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Entrepreneurial graduates rely on business ideas from professional practice

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In the medium term, demographic change is making a further decrease in start-up activity more likely in Germany. A rising number of university graduates could counter this trend since, compared with non-graduates, they are far more inclined to set up a business. Not only quantity but also quality is decisive when it comes to start-ups. Economic benefits arise most of all from new businesses with a high level of innovation. In terms of the market innovativeness of their products or services, university spin-offs are very much leading the way. However, most higher education graduates choose to become self-employed in the liberal professions. As doctors, lawyers or architects, they follow set business models in which the skills they have gained at university are of key importance.

The number of entrepreneurs in Germany is declining. While 2.9% of the population¹ between the ages of 18 and 64 ventured to start their own business in 2001, the founder rate in 2013 did not even reach 1.7%. The number of full-time start-up entrepreneurs, who accounted for about 35% of all entrepreneurs, hit a new low of 306,000 last year.² Demographic change is also likely to push down the number of entrepreneurs in the years ahead as the 30-45 age group (which is the main driver of start-up activity) will decrease in number.³

Start-ups, particularly those that are highly innovative, are however important for an economy. They stimulate competition, promote technological innovation and have great potential for high growth

and employment. University graduates as a group could provide significant impetus here in the future.

Can university graduates revive start-up activity?

The number of graduates leaving university with a first degree has almost doubled since 2001 and stood at nearly 310,000 in 2012.⁴ This figure will further increase in the near future, partly as a result of the number of pupils in their final year taking A-levels having doubled. But this development mainly reflects persistent growth in the relative demand for higher education. In light of this, the proportion of university graduates in the population rose from 14% in 2007 to just below 20% in 2013 (Figure 1).⁵

Gaining a qualification also tends to increase the inclination to start up a business. Compared to people without a degree, there is a significantly greater like-

lihood that graduates of universities, universities of applied sciences or vocational colleges will start up their own business⁶. The founder rate in this population group is therefore correspondingly higher. In 2013, around 2.4% of higher education graduates aged between 18 and 64 took the plunge and founded their own business.⁷

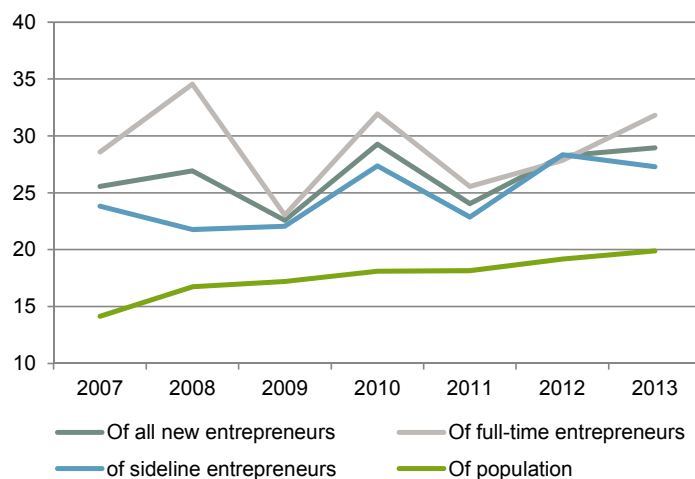
Their share in all founders has also risen significantly since 2007 and, at 29%, was disproportionately high in 2013 (Figure 1). Last year, a total of about 251,000 higher education graduates decided to set up a business, 14% more than before the financial crisis of 2007. It can thus be assumed that the population's increasing participation in education will, in future too, have a positive impact on start-up activity in Germany and alleviate the negative effects of demographic change.

How innovative are graduates' start-ups?

Great hope is also placed in graduates with regard to the quality of new businesses, measured in terms of how innovative they are. This is demonstrated in promotional programmes such as EXIST, set up by the German Federal

Figure 1: Growing proportion of university graduates

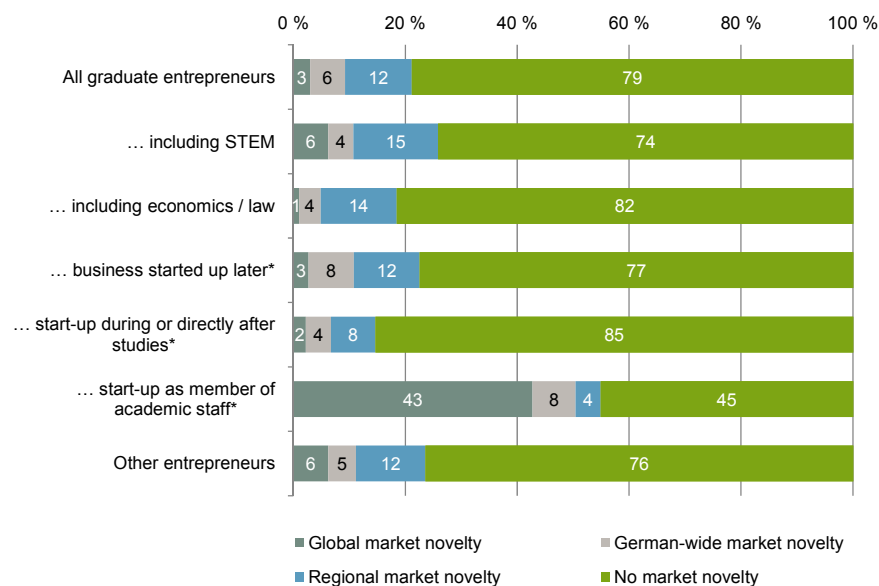
Share of university graduates (in per cent), 2013



Source: KfW Start-up Monitor

Figure 2: How innovative are graduate entrepreneurs?

Share of founders who have launched regional, national or global market novelties (in per cent), 2013



Note: * Figures for 2012. STEM = Science, Technology, Engineering, Mathematics

Source: KfW Start-up Monitor

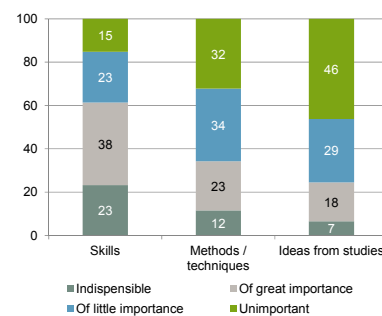
What influence does the university education have on the new business?

For a total of 38% of all graduate entrepreneurs, the skills that they have gained during their studies or as a member of the academic staff are of great importance for their current entrepreneurial activity (Figure 7). For a further 23% of them, these skills are even indispensable. Without an academic training, they would never have been able to get their start-up project off the ground.

Acquired scientific methods and techniques, on the other hand, are less of a factor when entering self-employment. A concrete idea behind a start-up only resulted from their studies or academic activity for a quarter of self-employed graduates. It is clearly professional practice that gives rise to many business ideas.

Figure 4: Universities communicate important skills but less specific ideas

Share in graduate entrepreneurs (in per cent), 2012



Source: KfW Start-up Monitor

What motivates graduate entrepreneurs?

The above is supported by the fact that 54% of all graduate entrepreneurs have had an idea to solve a problem that they encountered in their professional or personal lives (Figure 5), as compared to 41% of business founders without a university qualification. Furthermore, 57% of all graduate entrepreneurs identified a previously unsatisfied demand and filled a gap in the market with their start-up project. This requires some experience in the sector – and graduate entrepreneurs have no less of this than other business founders. The average is nearly seven-and-a-half years.

Ministry for Economic Affairs and Energy, and numerous regional initiatives which support technology and knowledge-based businesses founded by those with an academic background.

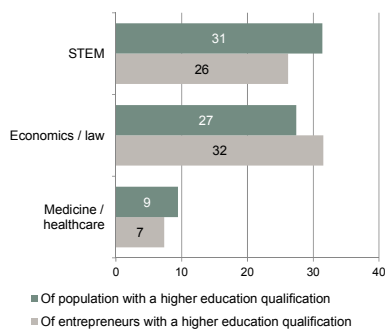
Measured by the market novelty of their products and services, it can initially be determined that graduate entrepreneurs are by and large just as innovative as non-graduates (Figure 2). Approximately 9% of them state that there is no other company with a comparable offering, globally or in Germany. The chosen de-

gree course plays a relatively small role. Graduates of STEM courses set up businesses with a market novelty more frequently than law or economics graduates. However, they only make up about a quarter of all graduate entrepreneurs and, unlike economics or law graduates, remain underrepresented in the group of founders (Figure 3).

By contrast, the relatively small group of academic spin-offs demonstrate particularly high innovative potential. Only around 5% of all entrepreneurs with a degree begin their project on the basis of their activity as a professor, lecturer or employee of a university or research institute. But more than half of them go to market with a product or service that is novel in Germany or globally (Figure 2). They are increasingly also supported by their universities, which act as incubators by providing offices and laboratories, initiating networks or offering coaching.⁸ A further 17% become self-employed during their studies or immediately after graduation. However, most graduate entrepreneurs (in 2012 it was 78%) do not start their project until well after they have completed their academic education.

Figure 3: STEM courses remain underrepresented

Share with degree in listed disciplines (in per cent), 2013

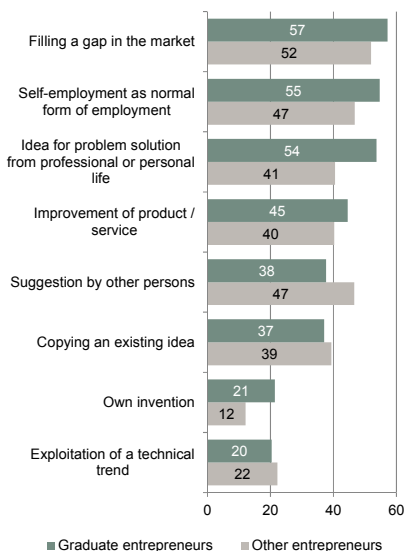


Note: multiple answers possible

Source: KfW Start-up Monitor

Figure 5: What is the business idea mainly based on?

Share of (graduate) entrepreneurs (in per cent), 2013



Note: multiple answers possible

Source: KfW Start-up Monitor

An invention of their own is a driver for a fifth of all graduate entrepreneurs starting a business, in comparison to 12% of entrepreneurs without a university qualification. Self-employment is also very simply the normal form of employment for many graduate entrepreneurs (Figure 5).

This can also be seen from the sector distribution of graduates' start-up projects (Figure 6). 78% in total can be allocated to the service sector, as compared to 61% of the projects implemented by entrepreneurs without a degree. These include economic services, such as the activities of lawyers, auditors, architects, engineers and software developers. Personal services are offered mainly by self-employed doctors, physiotherapists or freelance teachers. Only 12% of graduate entrepreneurs are active in trade and the figure is even less than 1% in the construction sector. At close to 58%, the majority of graduate entrepreneurs are self-employed in the liberal professions, as opposed to 30% of those without a degree.

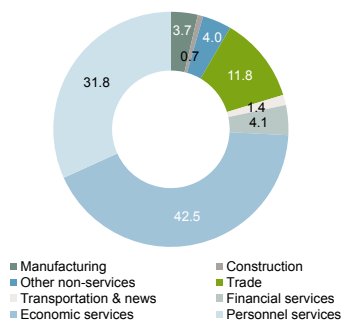
What distinguishes graduate entrepreneurs from others?

If one disregards the fact that entrepreneurs with a degree pursue different projects from those without any academic

training, these two groups are very similar. In terms of the market novelty of their products or services, they are generally no more innovative. About 39% of them were fully employed in 2013, not many more than in the case of entrepreneurs without a degree (35%). In 2013, the quota of women stood at 45% for graduate entrepreneurs, in comparison to 43% for other entrepreneurs. The quota of team founders in 2013 was just below 27% for graduate entrepreneurs. It was around 23% for other entrepreneurs. There are also no major differences in the number of employees or the amount of monthly revenue. Statistically, the likelihood of a start-up project being abandoned is also identical for graduates and non-graduates.

Figure 6: Sector distribution

Share of sectors in all start-ups by graduates (in per cent), 2013



Note: The sector classification is based on project descriptions by the new entrepreneurs in accordance with the Classification of Economic Sectors, Edition 2008 (WZ 2008) of the Federal Statistical Office (Destatis).

Source: KfW Start-up Monitor

Do graduate entrepreneurs have particular financing needs?

Almost 62% of graduate entrepreneurs have depleted their financial resources in order to launch their project, as compared to 65% of entrepreneurs without a degree. The funds needed differ little in terms of their magnitude. Graduate entrepreneurs less often need a sum lower than EUR 5,000 for investments during the founding of their company, more often requiring between EUR 5,000 and EUR 10,000 (Figure 7).

Nevertheless, graduate entrepreneurs are increasingly able to cover their financial needs from their own reserves. For example, in 2013 74% of them required

no external finance. For the entrepreneurs without a degree, the figure was only 66%.

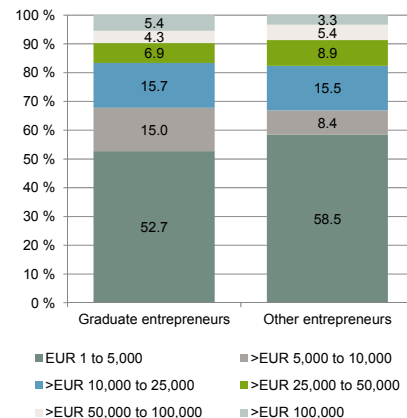
What are the biggest challenges for graduate entrepreneurs?

Accordingly, in 2013 only 17% of graduate entrepreneurs felt anxious about the financial risk associated with founding a company. Bureaucratic obstacles are the chief concern of graduates setting up their own businesses (Figure 8). An above-average number of graduates also regard winning orders and making contacts as major challenges. This also reflects the strong focus of degrees on appropriating specialist knowledge. Generally speaking, entrepreneurial skills are not at the forefront, even though there are an increasing number of extracurricular offerings and even independent entrepreneurship courses that are intended to make up for these deficits.

When considering self-employment, far more graduates than non-graduates worried about abandoning the benefits offered by being an employee. This is an expression both of better earning opportunities and low qualification-specific unemployment among graduates, with the latter having dropped from 2.9% in 2007 to 2.5% in 2012.⁹

Figure 7: Need for funds

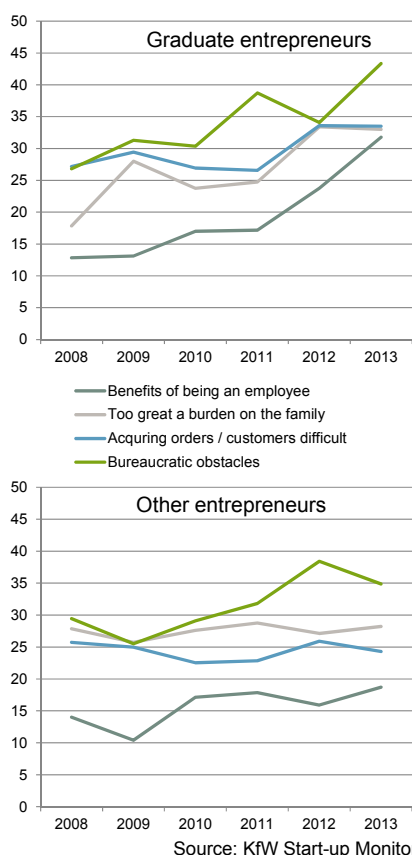
Share of (graduate) entrepreneurs in the entirety of (graduate) entrepreneurs with financing needs (in per cent), 2013



Source: KfW Start-up Monitor

Figure 8: Growing concerns

Share of (graduate) entrepreneurs (in per cent)



It is true that the unemployment rate of persons with vocational or no training also fell during the same period but at 4.4% and 19% respectively it remains significantly higher. Graduates are also increasingly afraid that their start-up will be too much of a burden on their relationship or family. This picture is consistent with the findings of surveys among students, for whom job security and the work/life balance are more important than the possibility of self-employment.¹⁰ In international terms, the willingness of German students to set up their own businesses is correspondingly low.¹¹

Conclusion

Even though the entrepreneurial spirit of German graduates is by no means as palpable as among those in many other countries, it is far more pronounced than among the rest of the population. In view

of the increasing number of graduates, there is justified hope that the adverse effect of demographic change on German start-up activity can be made up for, at least in part. Spin-offs by academic staff prove to be innovative to an above-average extent. The correct approach here appears to be to intensify the promotion of start-ups at universities. As a rule, however, it is in the liberal professions that graduates mainly seek self-employment. With regards to the scope and success of their project, graduates differ barely at all from other entrepreneurs. Their financing needs are in some cases rather higher but are more likely to be covered by own funds. More courage among graduates to start-up businesses would be good and could further strengthen the positive contribution they make to start-up activity in Germany.



¹ Here and below the population is defined as all those resident in the Federal Republic of Germany between the ages of 18 and 64.
² Metzger, G. (2014): KfW Start-Up Monitor 2014: Revival in start-up activity – impulse from the sideline, KfW Research, Frankfurt am Main.
³ Gottschalk, S. und S. Theurer (2008): Die Auswirkungen des demografischen Wandels auf das Gründungsgeschehen in Deutschland, ZEW Discussion paper 08–032, Mannheim
⁴ Autorengruppe Bildungsberichterstattung (2014): Bildung in Deutschland 2014, W. Bertelsmann Verlag, Bielefeld. In this article, universities are defined as private, state and denominational universities, universities of applied sciences, theological colleges and art colleges.
⁵ Here and below, a broad definition of higher education graduate and graduate entrepreneur is used. These include people with a degree awarded by a university, college of music or art, technical college, college of education, university of applied sciences, specialist academy, vocational college, 2 or 3-year school of public health or administrative college. Graduates of the former vocational schools of the GDR are also regarded as higher education graduates but are not numerically significant.
⁶ See Metzger, G. (2014): KfW Start-Up Monitor 2014: Revival in start-up activity – impulse from the sideline, KfW Research, Frankfurt am Main and Gottschalk, S. und S. Theurer (2008): Die Auswirkungen des demografischen Wandels auf das Gründungsgeschehen in Deutschland, ZEW Discussion Paper 08-032, Mannheim together with the literature cited there.
⁷ This is roughly equivalent to the average of the founder rates in the period from 2007 to 2013 for the group of higher education graduates aged between 18 and 64.
⁸ Grave, B., Hetze, P. und A. Kanig (2014): Gründungsradar 2013 – Wie Hochschulen Unternehmensgründungen fördern, Stifterverband für die Deutsche Wissenschaft, Essen.
⁹ Institut für Arbeitsmarkt- und Berufsforschung (2013): Qualifikationsspezifische Arbeitslosenquoten, Nuremberg.
¹⁰ Ernst & Young (2014): Studentenstudie 2014 .
¹¹ Bergmann, H. (2014): Unternehmerische Absichten und Aktivitäten von Studierenden in Deutschland. Ergebnisse des Global University Entrepreneurial Spirit Students' Survey (GUESS) 2013/14. Forschungsbericht KMU-HSG, University of St. Gallen.