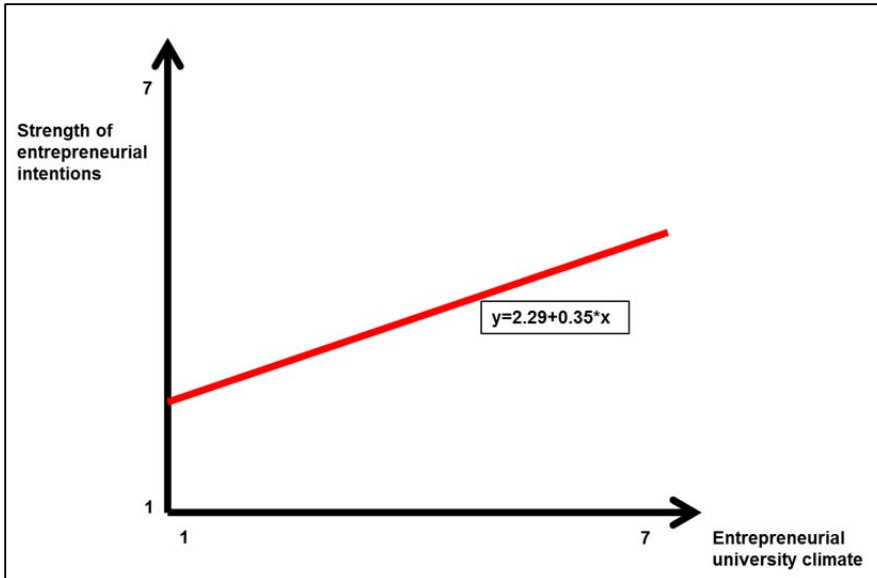


Figure 32: Entrepreneurial university climate vs. strength of entrepreneurial intentions

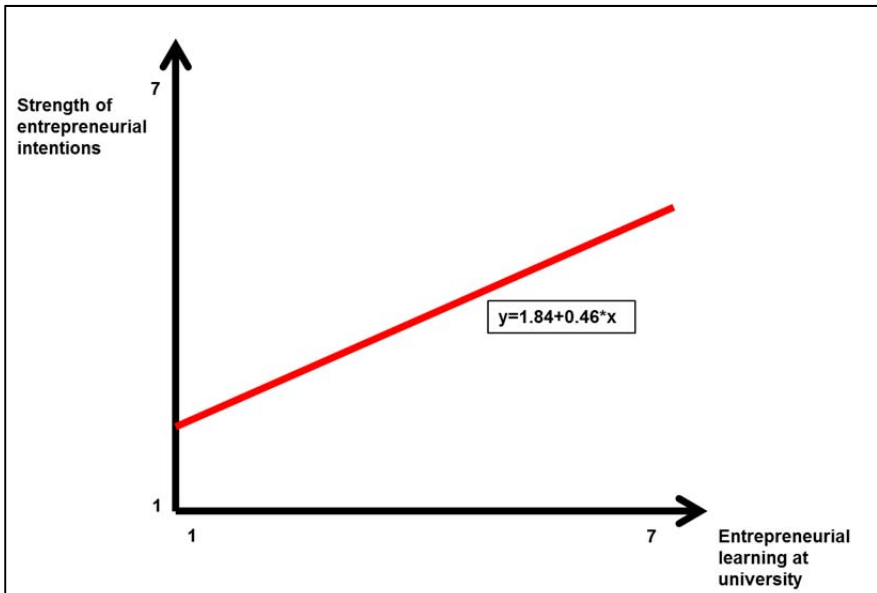


Figure 33: Entrepreneurial learning vs. strength of entrepreneurial intentions



### 4.3 The family context

In academic research there is a long-standing debate how the occupational background of the parents influences childrens' career choice intentions. In general, research tends to agree that children of entrepreneurial parents are more likely to become entrepreneurs themselves (Laspita *et al.*, 2012).

We thus asked the students if their father, their mother, or both of them are currently self-employed. More than two thirds of all students report that none of them is self-employed (68.7%). Almost 10% of the respondents indicate that both of their parents are self-employed.

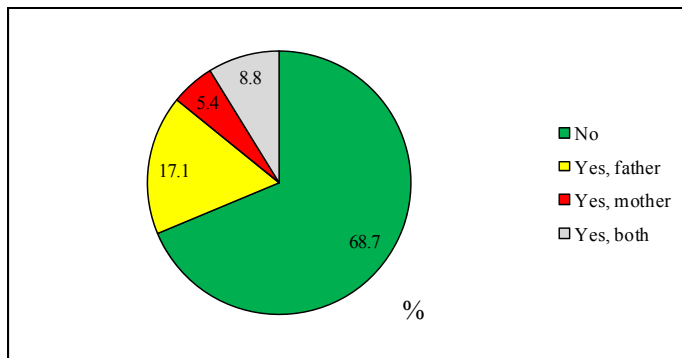


Figure 34: Existence of self-employed parents

We split our sample into students with and without entrepreneurial parents and examined their respective career choice intentions 5 years after completion of their studies. As expected, we see a difference: 42.5% of all students with entrepreneurial parents intend to follow an entrepreneurial career path, be it as a founder or as a successor in the parents' firm (or in another firm). For students without entrepreneurial parents, this share is only 31.5%.

While these differences might be partly explained by the fact that students without entrepreneurial parents do not have the option to take over their parents' firm one day, also the share of students who intend to work in a firm that they created on their own is significantly different (34.7% for students with entrepreneurial parents compared to 28.8% for students without entrepreneurial parents). Hence, our analyses support the notion that having an entrepreneurial family background is conducive to childrens' entrepreneurial intentions.

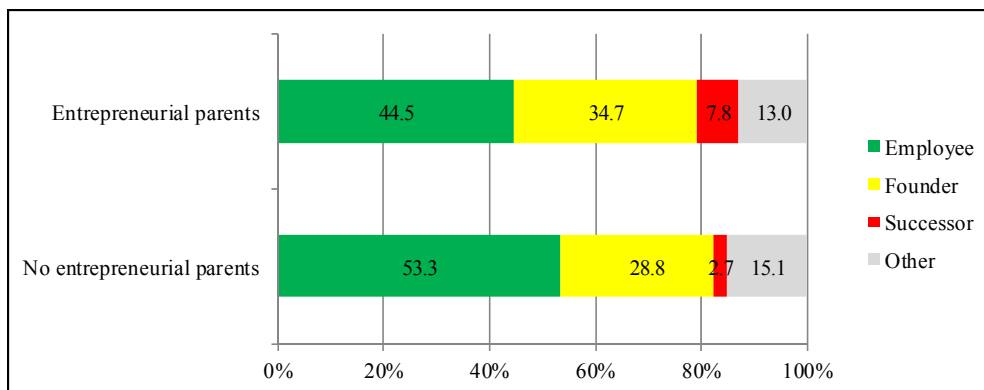


Figure 35: Career choice intentions by family background 5 years after studies

#### 4.4 The role of personal motives

Another important determinant of career choice intentions in general and entrepreneurial intentions in particular are career motives. Logically, some motives are more likely to be satisfied by pursuing an entrepreneurial career than others.

Hence, we examined how students assess the importance of different motives when they decide about their future career path. As the following figure shows, “realize your dream” is the strongest motive on global average (1=not important at all, 7=very important), followed by “have an exciting job”. The least important motives, which are in turn still important in absolute terms, are “have authority” and “be your own boss”.

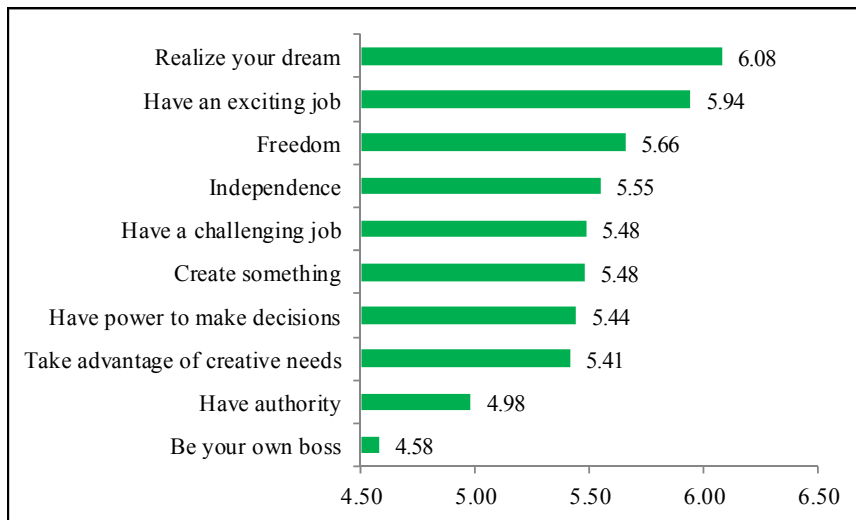


Figure 36: Importance of different career motives

To examine differences between the three main career paths of becoming a founder, an employee, or a successor, we split our analysis into those groups. The following figure illustrates the importance of the abovementioned motives for each group. For intentional founders, we see that the most important motives are “realize your dream”, “have an exciting job”, “create something”, and “independence” (the bars in the figure are sorted this way).

Compared to the other career paths, we see that for instance “create something”, “take advantage of creative needs”, and “be your own boss” are significantly more important for intentional founders. Interestingly, career reasons that are intuitively attributed to an entrepreneurial career, such as “realize an own dream” or “having an exciting job”, have high values among intentional employees as well.

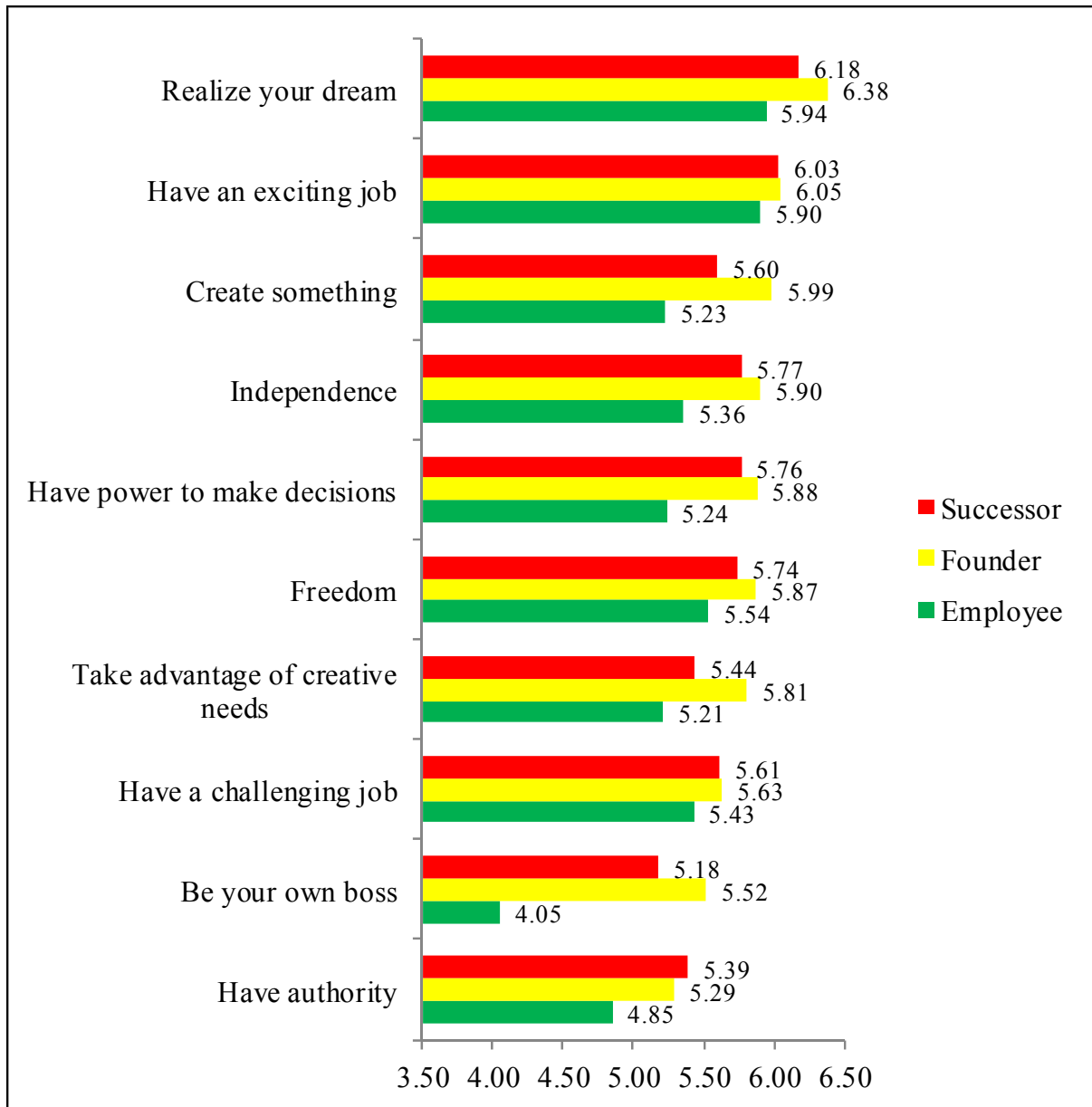


Figure 37: Importance of career motives across different career groups

Given the fact that “realize your dream” is the most important career motive for intentional founders, we illuminate how important this motive is in the different countries of the GUESSSS sample. We see that this motive is most important in Colombia, Mexico, Romania, Brazil, Argentina, and Slovenia, with the lowest importance in France, Japan, and Germany. Again, we note that the “lowest importance” has to be seen in relative terms; in absolute terms, the last mentioned three countries still have average values of almost 5 (France) or slightly below or at 5.5 (Japan and Germany). Hence, this career motive is also important there. Nevertheless, it seems like our underlying “developing versus developed” country pattern also appears regarding the “realize your dream” motive.

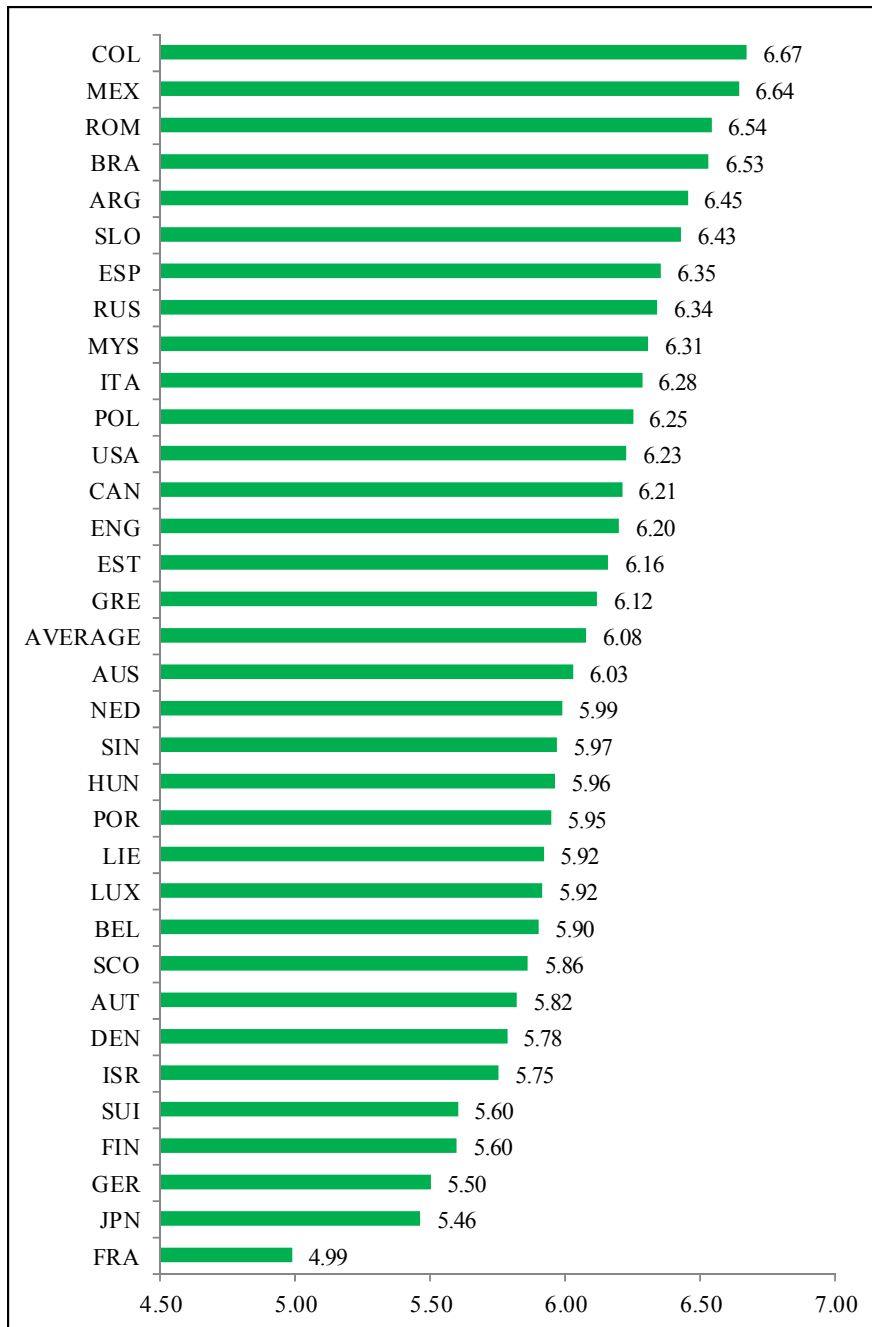


Figure 38: Importance of „realize your dream“ motive across countries

## 4.5 The social and cultural context

Scholars agree that entrepreneurial decision-making is deeply embedded in the social and cultural context that individuals live in. Put differently, social and cultural factors have an important effect on the formation of entrepreneurial intentions. Hence, we first investigate the social pressure that is exerted by individuals' immediate environment. We do so by drawing on the concept of "subjective norm" from the theory of planned behavior (Ajzen, 1991). It captures the reaction that individuals expect from close peers if a certain behavior is executed. Theory postulates that the more positive the expected reaction is, the more likely it is that actual intentions to perform the behavior under consideration are formed.

In our case, we asked students how different people in their environment would react if they (the students) would pursue a career as an entrepreneur. The people (or groups of people) were close family members, friends, and fellow students. The responses were anchored at 1 (very negatively) and 7 (very positively) (Linan & Chen, 2009). The following figure reports the mean values of the aggregated items per country.

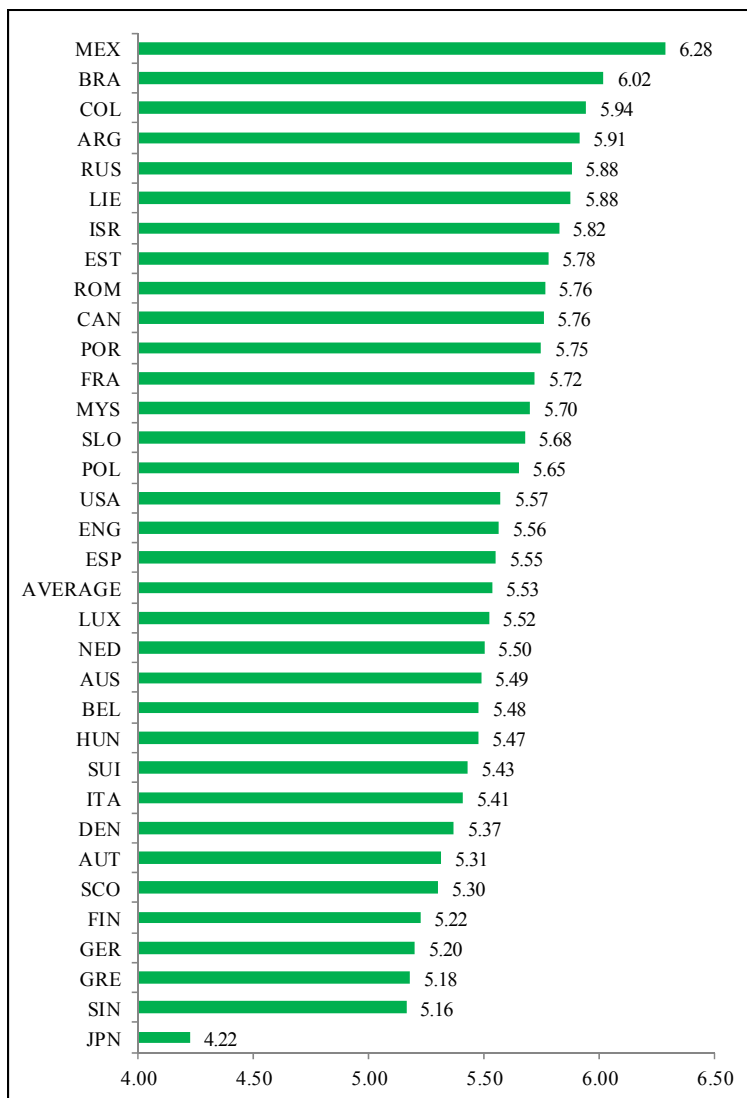


Figure 39: Subjective norms across countries

The global average is 5.53, which is relatively high. In general, subjective norms with regard to entrepreneurship thus seem to be quite positive. However, there are important country-level differences to observe. Interestingly, the four countries with the most positive expected reaction of the immediate environment are all from Latin America: Mexico, Brazil, Colombia, and Argentina. In the upper half of the list, above the global average, we also find former communist countries such as Russia, Estonia, Romania, and Poland. This indicates a truly entrepreneurship-friendly social context in those countries.

Developed industrialized countries can mostly be found below the global average. However, we note that this is not as dramatic as it might seem: the values are still quite high in absolute terms (higher than 5, with the exception of Japan). Hence, being below average “just” means that the expected reaction of the environment is not as positive as in other countries, but it is still positive and thus conducive to entrepreneurial intentions.

Second, we are interested to what extent becoming an entrepreneur is regarded as risky. This is because risk is a key aspect of entrepreneurship, and scholars are interested in related factors such as the level of uncertainty avoidance in a society (Hofstede, 2001).

To assess this, students were asked to indicate their level of agreement with a few statements (1=strongly disagree, 7=strongly agree) that are listed in the following table (see also Pennings & Wansink, 2004).

Item number	Item text
1	I consider starting up my own business to be very risky.
2	I think it is dangerous to manage your own business.
3	I believe that business ownership has high risk.

Table 4: Items to assess perceived risk of creating an own firm

The strongest risk perceptions can be found in Poland, followed by Japan, USA, Denmark, and Germany (all with values at or above 5). The lowest values are found in Latin American countries (Argentina, Colombia, Mexico, and Brazil).

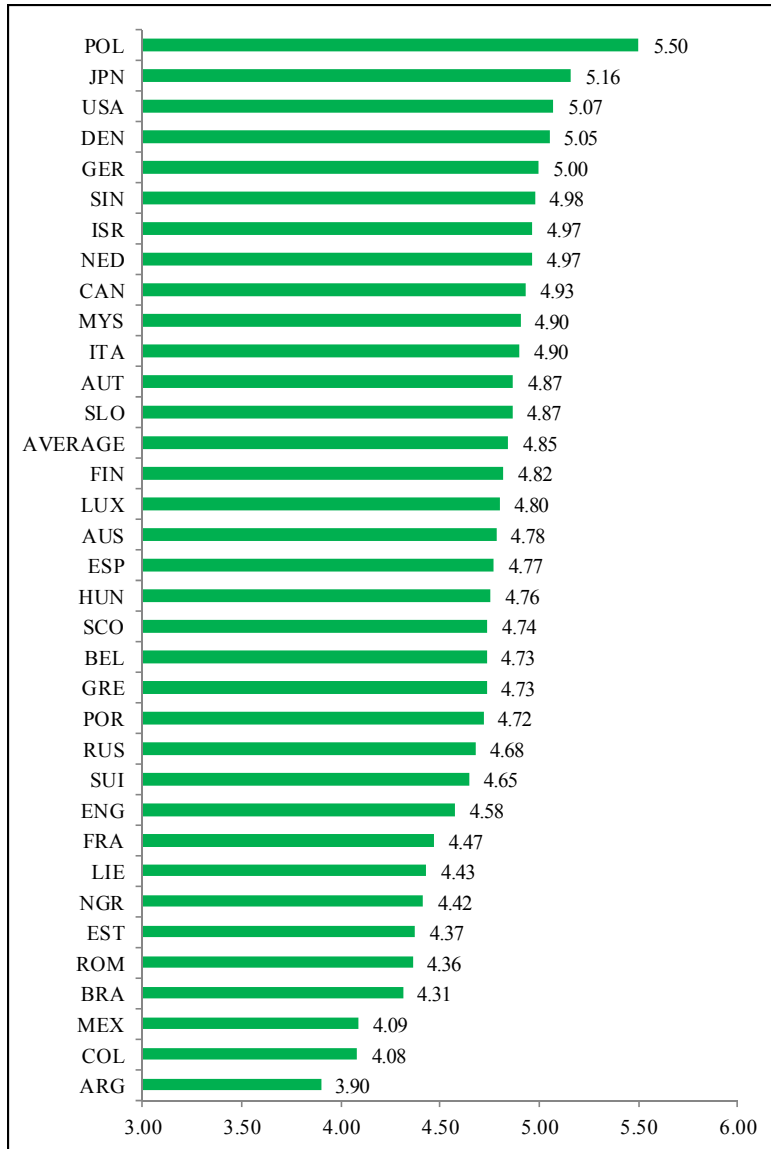


Figure 40: Risk perceptions across countries

To provide first initial insights into the relationship with entrepreneurial intentions, we depict two plots in the following. The first one illustrates the relationship between subjective norms and entrepreneurial intentions; the second one does the same for risk perceptions and entrepreneurial intentions.

As expected, we see a positive relationship between subjective norms and entrepreneurial intentions and a negative relationship between risk perceptions and entrepreneurial intentions. This illustrates the crucial relevance of the social and institutional context that students are embedded in.

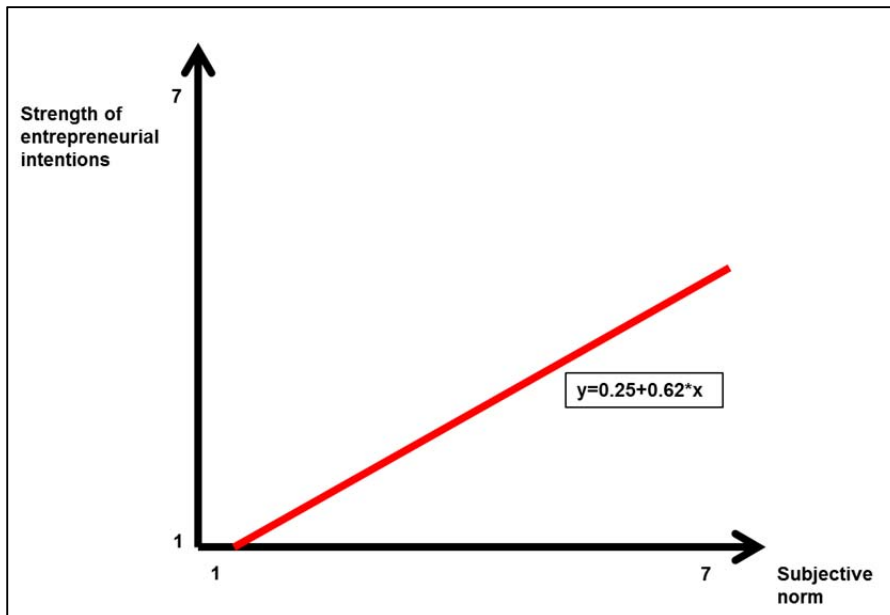


Figure 41: Subjective norm vs. strength of entrepreneurial intentions

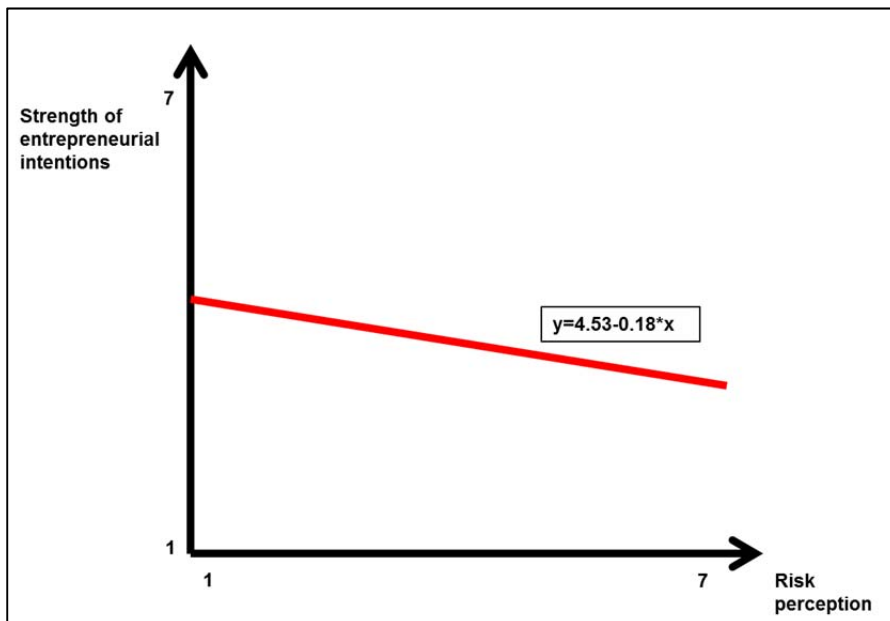


Figure 42: Risk perception vs. strength of entrepreneurial intentions



## 5 Entrepreneurial Intentions Across Time

The unique study design of the GUESSS project allows us to track the strength of entrepreneurial intentions across time. We can evaluate if students' entrepreneurial intentions in different countries have been increasing or decreasing over the last years. In order to do this, we compare the data generated in the GUESSS project in 2013/2014 with the GUESSS data collected in Spring 2011.

Of course, we have to be very cautious, as the two samples differ in terms of participating countries and participating universities. For instance, out of the 34 GUESSS countries that took part in the 2013/2014 edition, 21 were also participants of the 2011 edition. In addition, the number and types of universities participating in each country also varies between 2011 and 2013/2014, as does the number of responding students per university and per country. However, the country teams of those 21 countries did not change between 2011 and 2013/2014; hence, we do not assume that there is a systematic difference with regard to the data collection procedure and in particular with regard to the university recruitment strategy.

When recognizing trends and developments in the following, we kept those potential limitations in mind and were thus very cautious in interpreting the data. Nevertheless, we believe that important indications can be derived. We analyzed the career choice intentions in the 21 "double" countries as a first step. From the 2013/2014 dataset, we could rely on 71'051 answers; from the 2011 dataset, 89'803 responses could be used.

For 2013/2014, we see that 6.6% of all students intend to become an entrepreneur directly after studies (founder or successor), compared to 32.5% 5 years after studies. Intentional founders account for 5.2% and 28.4%, respectively. The 2011 data reveals higher numbers: there, 14.9% of all students are classified as intentional entrepreneurs directly after studies (founder or successor), and 42.9% related to 5 years after studies (intentional founders account for 11% and 34%, respectively). This is a first sign that entrepreneurial intentions, and particularly founding intentions, are lower in 2013/2014 compared to 2011 (cf. the following figures).

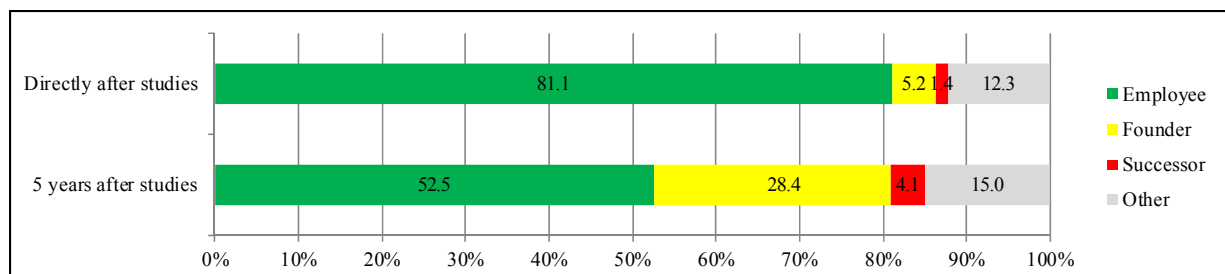


Figure 43: Career choice groups in GUESSS 2013 (21 countries)

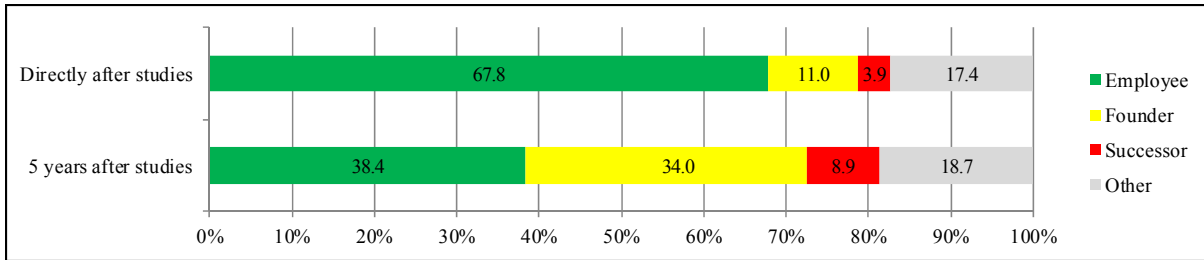


Figure 44: Career choice groups in GUESSSS 2011 (21 countries)

To delve deeper into this issue, we analyze the share of intentional founders in the 21 countries separately. We focus on intentional founders referring to 5 years after completion of studies as we believe that this provides a picture that is a bit more reliable than if we look at intentional founders directly after studies. Moreover, additional analyses not reported here showed that the general trends that we discuss in the following are rather independent of the time frame. The following figure shows that while several countries exhibit comparable numbers, many countries report significant changes.

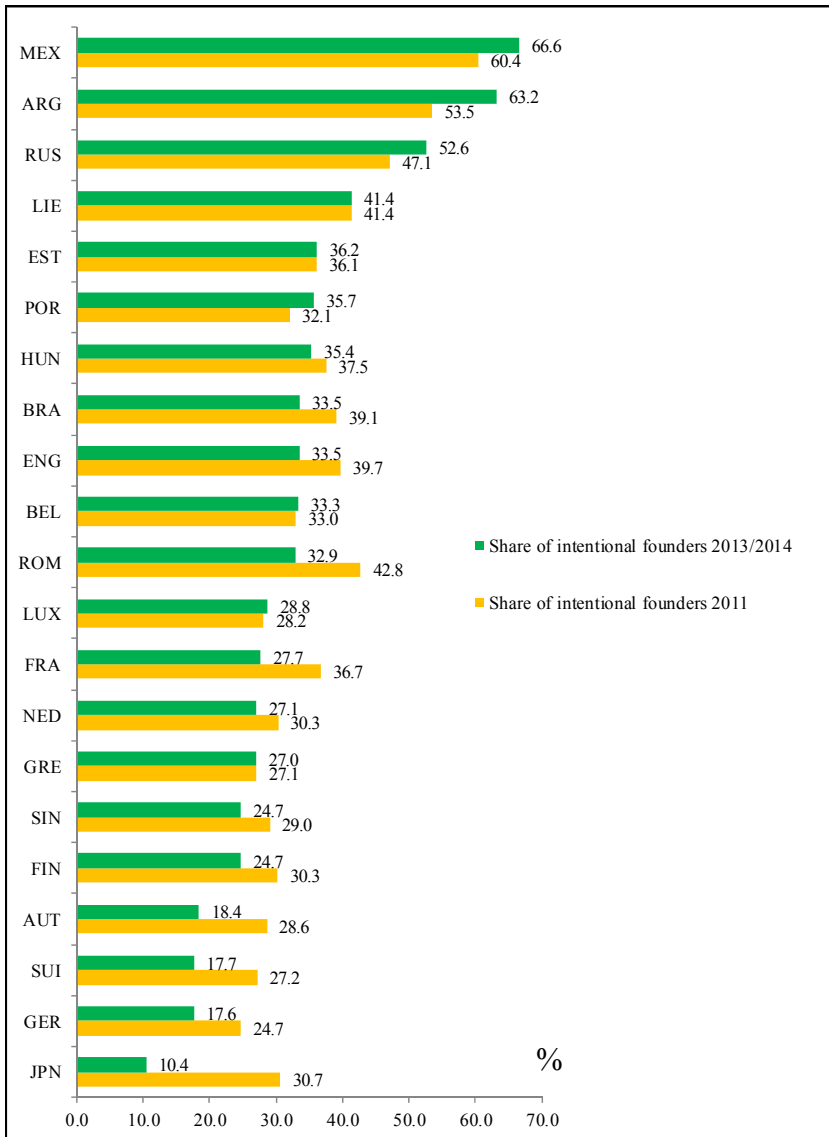


Figure 45: Share of intentional founders across time / countries (5 years after studies)

To further illuminate the changes in the different countries, the following figure shows the 21 countries sorted by the magnitude of change. The share of intentional founders has been increasing in 6 countries, has been quite stable in 5 countries (less than 1% change), and has been decreasing considerably in 12 countries.

We acknowledge that the formation of entrepreneurial intentions is affected by a multitude of different factors, and we reiterate that our findings in this chapter have to be interpreted with caution given the sampling issues described above. Nevertheless, given these numbers, we dare to derive from our analysis that students' intentions to create an own firm have rather been declining over the last years in most countries.

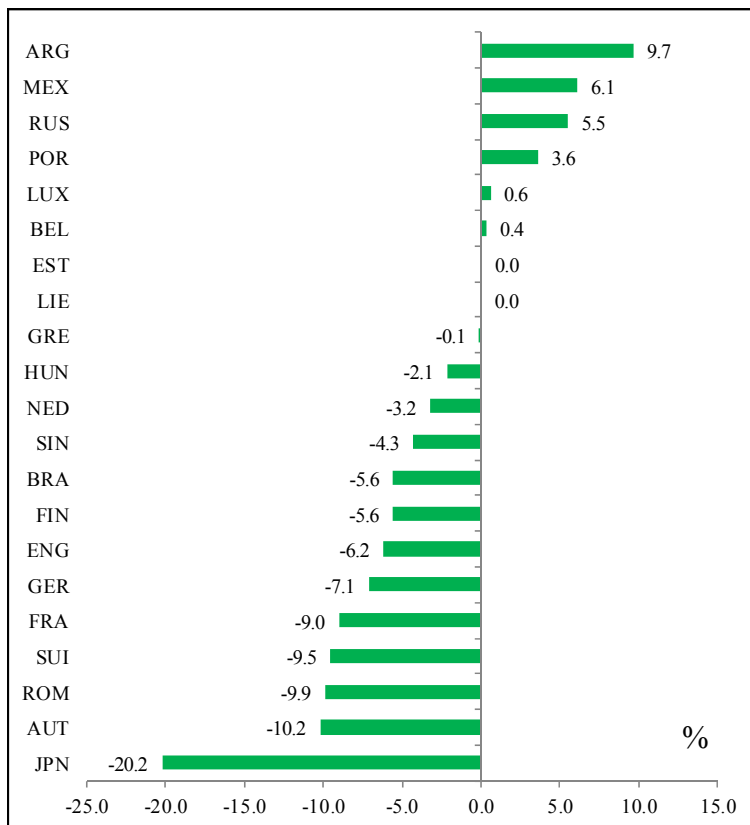


Figure 46: Change in entrepreneurial intentions across time / countries (5 years after studies)

For even more nuanced insights, we split our analyses depending on study field in the following. For BECL students, the share of intentional founders 5 years after studies for both 2013/2014 and 2011 in all countries are shown in the following figure.

The analysis of the respective shifts across time in Figure 47 reveals that again Argentina, Portugal, Mexico, and Russia are among the “winners”. Among those countries whose share of intentional founders has been dropping most significantly, striking similarities can be found compared to the overall findings illustrated above. Hence, the changes on the country level are well-reflected in the changes among BECL students in the different countries.

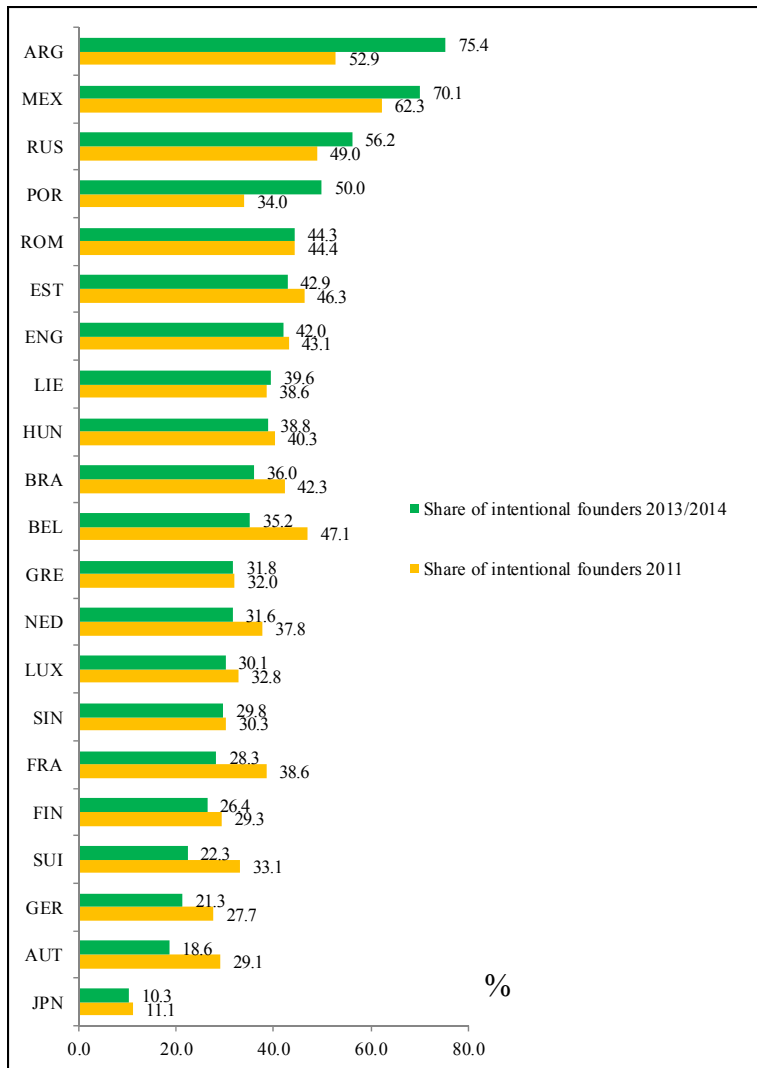


Figure 47: Share of intentional founders across time / countries (5 years after studies, BECL)

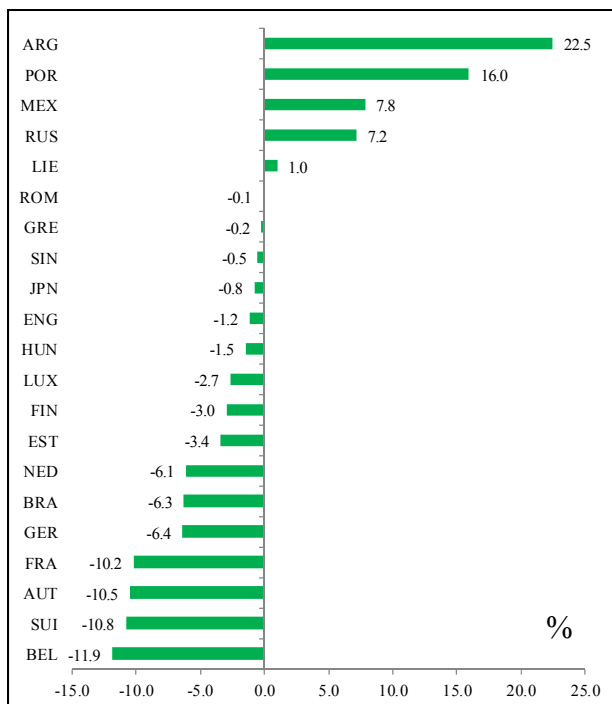


Figure 48: Change in entrepreneurial intentions across time / countries (5 years after studies, BECL)

For NSM students, the absolute numbers for both 2013/2014 and 2011 are shown in the following figure.

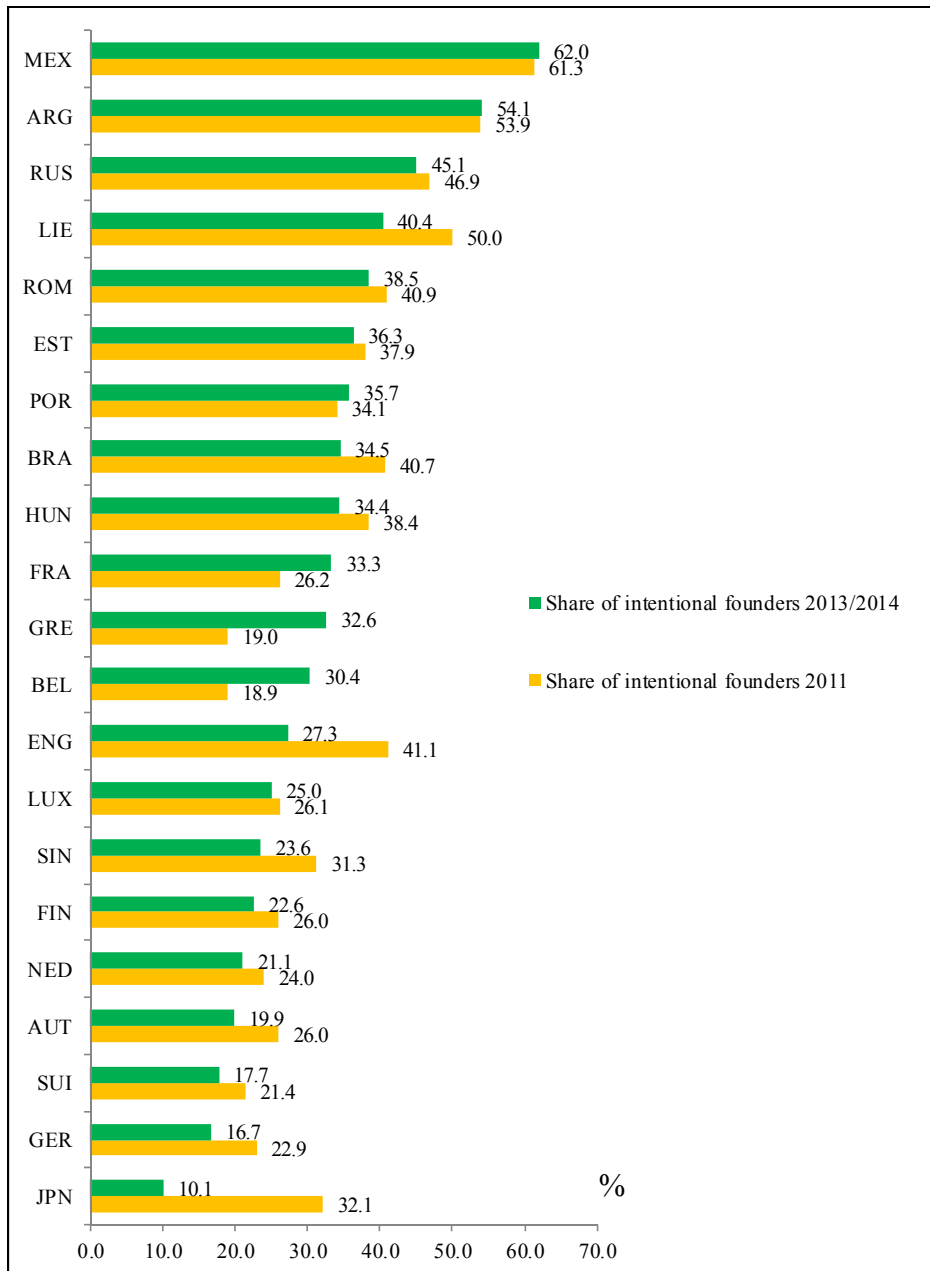


Figure 49: Share of intentional founders across time / countries (5 years after studies, NSM)

The differences between the two datasets are illustrated in Figure 50. Surprisingly, the situation for NSM students looks different compared to BECL students. In Greece, Belgium, and France, the share of intentional founders has been increasing considerably. The countries with the highest increase for BECL students, Argentina, Portugal, Mexico, and Russia, only show moderately higher shares or even a lower share (Russia).

Hence, the absolute increase in the share of intentional founders in those countries seems to be mainly driven by the stronger entrepreneurial drive among BECL students.

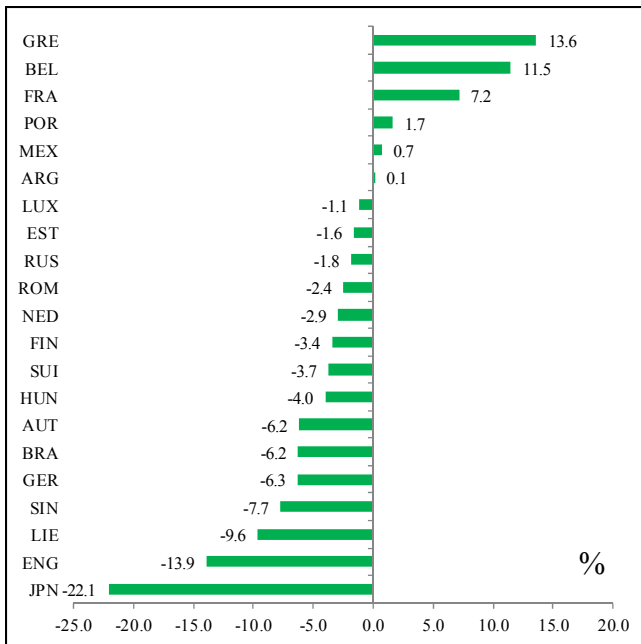


Figure 50: Change in entrepreneurial intentions across time / countries (5 years after studies, NSM)

The absolute numbers for SSC students can be found in the following table. France, Portugal, and Liechtenstein do not appear because data was not available in both datasets.

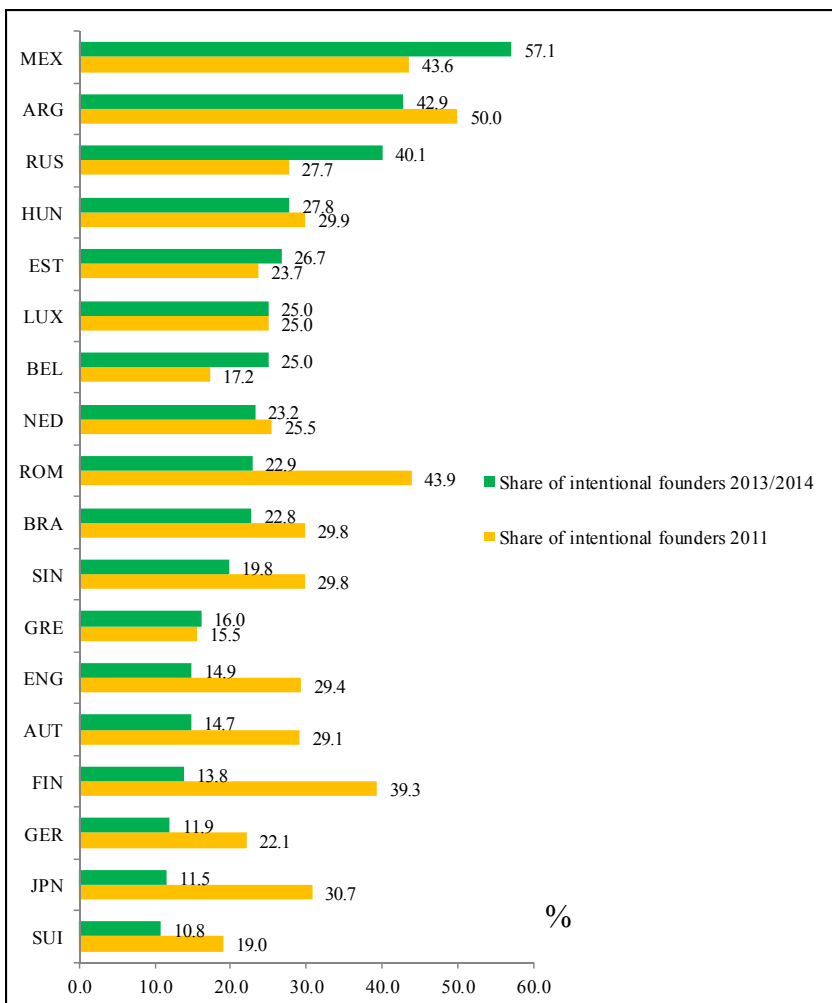


Figure 51: Share of intentional founders across time / countries (5 years after studies, SSC)

Looking at the changes reported in the figure below, the main pattern seems a bit similar to the one found among BECL students. In Mexico and Russia, the share of intentional founders has been increasing significantly between 2011 and 2013/2014. Argentina, however, reports a decrease of the share of intentional founders of 7.1%. As with BECL and NSM students, we see that only a few countries report stronger entrepreneurial intentions than 2011; very few remain stable; and the majority of countries reports weaker entrepreneurial intentions among their students.

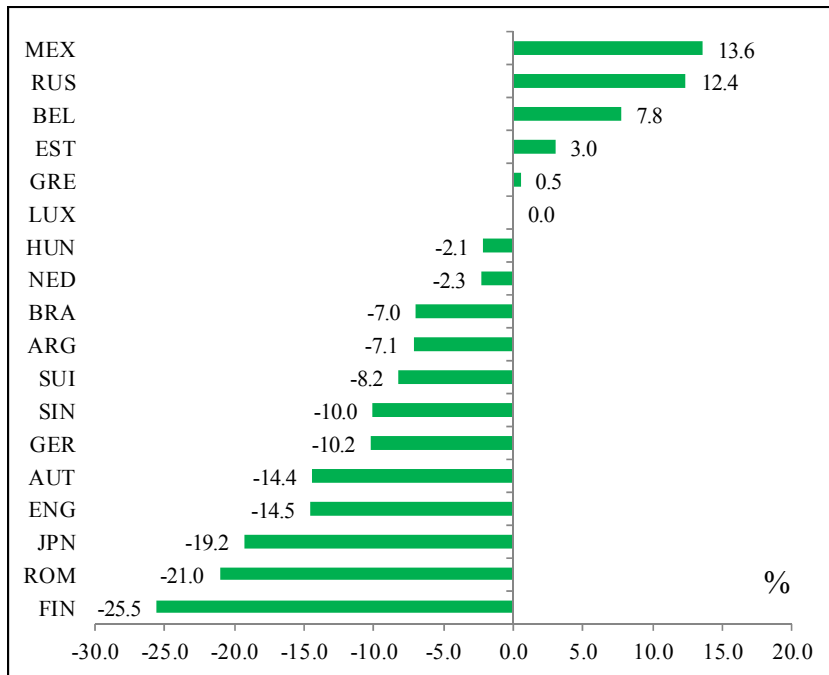


Figure 52: Change in entrepreneurial intentions across time / countries (5 years after studies, SSC)

To be able to discuss the situation in the different countries in a more comprehensive and integrated way, we combined the changes in the different study fields just discussed in one figure.

There are a few countries that show a quite ambiguous picture. For instance, in Argentina, entrepreneurial intentions among BECL students have been rising significantly between 2011 and 2013/2014. For NSM students, however, they remained stable, and for SSC students, they declined by more than 7%. In Belgium, entrepreneurial intentions have become weaker among BECL students but significantly stronger among NSM and SSC students. In Estonia, numbers for BECL and NSM students have been declining, but increased for SSC students. France, in addition, shows a sharp decline for BECL students and a strong increase for NSM students. Also Russia falls into the “ambiguous” category, as entrepreneurial intentions are stronger for BECL and SSC students but slightly weaker for NSM students.

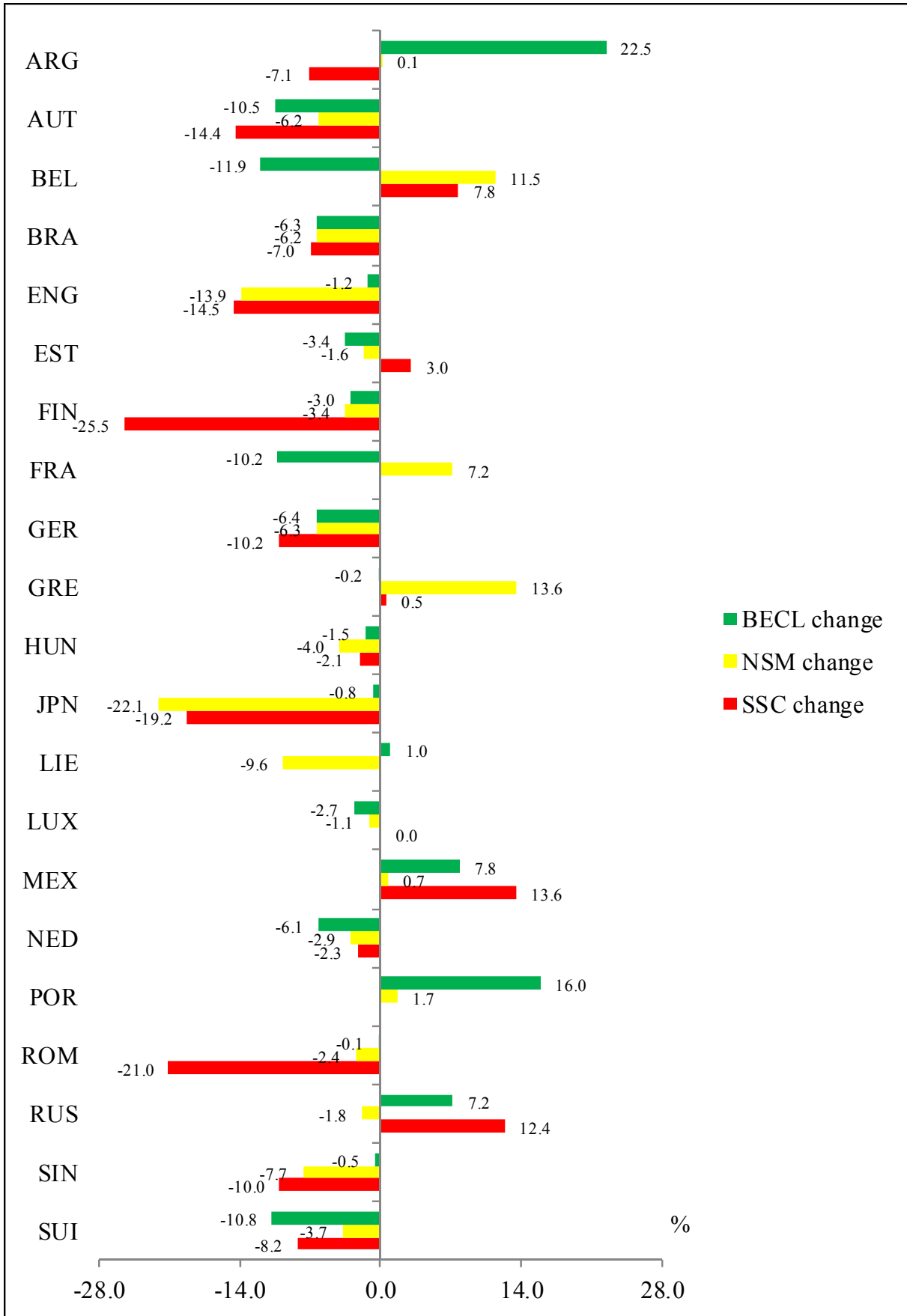


Figure 53: Changes in entrepreneurial intentions in all fields / countries (2011 vs. 2013/2014)



There are a few countries, however, who exhibit a decline in entrepreneurial intentions consistently across all study fields. Those are Austria, Brazil, England, Finland, Germany, Hungary, Japan, the Netherlands, Romania, Singapore, and Switzerland. This means that in 11 out of 21 countries, students' entrepreneurial intentions in 2013/2014 are weaker compared to 2011 in all study fields. Only Mexico reports increasing numbers in all fields.

Altogether, as already stated above and despite all possible data and sample limitations, and despite a few countries as exceptions, we believe we can conclude that students' entrepreneurial intentions in 2013/2014 are not as strong any more as in 2011. The possible reasons for this could be manifold. One example could be the overall economic environment. In many countries, the economic situation in Autumn/Winter 2013/2014 looks better than in Spring 2011. In 2011, the effects of the global economic crisis that started in 2008/2009 were more prevalent than in 2013/2014. This means that the students surveyed recently find more and better job opportunities in the regular job market, which reduces the share of so-called "necessity entrepreneurs" who want to create a firm because they cannot find a good job elsewhere.

In any case, we call for more in-depth analyses on the country level to shed further light on this intriguing phenomenon.

## 6 Nascent Entrepreneurs

### 6.1 Personal characteristics

After we have investigated students' career choice intentions and particularly entrepreneurial intentions in great detail, we now turn to a group of students that is of unique interest not only for GUESSS but also for entrepreneurship researchers and practitioners in general: those students who are already in the process of actually starting their own firm.

To identify them, all students were asked: "Are you currently trying to start your own business / to become self-employed?" In total, 16'429 students answered with "yes" (15.1%) and can thus be classified as so-called "nascent entrepreneurs".

The differences between countries are considerable. Despite a few exceptions, developing countries are more likely to be above average, and developed countries are more likely to be below average. Argentina and Malaysia exhibit very high values. This might be due to the sample characteristics in those countries and has thus to be interpreted with caution.

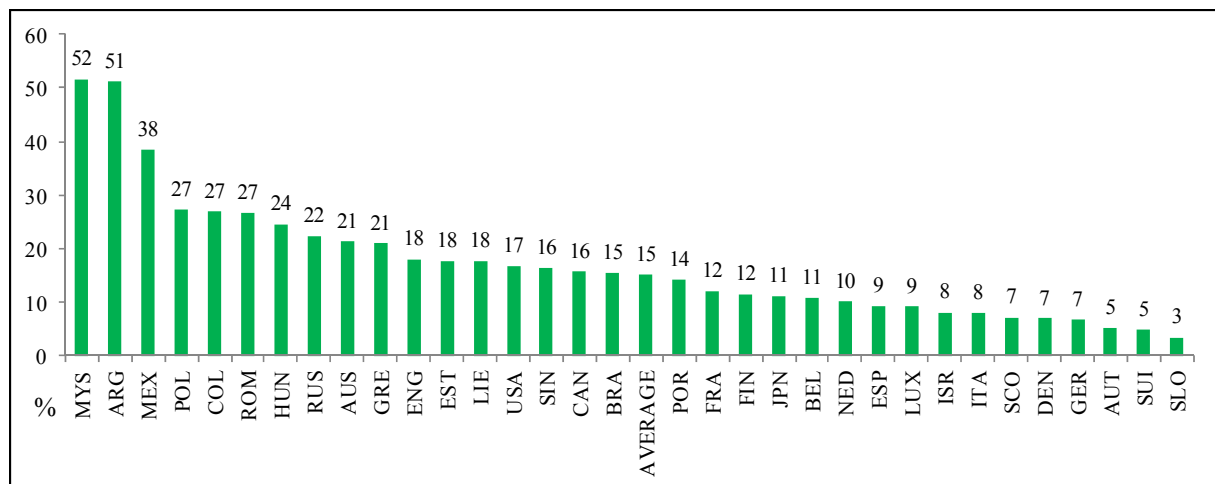


Figure 54: Share of nascent entrepreneurs across countries

Some of the differences may also be due to the varying relevance of the different main study fields already discussed. Consequently, we analyze the share of nascent entrepreneurs in the different field of study groups on the global level in a first step. We see that nascent entrepreneurs are most prominent among BECL students (18.0%), with the share among NSM and SSC students being significantly lower (13.5% and 10.1%, respectively).

To get more nuanced insights into country differences, we report the share of nascent entrepreneurs among BECL, NSM, and SSC students in the different countries separately in the following. While numbers are varying, the main underlying pattern that could be expected based on our previous analyses can be confirmed.

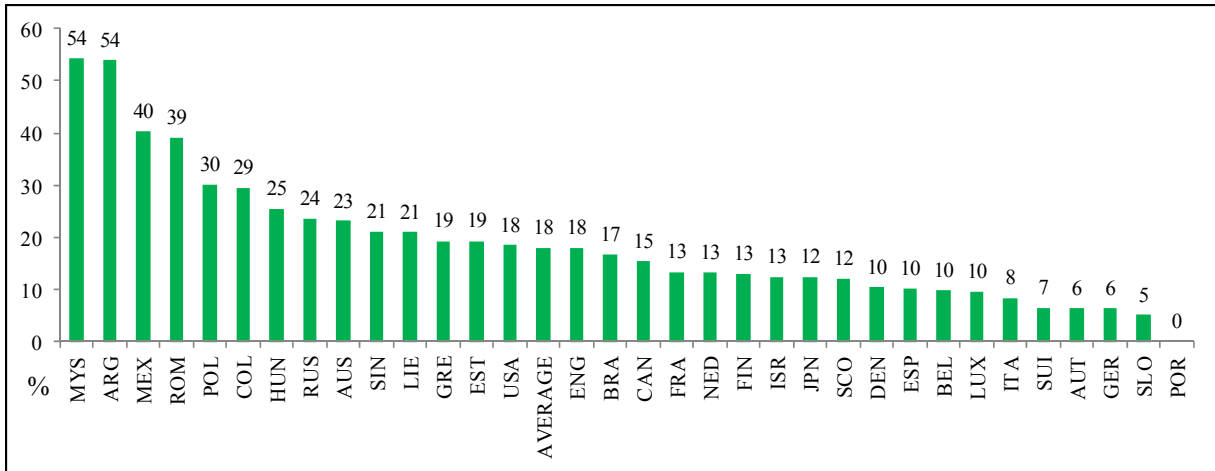


Figure 55: Share of nascent entrepreneurs among BECL students across countries

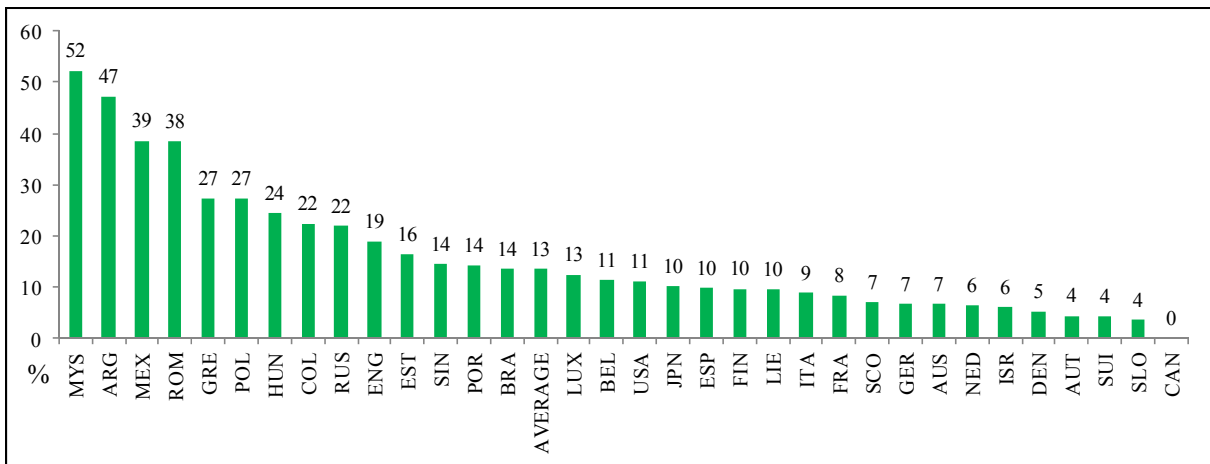


Figure 56: Share of nascent entrepreneurs among NSM students across countries

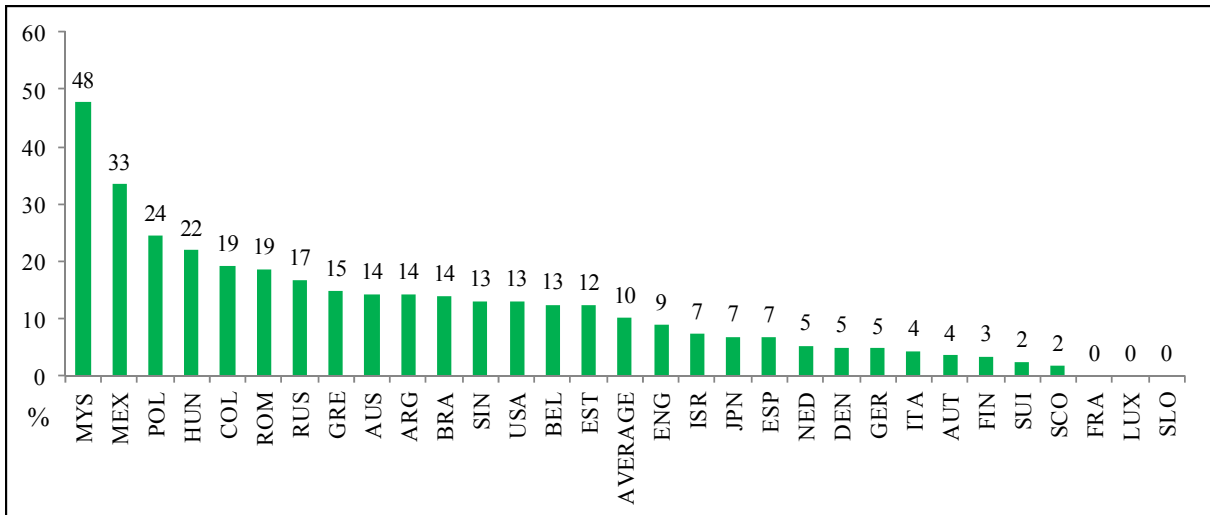


Figure 57: Share of nascent entrepreneurs among SSC students across countries

In several parts of this report we have paid attention to gender differences. We also do that with regard to nascent entrepreneurs and find that the share of nascent entrepreneurs among male students is 20.3%, whereas the share among female students is 11.4%. Also when investigating the different fields of study separately, female students are consistently less likely to be nascent entrepreneurs, as the following figure shows.

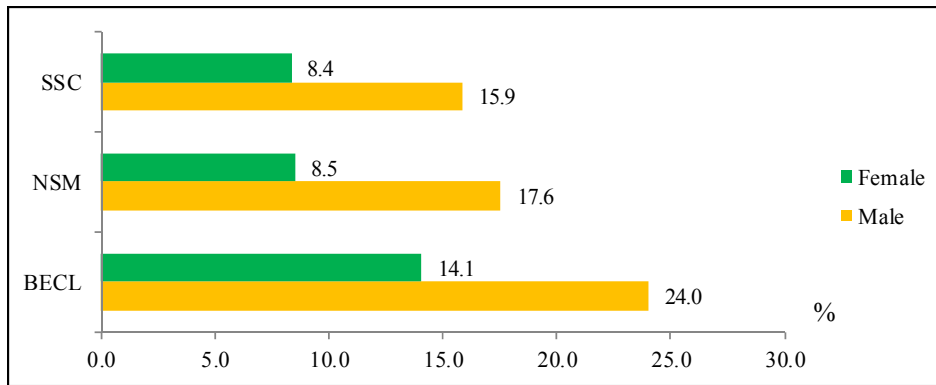


Figure 58: Share of nascent entrepreneurs across gender and field of study

## 6.2 The planned firms

We now take a closer look at the firms that the abovementioned nascent entrepreneurs are planning to create. The nascent entrepreneurs in our sample intend to found their firm in 13.2 months. They plan to invest 61.6% of their average weekly working time in their to-be-created company (median=61). This shows that the new firms will most likely not be a full-time job, at least in the phase immediately after the actual firm creation.

For detailed information about how far the nascent entrepreneurs have already proceeded in the founding process, we asked them which gestation activities they already completed (multiple answers possible). 18.1% have done none of the possible steps that our question offered. Almost one third of the nascent entrepreneurs has already written a business plan. The activities that have already been conducted the most are information collection about markets and competitors and the discussion with potential customers. Taken together, we see heterogeneity within the group of nascent entrepreneurs, whereby a considerable share of nascent entrepreneurs has proceeded quite far in the founding process.

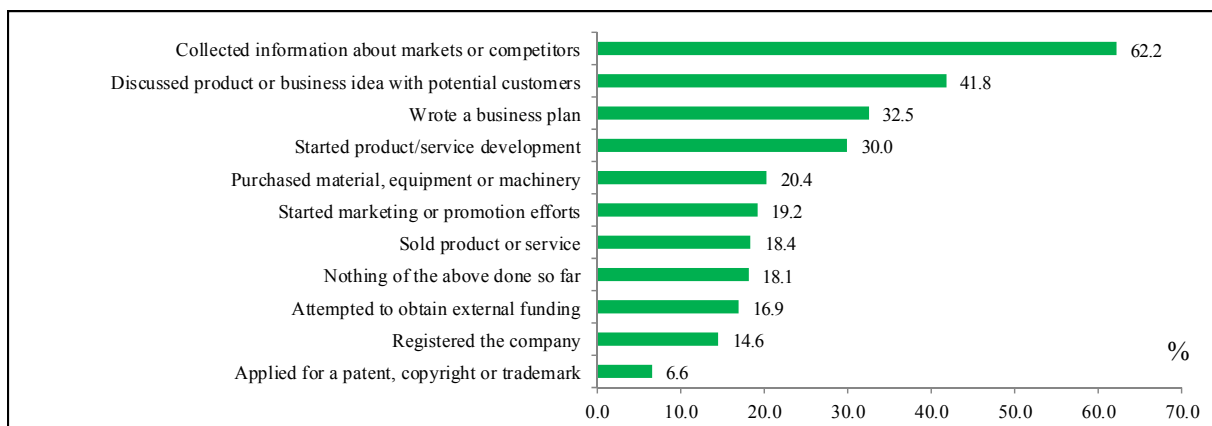


Figure 59: Gestation activities already conducted by nascent entrepreneurs

Regarding the industry sector where the planned firms will be active in, we see that the most attractive sector is trade (wholesale/retail), followed by the “Other” category and

“Information technology and communication”. For students who selected the “Other” category we offered the possibility to enter free text answers; however, no specific pattern was visible when coding these answers. We have thus no reason to believe that an important industry sector was missing in our comprehensive initial list.

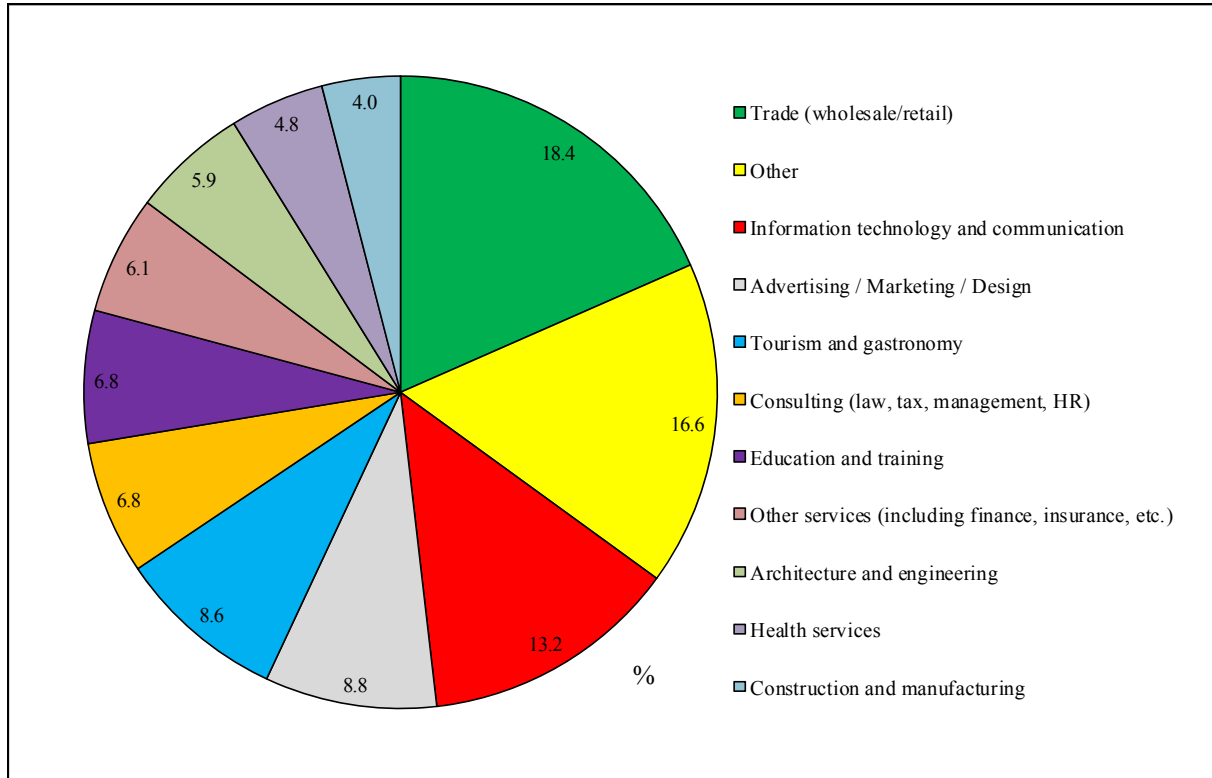


Figure 60: Industry sectors of planned firms

The nascent entrepreneurs in our sample intend to create their firm together with 1.27 partners on average. As shown in the next figure, around one quarter of the nascent entrepreneurs intend to create the firm alone, 35.8% with one partner, and almost one quarter with two partners. Founding teams with four or more members are quite rare (12.9% in total).

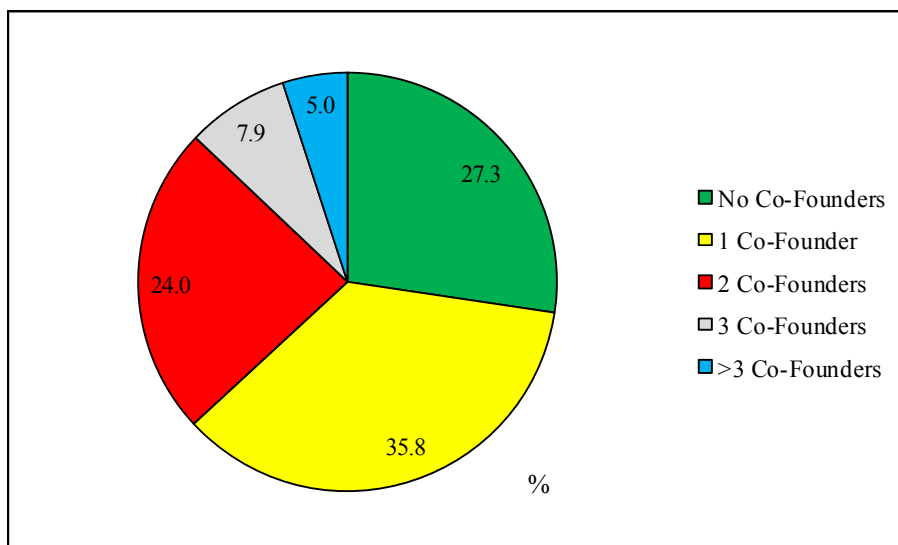


Figure 61: Number of co-founders among nascent entrepreneurs

Based on those insights, it is of interest if the nascent entrepreneurs will be minority or majority owners in the planned firm. On average, their equity share will be 66%, with the median being 61%. This clearly points to majority ownership. Having a closer look reveals that only approximately every fourth nascent entrepreneur will own 49% or less of the firm's equity. Almost half of the nascent entrepreneurs will own between 50% and 99%, and almost 3 out of 10 nascent entrepreneurs will own all the firm's equity.

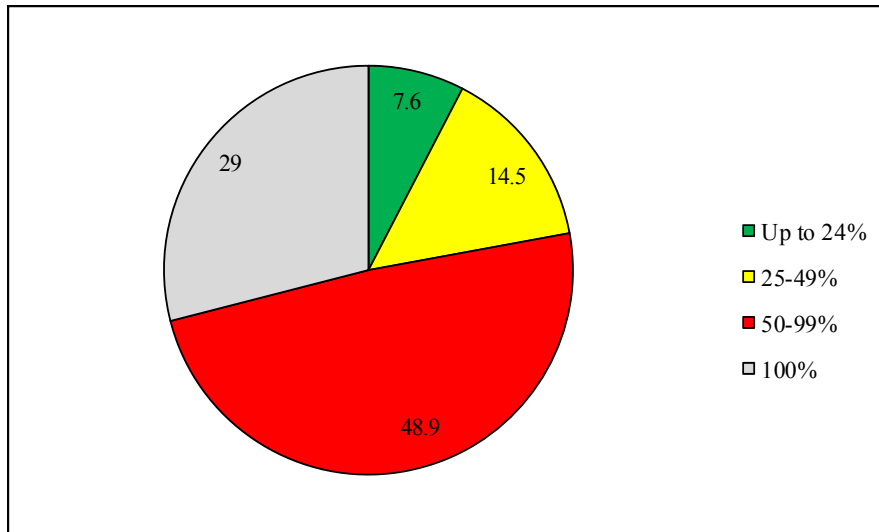


Figure 62: Nascent entrepreneurs' equity share in the planned firm

Lastly, we asked the nascent entrepreneurs how new the service or product that the company will offer in the market is compared to what is already offered in the market. Around 75% of all nascent entrepreneurs report that their offerings will at least be new to some customers; the remaining quarter of the planned firms will thus focus on imitating existing offerings. Almost 40% state that their products and services will be new to the majority of customers, and in almost 18% of all cases, the offerings will be completely novel. These numbers illustrate the high degree of innovativeness and newness among the planned firms.

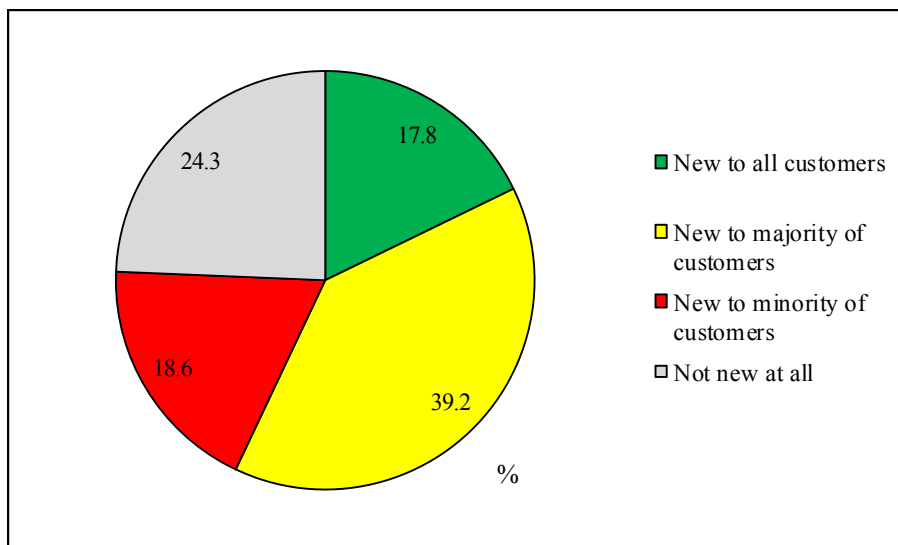


Figure 63: Degree of newness of the planned firms' offerings

## 7 Active Entrepreneurs

### 7.1 Personal characteristics

GUESSS is not only interested in students' entrepreneurial intentions, but also in their concrete entrepreneurial activities. Hence, we identified students who are already running their own business (who are already self-employed). Globally, 5.5% of all participating students are already entrepreneurs (6'016 students).

As with the nascent entrepreneurs, the share of the so-called "active entrepreneurs" varies considerably across countries. Reasons for that are manifold and may also partly be rooted in sample specifications; nevertheless, we give a descriptive overview here. Results are quite similar compared to the nascent entrepreneur analysis: highest rates can be found in Argentina, Malaysia, and Mexico, whereby developing countries generally seem to have a higher share of active entrepreneurs than developed countries.

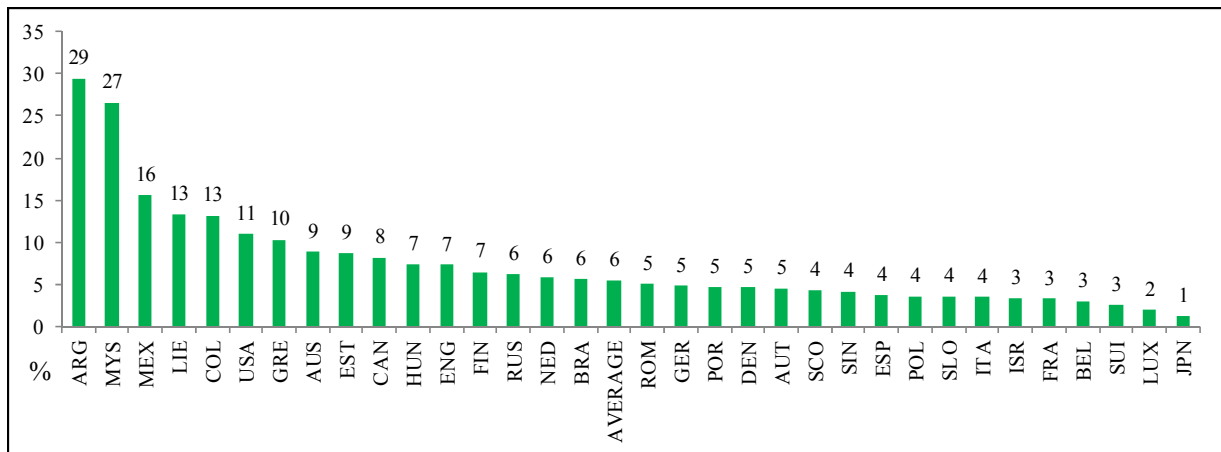


Figure 64: Share of active entrepreneurs across countries

An analysis of the share of active entrepreneurs according to study field interestingly shows that active entrepreneurs are more prevalent in the social sciences than in the natural sciences (see next figure). As expected, the share of active entrepreneurs is highest among BECL students. Our analysis of the share of active entrepreneurs in the different study fields depending on country did not reveal significantly different results compared to our previous analyses. Hence, we do not report those results in detail here.

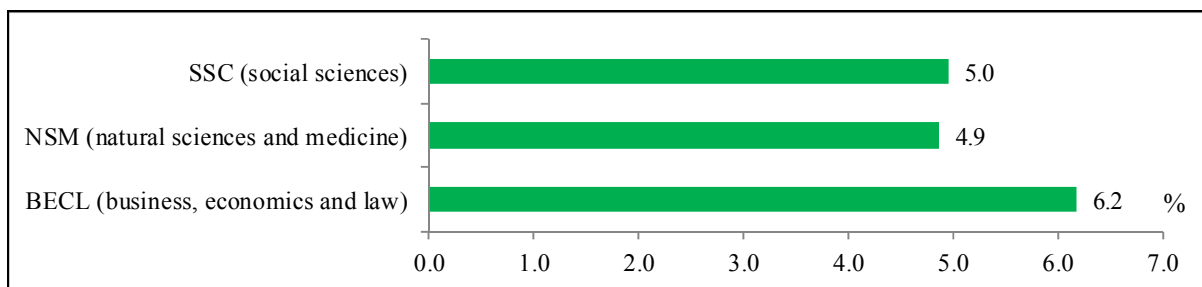


Figure 65: Share of active entrepreneurs across study fields

Also gender-wise we see important differences. 7.9% of all male students are active entrepreneurs compared to only 3.8% of all female students. Divided by study field, we see that the share of female active entrepreneurs is less than half in all fields. The gender gap among active entrepreneurs thus seems to be even larger than among nascent entrepreneurs. Interestingly, the share of male active entrepreneurs among SSC students is almost as high as among BECL students (only 1.2% difference).

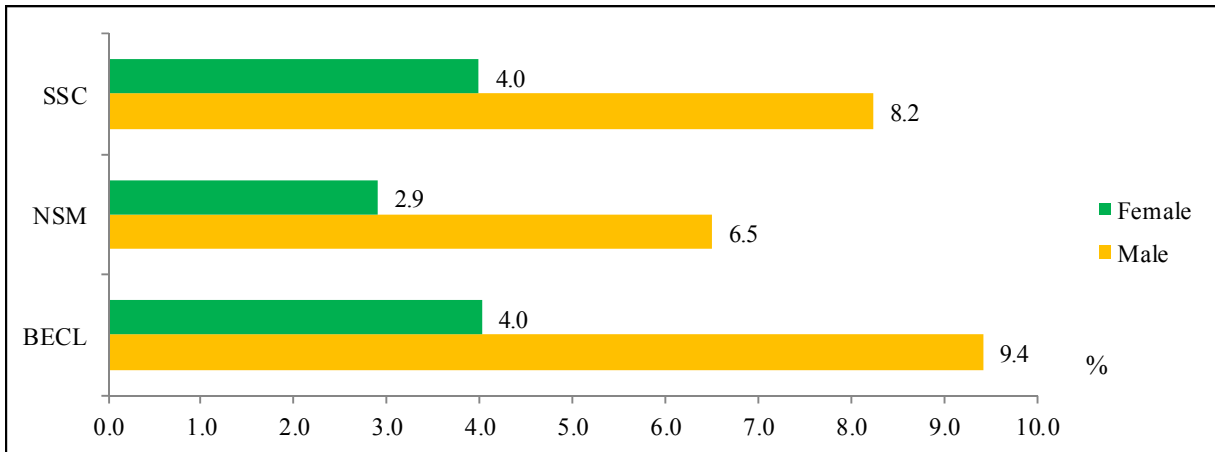


Figure 66: Share of active entrepreneurs across gender and field of study

## 7.2 The existing firms

The already created firms are, on average, around 4 years old. As the following figure shows, most of the firms in our sample have been created in 2013; 59% in 2011 or later. Almost one fourth of all firms, on the other side, have been created in 2007 or earlier.

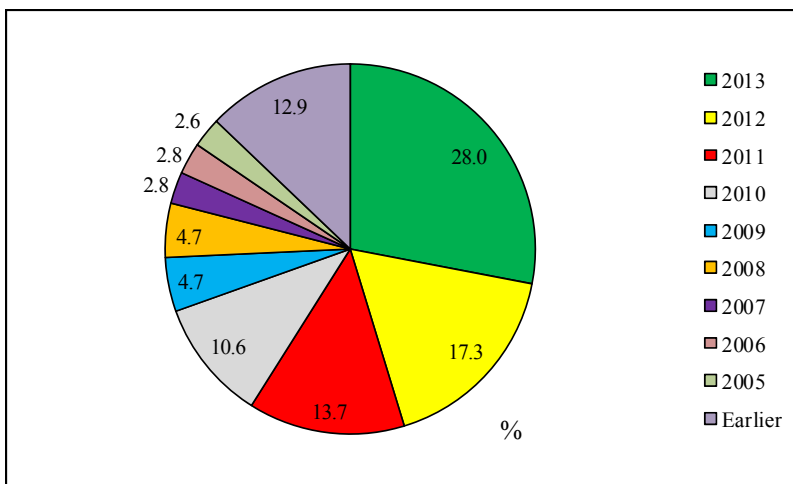


Figure 67: Founding years of the already created firms

On average, the active entrepreneurs spend 26.9% of their average weekly working time on their own firm. This clearly signals that these firms are “side projects” where the students only spend 1-2 days a week for. But still, this is a considerable amount of time, given that full-time studies are done in parallel.



Regarding industry, we see a similar pattern as among nascent entrepreneurs: while the “Other” category is the most frequently mentioned one among the active entrepreneurs, it is very closely followed by “Trade (wholesale/retail)”, with “Information technology and communication” being the third most attractive one. This shows that the intentions of nascent entrepreneurs in which sector to create their firm seem to be quite stable.

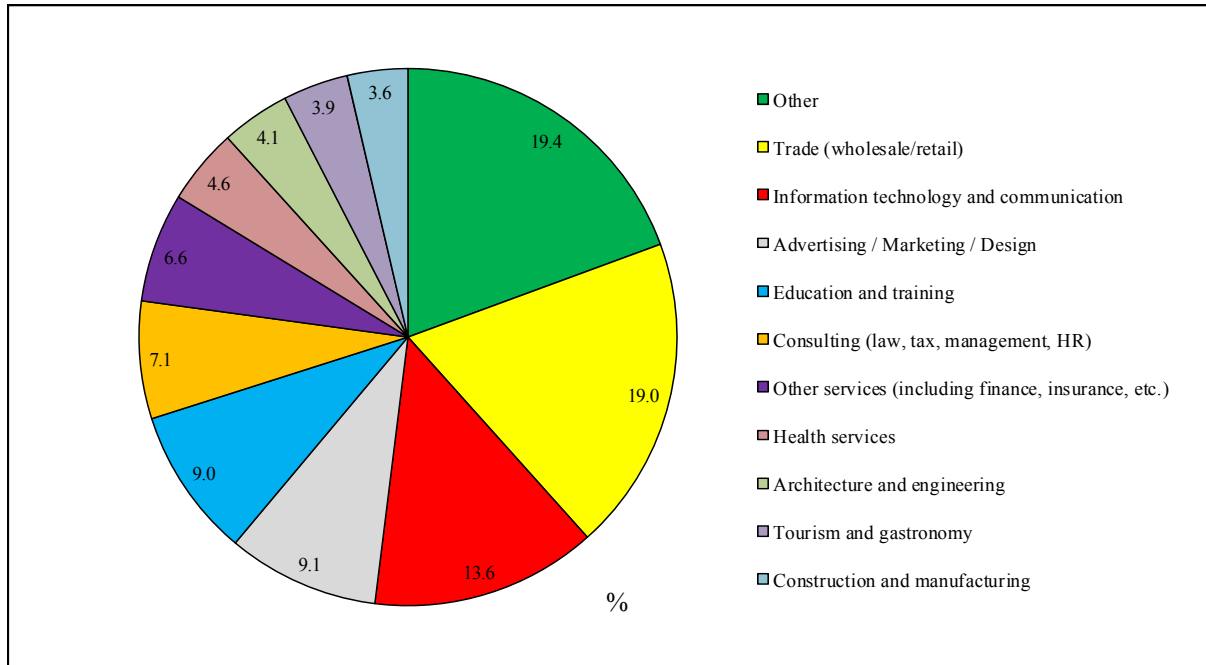


Figure 68: Industry sectors of already created firms

The average share of equity that the active entrepreneurs own is 68.7% (median=75%). Almost 75% of all active entrepreneurs own at least 50% of the equity, with remarkable 44.1% of all entrepreneurs owning the firm completely (see following figure).

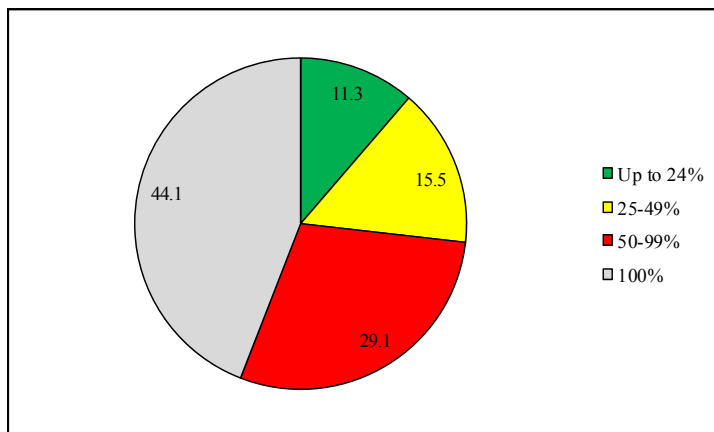


Figure 69: Equity share of active entrepreneurs

Regarding co-founders, data shows that almost half of all active entrepreneurs have created their firm on their own. Every fourth active entrepreneur has one co-founder. Interestingly, we see that the planned number of co-founders among the nascent entrepreneurs is considerably higher than among active entrepreneurs. As shown in chapter 6.2, only around one quarter of

all nascent entrepreneurs intends to create the firm alone; the average number of co-founders among nascents is 1.27 compared to 0.91 among actives. This signals that some intentional co-founders might still drop out during the firm creation process.

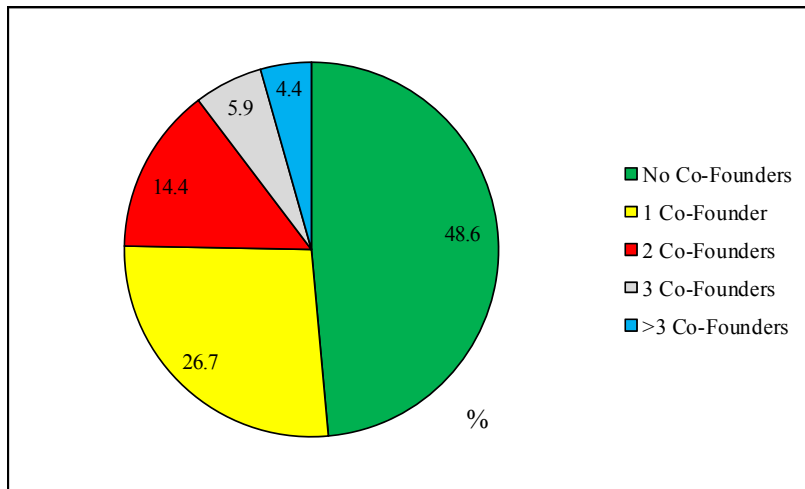


Figure 70: Number of co-founders among active entrepreneurs

As to be expected, the average number of employees (full-time equivalents) is quite low (2.8). In fact, 59% of all active entrepreneurs do not have any employees at all, which means that their company is a classic “one-man/one-woman firm”. On the other hand, more than 20% of all firms employ 2 or more employees, and almost 4% of the firms have more than 10 employees. We regard those numbers as encouraging, as they show the economic and also social impact that students’ new ventures are obviously making.

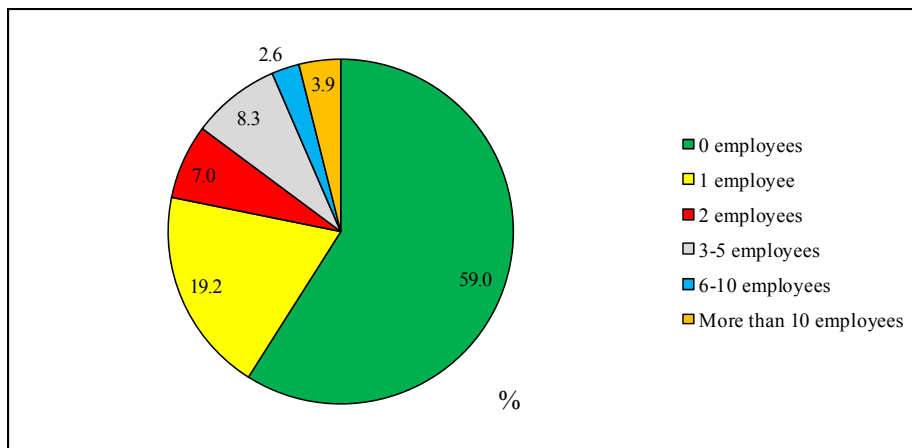


Figure 71: Employees (full-time equivalents) in the already created firms

Next to the current number of employees we are also interested in the growth intentions of our active entrepreneurs. Hence, we asked them how many employees they intend to have in 5 years. For respondents where both numbers were available, we calculated the intended growth rate. While there are a few outliers, we note that the median (the number where half of the responses are below it and the other half above it) is 3. So the average active entrepreneur in our sample plans to triple the size of his or her firm within the next 5 years.

A closer look at the data reveals that slightly more than 20% of all active entrepreneurs do not plan to grow their firm at all. In that case, the firms are likely to stay a side-project or a one-women/one-man show. Almost 40% of all active entrepreneurs, on the other side, plan to grow their firm tenfold or more in the next five years, which we regard as an ambitious number that illustrates the entrepreneurial thrive among those entrepreneurs.

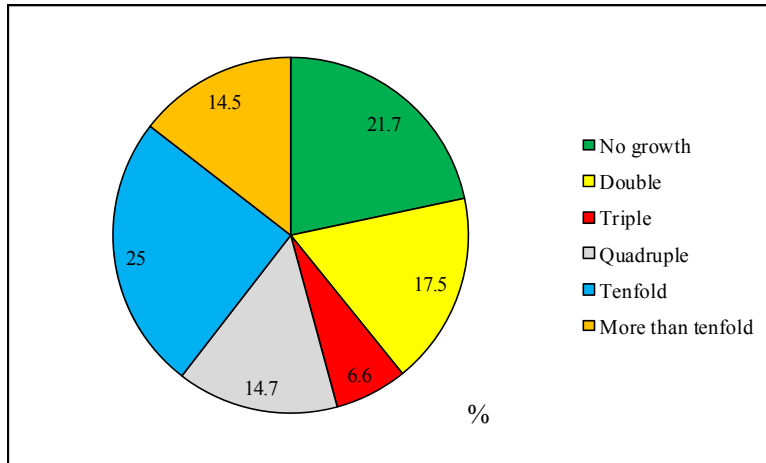


Figure 72: Growth intentions of active entrepreneurs

Lastly, we assessed the performance of the students' firms. For that purpose, we asked students to rate the performance of their firm compared to its competitors since its establishment from 1 (much worse) to 7 (much better). The relevant performance dimensions were sales growth, market share growth, profit growth, job creation, and innovativeness.

The average value is 4.1, which corresponds to "equal performance". A closer look at the distribution of the answers reveals that almost two thirds of all respondents judge their firm as showing performance that is roughly comparable to the competitors (from "slightly worse" to "slightly better"). Very obviously under- or over-performing firms are quite rare. But still, 8.4% of the active entrepreneurs think their firm is performing "much better" than competition.

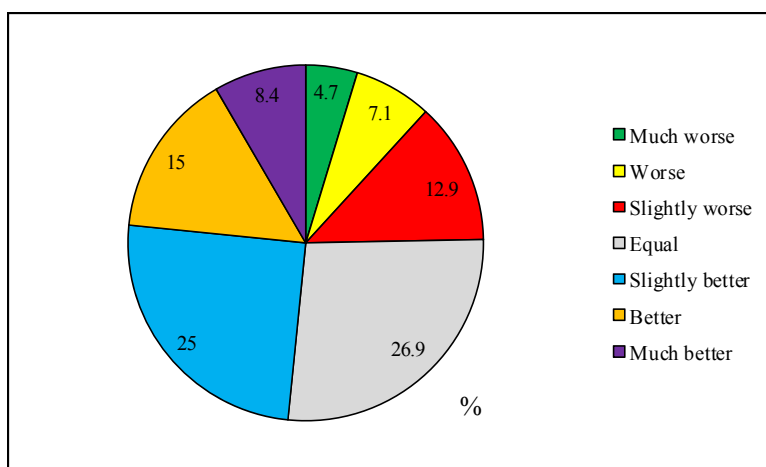


Figure 73: Performance of existing firms relative to competitors

## 8 Summary and Conclusion

This report presents and discusses a high number of findings and in-depth insights into students' entrepreneurial intentions and activities. In the following, we will highlight a few key learnings.

- Referring to students' career choice intentions in general, GUESSS 2013/2014 confirms the “first employee, then founder” pattern already found in previous editions of GUESSS.
- Directly after studies, 6.6% of all students want to work in their own firm; 5 years later, this applies to 30.7% of all students.
- As a general trend, entrepreneurial intentions are found to be strongest in developing countries and weaker in developed countries. Thereby we emphasize that the absolute values for developed countries are still quite high.
- Referring to the main field of study, we find consistently that BECL students have stronger entrepreneurial intentions than NSM or SSC students.
- Our data shows significant differences in entrepreneurial intentions across gender. Female students consistently exhibit lower entrepreneurial intentions compared to male students.
- Our investigation of the determinants of entrepreneurial intentions shows that the university context in general and entrepreneurial learning at the universities in particular are important antecedents.
- In line with previous research we confirm that students with entrepreneurial parents are more likely to become entrepreneurs themselves.
- Personal career choice motives are found to be a driving factor behind career choice intentions / entrepreneurial intentions as well.
- The social and cultural context is identified as an important antecedent of entrepreneurial intentions. Social pressure from individual's immediate environment as well as risk attitudes show a positive and negative relationship with entrepreneurial intentions, respectively.
- Very importantly, our analyses show that entrepreneurial intentions among students across the globe have been decreasing in the majority of countries that took part both in the GUESSS 2011 and in the GUESSS 2013/2014 edition.
- Regarding the existence of nascent entrepreneurs, we find important cross-country differences as well, whereby the “developing versus developed” country pattern is visible again.
- The planned firms will often be created by founding teams and show a considerable level of innovativeness. The nascent entrepreneurs surveyed by GUESSS will be the majority owners in the majority of cases.

- Students who have already created an own firm are majority owners in the majority of cases as well.
- The existing firms are often run as “one man / one woman” firms. While many entrepreneurs do not want to grow their firm in the next 5 years (21.7%), the share of active entrepreneurs with high growth intentions is even higher (around 40% wish to grow their firm tenfold or more in 5 years).

Based on those findings, we derive a few key recommendations for different stakeholders.

- Universities
  - Our findings illustrate the crucial importance of universities in the development of entrepreneurial intentions. Hence, we call for more and better entrepreneurship education offerings.
  - We note, however, that entrepreneurship education can have a two-fold effect. On the one hand, the positive effects of entrepreneurship education are uncontested, as it may enhance students’ relevant skills and capabilities, and may “prepare” them for an entrepreneurial career. On the other hand, entrepreneurship education may make some students realize that becoming an entrepreneur may also have disadvantages and that it is challenging and difficult to be successful. Put differently, some students may have a bit of a “romantic” or biased expectation of entrepreneurship and might be brought “back to reality” by attending entrepreneurship education offerings. Hence, entrepreneurship education could “sort” out students with unrealistic expectations but make the “remaining” intentional entrepreneurs more committed and more skilled.
- Students
  - As a general message, we encourage students to explicitly consider an entrepreneurial career path. We do not say that everyone should become an entrepreneur; but everyone should ideally consider if creating an own firm or taking over an existing one is a viable option that matches one’s skills, motives, and general preferences.
  - As universities more and more offer entrepreneurship-related courses and lectures, we encourage students to attend them to be better able to evaluate entrepreneurship as a possible career path.
- Public
  - We show that student entrepreneurship can add value to society and economy in general, as seen with the jobs already created and to-be-created by students’ entrepreneurial ventures.

- It is thus important to further improve the basic conditions and regulatory frameworks for new ventures.
- This is even more important as we find that entrepreneurial intentions among students have been decreasing over the last few years.
- Researchers
  - The sixth edition of GUESSSS shows again the unique value that lies in collaborative, international research efforts.
  - The unique dataset that has been generated should be exploited in different ways, be it for practitioner-oriented reports or academic publications.
  - Investigating cross-cultural patterns and the influence of social and cultural factors is a promising avenue for future research.
  - Again, we emphasize that given the heterogeneity observed in the GUESSSS sample with regard to countries, universities, and students included, results have to be interpreted with care.

In sum, with its sixth data collection wave, GUESSSS again tries to contribute to global research on students' entrepreneurial intentions and activities, hopefully delivering enriching insights for numerous stakeholders; not only in this report, but in many other publications to come.

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