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BACHELOR GRADUATES IN GERMANY: INTERNATIONALLY MOBILE, SMOOTH TRANSITION AND PROFESSIONAL SUCCESS

THE STUDY STRUCTURE IN GERMANY

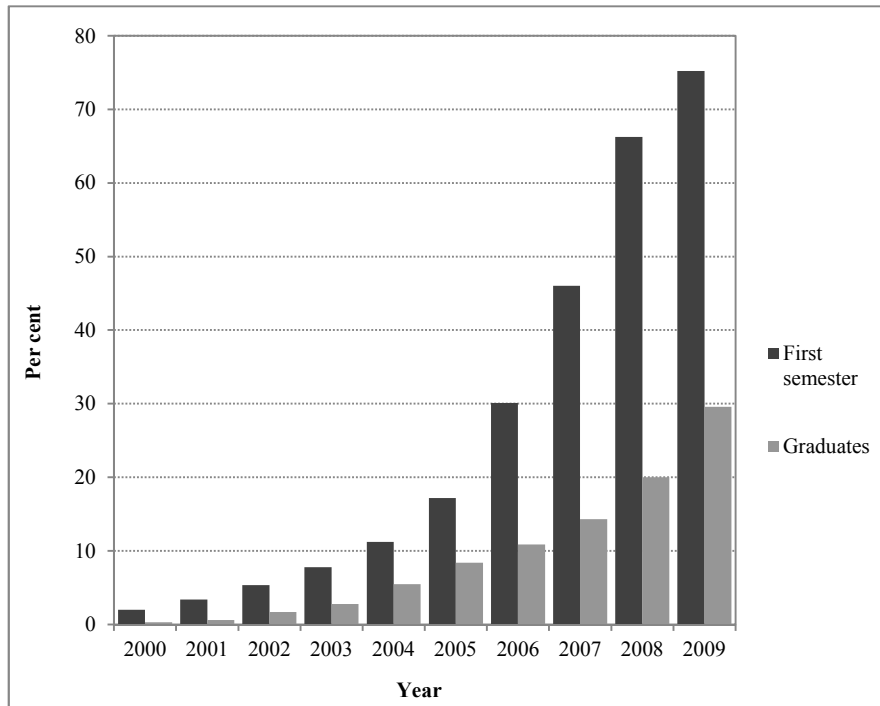
From the 1970s to the 1990s, the higher education system in the Federal Republic of Germany was characterised by a two-type structure. Most study programmes at universities required 4-5 years of study and led to “Magister”, “Diplom” or “Staatsexamen” degrees, all considered as equivalent to a Master. The study programmes at *Fachhochschulen* (translated into English as universities of applied sciences) were called three-year programmes with additional internships and possible examination periods until the 1980s and four-years programmes including internships and possible examination periods in the 1990s leading to a “Diplom” degree; this tended to be considered internationally as “Bachelor+” and also was counted in UNESCO statistics as ISCED 5A. About one tenth of graduates from universities of applied sciences (*Fachhochschulen*) continued their studies at universities. In 1998, 11 per cent of the corresponding age group was awarded a university degree and 6 per cent a Fachhochschule degree. Graduates from both types were about 28 years old on average at the time of graduation.

There was no concept of “tertiary education” in Germany, but an institution with less than one per cent of the age group existed in that domain: The *Berufsakademien* offering three-year programmes with somewhat more than half of the time spent for study and almost half in an enterprise. The 10 per cent of the age group who successfully completed ISCED 5B education were technicians, associate professionals in the medical area, kindergarten teachers, etc. who were trained in advanced vocational training schemes.

The introduction of a Bachelor-Master system started in Germany as early as in 1998, but progressed slowly (see [figure 1](#)).

In 2008, Bachelor and Master graduates comprised 20 per cent of the total number of graduates in Germany. In 2009, almost 80 per cent of new students started studying in the new system, while in 2005 this was the case for less than 20 per cent (see Hochschulrektorenkonferenz [HRK], 2010).

Figure 1. New Students and Graduates in the Bachelor-Master System in Germany 2000-2009 (per cent)



Source: Hochschulrektorenkonferenz (2010)

Both universities and universities of applied sciences (*Fachhochschulen*) in Germany are entitled to offer Bachelor and Master programmes. No formal distinction is made between Bachelor programmes; most comprise three years (180 ECTS credits), but some three-and-a-half or four years. Master programmes comprise two years in most cases but in some cases one-and-a-half years or one year, and Bachelor and Master programmes altogether should last for “not more than five years”. Masters are labelled differently:

- (a) “theory-oriented” (more often but not exclusively at universities) vs. “application-oriented” (more often but not exclusively at universities of applied sciences (*Fachhochschulen*)),
- (b) “consecutive” (in the same field as the Bachelor) vs. “not consecutive”, and
- (c) “continuing” (students are not admitted immediately upon the award of a Bachelor degree) vs. “not continuing”.

It remained controversial, and different regulations were implemented as regards the transition from a Bachelor degree to a Master programme: In some cases, all

Bachelor graduates are accepted while often additional selection criteria are put in place; in some cases, all Bachelors from the same field at the same institution are accepted, while others are selected. More than 70 per cent of the Bachelor graduates transfer to Master programmes according to information available for 2007. Moves to upgrade ISCED 5B vocational training to “Bachelor (professional)” programmes led to controversial debates and have not been implemented so far.

The new Bachelor-Master structure has not consistently been implemented in all fields of study in Germany. The traditional single-cycle long programmes have been preserved in medical fields, law, theology, education and as well as in a relatively high number of study programmes in fine arts.

THE DATA BASE: THE KOAB GRADUATE SURVEY

In the following, the results of graduate surveys which were conducted in the years 2009 and 2010 by 52 higher education institutions in Germany (see [table 1](#)) are reported¹. The institutions undertook these studies with common core questionnaires in the framework of a network coordinated by the International Centre for Higher Education Research of the University of Kassel (INCHER-Kassel). In this survey network, a total of some 70,000 graduates responded (response rate: 50 per cent) who had graduated in the years 2007 and 2008, or more precisely in most cases from October 2006 to September 2008. The surveys took place during the winter semesters of the respective years, i.e. about 1½ years after graduation. In most cases, all graduates of the respective graduation cohort were surveyed, i.e. those from Bachelor and Master programmes, those from the traditional university and *Fachhochschule* programmes as well as all persons awarded a doctoral degree.

This graduate survey (referred to as KOAB graduate survey in the following text) constitutes the most comprehensive data set on the further study and career paths of graduates of a Bachelor's or Master's course of studies in Germany (main results were published in Schomburg & Teichler; 2009; Alesi, Schomburg & Teichler, 2010; Schomburg, 2010). In the survey conducted decentrally (by the individual higher education institution) and coordinated by INCHER-Kassel, a standard core questionnaire was used in all cases. Every individual higher education institution used an adapted questionnaire with supplementary individual questions. The higher education institutions funded their studies themselves, while the coordination on the part of INCHER-Kassel was supported financially by the Federal Ministry of Education and Research.

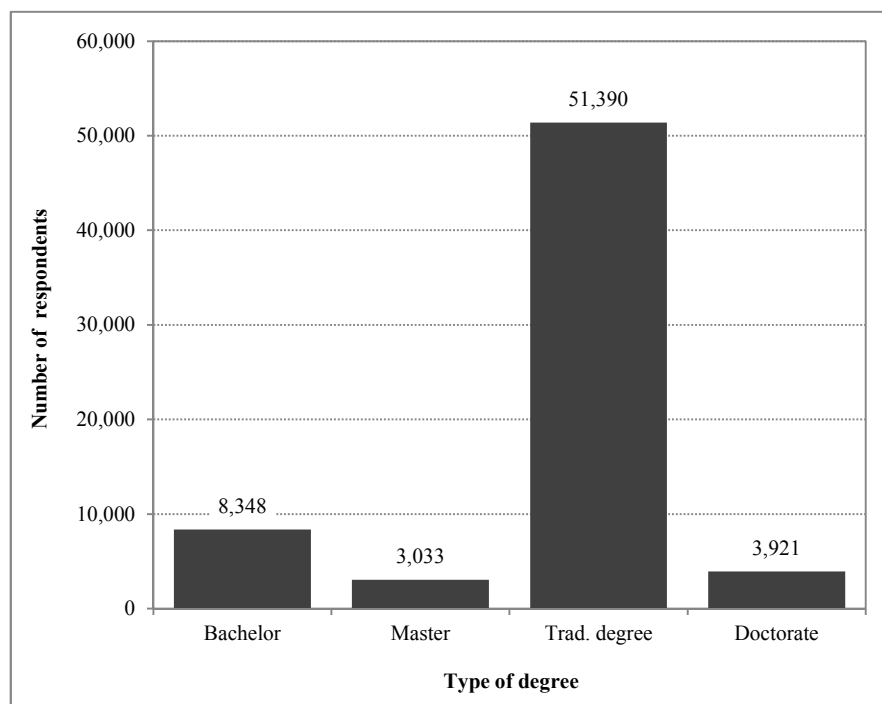
¹ Some of the 52 higher education institutions participated only in one of the two surveys.

Table 1. The KOAB Graduate Surveys in Germany 2009 and 2010

| | Survey 2009 | Survey 2010 |
|--|--------------------------|--------------------------|
| Cohort of graduates (year of graduation) | 2007 | 2008 |
| Field phase | Oct. 2008 – Jan. 2009 | Oct. 2009 – Feb. 2010 |
| Number of participating institutions of higher education | 48 | 46 |
| Number of addresses | 86,800 | 78,000 |
| Number of valid addresses | 75,000 | 69,000 |
| Number of responses | 37,500 | 33,000 |
| Response rate (higher education institutions average) | 50 % | 49 % |

Source: INCHER-Kassel, KOAB graduate surveys 2009 and 2010

Figure 2. Number of 2007 and 2008 Graduates from Higher Education Institutions in Germany Surveyed about One and a Half Years After Graduation, by Type of Degree



Source: INCHER-Kassel, KOAB graduate surveys 2009 and 2010

The subsequent analysis is based on the responses of about 62,000 graduates (see [figure 2](#)). Comparisons are made between Bachelor graduates from universities and universities of applied sciences (*Fachhochschulen*) with Master graduates from these two types of institutions as well as graduates from the traditional programmes of these two types of institutions. PhD holders are not included here, since there is no clear distinction between a traditional and a Bologna-based system.

SOCIO-BIOGRAPHICAL BACKGROUND AND COURSE OF STUDY

The graduate study examined several aspects of the socio-biographic background and the course of study which could help to explain subsequent employment. Several of them will be addressed here (see [table 2](#)).

Most respondents are *women* (52 per cent). They are most frequent among Bachelor graduates from universities (63 per cent), and also their proportion among Bachelor graduates from universities applied sciences is about half (51 per cent). The respective shares are lower among graduate of the traditional programmes and even lower among Master graduates (50 per cent from universities and 34 per cent from universities of applied sciences).

Table 2. Socio-biographical Background and Course of Study of 2007 and 2008 Graduates from Higher Education Institutions in Germany

| | University of applied sciences | | | University | | | Total |
|---|--------------------------------|--------------|------|------------|--------------|-------|--------|
| | BA | Trad. degree | MA | BA | Trad. degree | MA | |
| Female graduates | 51 | 44 | 34 | 63 | 57 | 50 | 52 |
| A-typical entry qualification for HE (not "Abitur") | 37 | 42 | 37 | 4 | 4 | 19 | 20 |
| Vocational training before HE | 51 | 54 | 52 | 16 | 19 | 24 | 32 |
| Father or mother with higher education degree | 53 | 43 | 52 | 58 | 60 | 60 | 55 |
| Foreign graduates | 4 | 4 | 21 | 4 | 4 | 23 | 5 |
| Entry qualification from abroad | 3 | 2 | 19 | 3 | 4 | 22 | 4 |
| Father or mother born abroad (%) | 17 | 20 | 33 | 17 | 17 | 32 | 19 |
| <i>Study duration for that degree</i> | | | | | | | |
| Arithmetic mean (years) | 3.3 | 4.7 | 2.9 | 3.3 | 5.6 | 3.2 | 5.0 |
| Median (years) | 3.0 | 4.5 | 2.5 | 3.0 | 5.5 | 2.5 | 5.0 |
| <i>Total study duration</i> | | | | | | | |
| Arithmetic mean (years) | 3.9 | 5.2 | 5.5 | 3.8 | 6.2 | 5.1 | 5.6 |
| Median (years) | 3.5 | 4.5 | 5.5 | 3.5 | 6.0 | 5.0 | 5.5 |
| <i>Age at time of graduation</i> | | | | | | | |
| Arithmetic mean (years) | 26.7 | 28.4 | 31.8 | 24.8 | 28.0 | 28.4 | 28.0 |
| Median (years) | 25.0 | 27.0 | 30.0 | 24.0 | 27.0 | 27.0 | 27.0 |
| Total | 1,280 | 8,613 | 530 | 7,068 | 42,409 | 2,503 | 62,403 |

Source: INCHER-Kassel KOAB graduate surveys 2009 and 2010

On average (arithmetic mean), the surveyed graduates are 28 *years old at the time of graduation*. The median age of 27 is somewhat lower. University Bachelor graduates are on average 25, i.e. about three years younger than university Master graduates and university graduates with traditional degrees. The relative high age of graduates from universities of applied sciences reflects their higher age of entry as a consequence of the fact that many participated in vocational training and were employed before enrolling in higher education.

The typical *entry qualifications* for first-cycle study did not change substantially in the wake of the introduction of the two-cycle structure of study programmes. Both 96 per cent of university graduates from traditional programmes and from Bachelor programmes possessed the general entry qualification for universities. At universities of applied sciences, however, the proportion of those entering higher education on the basis of other, as a rule more vocationally- oriented schooling declined from 42 per cent in traditional study programmes to 37 per cent in Bachelor programmes. More than half of the graduates from universities of applied sciences had been involved in *vocational training prior to study*, as compared to less than one fifth of the university graduates.

In contrast to university Bachelor graduates, the proportion of university Master graduates who had not acquired the general entry qualification, was as high as 19 per cent. This indicates that a substantial number of university Master graduates had been awarded the Bachelor degree by a university of applied sciences.

Overall, 4 per cent of respondents of Bachelor graduates from both types of higher education institutions are *foreigners* – of whom three per cent who had *not acquired their entry qualification in Germany*. In contrast, more than 20 per cent of Master graduates are foreigners and almost as many had acquired their entry qualification abroad. This indicates that the Master programmes in Germany are very attractive for students from other countries. Finally, less than 20 per cent of graduates from Bachelor levels and from traditional study programmes of both types of higher education institutions have a migrant background (at least father or mother born abroad) as compared to more than 30 per cent among Master graduates from both types of institutions.

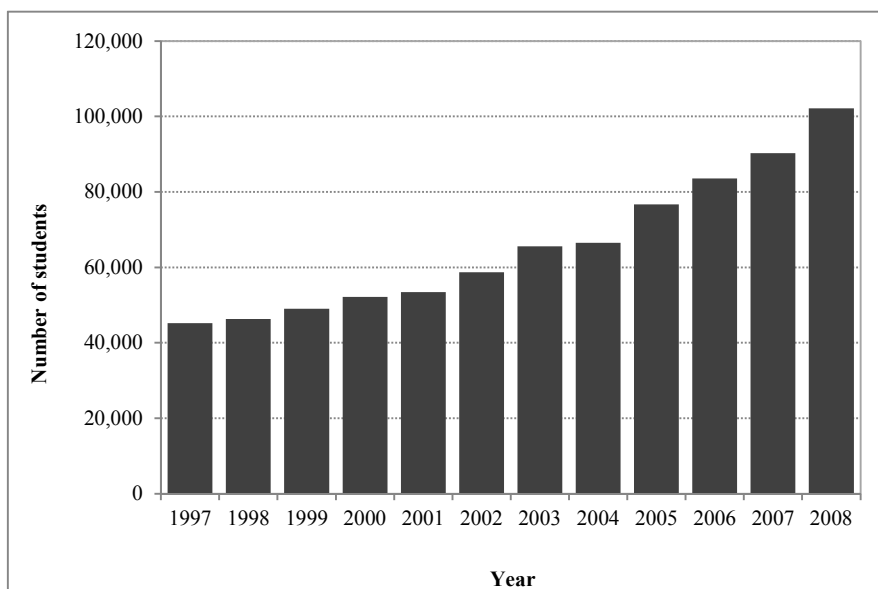
The *actual duration of study* exceeds the required length of study to a lesser extent in the new Bachelor-Master system than in the traditional study system. The following proportion of graduates report that they have completed their study programme within the required length:

- 73 per cent of the Bachelor graduates from universities of applied sciences and
- 57 per cent of the Master graduates from universities of applied sciences as compared to
- 41 per cent of the graduates with traditional degrees from universities of applied sciences;
- 66 per cent of the Bachelor graduates from universities and
- 59 per cent of the Master's graduates from universities as compared to
- 37 per cent of the graduates with traditional degrees from universities.

INTERNATIONAL MOBILITY

The promotion of international student mobility is a central concern of the Bologna Process. In the Leuven Communiqué in 2009, the European ministers responsible for higher education stated: *"We believe that mobility of students, early stage researchers and staff enhances the quality of programmes and excellence in research; it strengthens the academic and cultural internationalization of European higher education. Mobility is important for personal development and employability, it fosters respect for diversity and a capacity to deal with other cultures. It encourages linguistic pluralism, thus underpinning the multilingual tradition of the European Higher Education Area and it increases cooperation and competition between higher education institutions. Therefore, mobility shall be the hallmark of the European Higher Education Area. We call upon each country to increase mobility, to ensure its high quality and to diversify its types and scope. In 2020, at least 20 per cent of those graduating in the European Higher Education Area should have had a study or training period abroad."* (Leuven-communicé, 2009) Thus a specific target for the increase in mobility was set which refers to mobility during the course of study which can best be measured with the help of graduate surveys; however, this statement does not define clearly the type of experience abroad: would this be, for example, at least three months of study or internship abroad, or would summer schools and language courses also count?

Figure 3. German Students Studying Abroad for Extended Periods or the Whole Study Programme* 1997-2007



* The data are derived by asking agencies of other countries to provide the number of German students, whereby in most cases only students who spend an extended or whole study period abroad are counted.

Source: Statistisches Bundesamt (2010)

The proportion of German students can be estimated with the help of two sources. First, the number of German students who spend the total study period abroad or major parts of it can be estimated at about 4 per cent. Because about 90,300 German students (more than 4 per cent) studied abroad in 2007 (see [figure 3](#)) according to international statistics which, according to recommendations by the international data collection agency, should only include students studying for a longer period abroad or for the complete study period abroad (= "degree mobility").

Second, graduate surveys can provide information about the proportion of students who have spent a period abroad during the course of study (temporary mobility). [Table 3](#) shows that 28 per cent of university Bachelor graduates and almost the same proportion (27 per cent) of Bachelor graduates from universities of applied sciences spent a period abroad for study or for other study-related activities, of whom about half for the purpose of regular study. In the case of university Bachelor graduates this proportion is lower than among graduates from the traditional university programmes, but in taking into account the high transition quota of Bachelor graduates to Master programmes and the data on study after graduation as well as on study abroad of Master graduates we can conclude that the temporary mobility of German university students has increased in the wake of the Bologna Process. The proportion of Bachelor graduates from universities of applied sciences is higher than the respective proportion of graduates from the traditional study programmes at universities of applied sciences.

In adding up both the estimates of German students studying abroad for extended periods or for the whole study programme and of graduates from German higher education institutions who spent a period abroad for the purpose of study, we conclude that the proportion of German students studying abroad during the course of their study had already exceeded 20 per cent before 2010. If we add internships – also quoted in the Leuven Communiqué – the proportion is even higher, and if we add other study-related activities abroad, more than one third of German students experiences at least some study-related time abroad during their course of study.

[Table 3](#) also provides information on employment abroad after graduation. 6 per cent of the university Bachelor graduates and 13 per cent of the Bachelor graduates from universities of applied sciences worked abroad at some time during the first 1½ years after graduation. The respective figures for graduates from traditional study programmes are 12 per cent each according to type of higher education institutions. In taking into account the high proportion of university Bachelor graduates who continue to study we conclude that mobility abroad after graduation hardly differs according to type of study programmes. Also, the high rates of Master graduates working abroad in the early period after graduation can be disregarded, because the data comprise a high proportion of foreign students who go abroad after graduation.

Table 3. *International Mobility before and during Study and after Graduation of 2007 and 2008 Graduates from Higher Education Institutions in Germany (per cent)*

| | University of applied sciences | | | University | | | Total |
|--|--------------------------------|--------------|-----|------------|--------------|-------|--------|
| | BA | Trad. degree | MA | BA | Trad. degree | MA | |
| <i>A. Prior to study</i> | | | | | | | |
| Foreign graduates | 4 | 4 | 21 | 4 | 4 | 23 | 5 |
| Entry qualification abroad | 3 | 2 | 19 | 3 | 4 | 22 | 4 |
| Foreign graduates who got their entry qualification abroad | 2 | 2 | 18 | 3 | 3 | 20 | 3 |
| <i>B. During the course of study</i> | | | | | | | |
| Study abroad and/or short study-related activities abroad | 27 | 20 | 22 | 28 | 37 | 35 | 31 |
| ... Temporary study abroad | 14 | 9 | 9 | 16 | 19 | 17 | 15 |
| ... Short study related activities abroad | 21 | 16 | 17 | 19 | 27 | 27 | 23 |
| ... Internship | 15 | 10 | 8 | 12 | 15 | 15 | 13 |
| <i>C. After study</i> | | | | | | | |
| Study and/or practical training abroad after graduation | 12 | 5 | 8 | 24 | 8 | 11 | 9 |
| ... Study abroad after graduation | 7 | 2 | 5 | 15 | 4 | 6 | 4 |
| ... Practical training abroad after graduation | 7 | 4 | 5 | 13 | 6 | 7 | 6 |
| Employment abroad after graduation | 13 | 12 | 23 | 6 | 12 | 20 | 12 |
| ... Temporary employed abroad | 13 | 12 | 21 | 6 | 11 | 16 | 11 |
| ... At present employed abroad | 8 | 4 | 8 | 7 | 5 | 11 | 5 |
| N | 1,279 | 8,605 | 529 | 7,060 | 42,355 | 2,493 | 62,321 |

Source: INCHER-Kassel KOAB graduate surveys 2009 and 2010

WHEREABOUTS OF THE BACHELORS

The newly introduced Bachelor programmes in German higher education in the Bologna Process, in principle, have both the function of being "professionally qualifying" for embarking in employment after the award of the Bachelor degree and preparing for subsequent study at Master level. In Germany, it was taken for granted that only moderate changes in the traditional study programmes at universities of applied sciences would be needed to transform them into Bachelor programmes and that most Bachelor graduates from these institutions would transfer to employment; however, the opportunity to continue to study was viewed as an important element to raise the status of study programmes at universities of applied sciences vis-à-vis those at universities. On the other hand, a substantial change in the study programmes at universities was viewed as needed to create Bachelor programmes that

serve transition to employment and prepare for further study – similarly to the concern expressed by the ministers who signed the Bologna Declaration and called for the professional relevance of university programmes: “The degree awarded after the first cycle shall also be relevant to the European labour market”. Therefore, some advocates of the new cycle system of study programmes and degrees in Germany called for fixed quota of transition to Master programmes in order to avoid too high a quota; and some critics of the new cycle system suggested that university Bachelor graduates should as a rule transfer to Master programmes. Therefore, it is interesting to note how the whereabouts of Bachelor programmes develop.

As [table 4](#) shows, of the 2007 and 2008 Bachelor graduates from universities of applied sciences in Germany,

- 24 per cent solely study one-and-a-half years after graduation (i.e. are not employed concurrently),
- 17 per cent work and study,
- 2 per cent are in publicly coordinated professional training, and
- 52 per cent only work.

Table 4. Further Study and Employment about One and Half Year after Graduation of 2007 and 2008 Graduates from Higher Education Institutions in Germany (per cent)

| | University of applied sciences | | | University | | | Total |
|-------------------------------------|--------------------------------|--------------|-----|------------|--------------|-------|--------|
| | BA | Trad. degree | MA | BA | Trad. degree | MA | |
| Regular work (no study) | 52 | 82 | 81 | 18 | 43 | 53 | 55 |
| Professional training | 2 | 3 | 2 | 3 | 25 | 9 | 15 |
| Study and work | 17 | 7 | 11 | 24 | 23 | 25 | 18 |
| Only study (not employed) | 24 | 4 | 2 | 51 | 5 | 8 | 8 |
| Search for job (without employment) | 4 | 3 | 3 | 2 | 2 | 3 | 2 |
| Other (family, etc.) | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Total | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| N | 1,200 | 8,025 | 454 | 6,377 | 38,280 | 2,221 | 56,557 |

Source: INCHER-Kassel KOAB graduate surveys 2009 and 2010

Thus, the ratio of work after graduation (including possible concurrent study and training) is 71 per cent among Bachelor graduates from universities of applied sciences but the ratio of further study and training (including possible concurrent work) is 43 per cent.

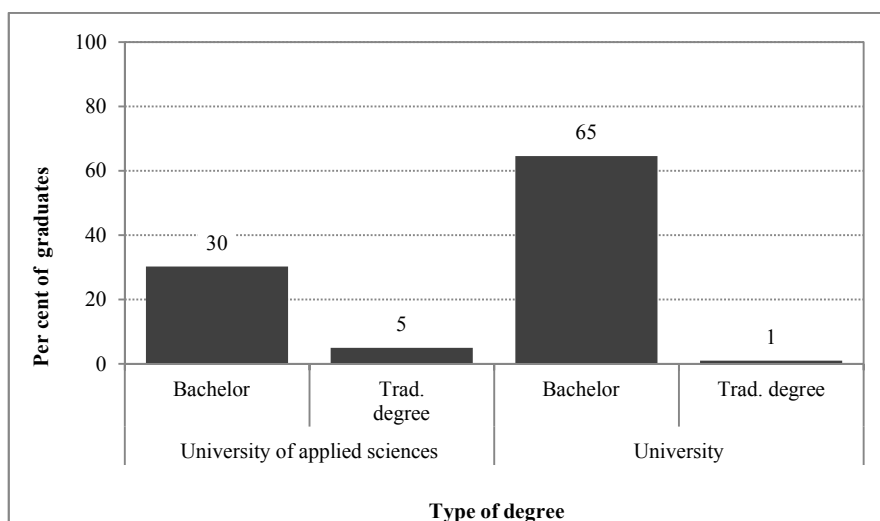
Of the 2007 and 2008 university Bachelor graduates

- 51 per cent only study,
- 24 per cent work and study,
- 3 per cent are in publicly coordinated professional training (notably in training for legal professions and in teacher training), and
- 18 per cent only work.

Thus, the ratio of further study and training (including possible concurrent work) is 78 per cent among university Bachelor graduates and the ratio of further work (including possibly concurrent study and training) is 45 per cent.

Most but not all the Bachelor graduates who continue to study after graduation enrol in Master programmes. As figure 4 shows, 65 per cent of university Bachelor graduates and 30 per cent of graduates from universities of applied sciences transfer to Master programmes within one-and-a-half years after the award of the Bachelor degree.

Figure 4. Transition to Master Study on the Part of 2007 and 2008 Graduates from Higher Education Institutions in Germany (graduates from various study programmes and institutions; per cent)



Source: INCHER-Kassel KOAB graduate surveys 2009 and 2010

The further study was predominantly a Master's programme. For the Bachelor graduates from universities of applied sciences this is almost exclusively a Master's degree at a university of applied sciences. For the Bachelor graduates from universities the transition to a Master's programme at a university dominates, but other degrees are also pursued.

Previous graduate surveys of the Hochschul-Informations-System (HIS) (Minks & Briedis, 2005; Briedis, 2007) noted similar rates of continuing study among university Bachelor graduates (78 per cent). On the other hand, a higher rate of continuous study was identified for graduates from universities of applied sciences (59 per cent) in the 2002/2003 cohort, i.e. at a very early stage of the implementation of Bachelor programmes in Germany (Minks & Briedis, 2005). A later graduate survey reported slightly lower proportions for Bachelor graduates from universities of applied sciences, but about the same proportion for university Bachelor

graduates, without further specification (Briedis, 2007). The graduate survey undertaken at the University of Konstanz (Auspurg, Bargel, Hinz & Pajarinen, 2009) states similar results as the KOAB graduate survey (72 per cent).

According to the KOAB survey, the rate of those who only continue to study varies substantially by field of study. In the case of university Bachelor graduates, the highest study rates are observed in mathematics and natural sciences (89 per cent), agricultural, food and forestry sciences (86 per cent), computer science (75 per cent), cultural and social sciences (74 per cent) and engineering (71 per cent), while the respective rate is only 65 per cent in economic fields. In the case of universities of applied sciences, the rates of further study are high in engineering (60 per cent), about average in agricultural, food and forestry sciences, as well as in computer science (48 per cent each), but only 32 per cent in economic fields and 31 per cent in cultural and social sciences.

The data presented cannot provide a full picture of the ratios of Bachelor and Master degrees. On the one hand, some Bachelors may opt for further study at a later stage than one-and-a-half years after graduation. On the other, some Bachelor graduates who continue to study after graduation may not complete their subsequent study; for example, they may take part-time or full-time study as having a well-accepted status in an extended search for a suitable job.

The data presented above make clear that there can be different rates of transition to employment after the award of the Bachelor degree:

- the rate of sole employment after the award of the Bachelor degree: 18 per cent of university Bachelor graduates and 52 per cent of Bachelor graduates from universities of applied sciences;
- the rate of employment and vocational training: 21 per cent of university Bachelor graduates and 54 per cent of Bachelor graduates from universities of applied sciences;
- the rate of employment including training and concurrent study: 44 per cent of university Bachelor graduates and 71 per cent of Bachelor graduates from universities of applied sciences.
- The unemployment rate (search for job without being employed) for 2007 and 2008 graduates was only 2 per cent in the case of university Bachelor graduates one-and-a-half years after graduation and 4 per cent in the case of Bachelor graduates from university of applied sciences. These rates are similar to those of Master graduates from both types of higher education institutions (3 per cent each) as well as of graduates from the traditional programmes at universities (2 per cent) and universities of applied sciences (3 per cent).

Information provided on the *duration of job search* suggest that university Bachelor graduates did not face any particular difficulties in the process of transition to employment. They reported on average a search period of 3.0 months as compared to 2.9 months reported by graduates from traditional university degrees and 3.4 months by university Master graduates. Bachelor graduates from universities of applied sciences as well as graduates from the traditional programmes of these institutions spent on average 2.8 months on job search as compared to 3.4 months on the part of Master graduates from universities of applied sciences.

The period between graduation and first employment was about two months longer for university Bachelor graduates than the search period, i.e. 5.3 months on average. This is one to two months more than for the other groups of graduates, not necessarily an indication of enormous difficulties. Actually, this transition period lasted for 4.0 months on average for graduates from traditional university programmes and 3.7 months for Master graduates. The respective time span was slightly shorter for graduates from universities of applied sciences: 3.9 months for Bachelors, 2.9 months for Masters and 3.2 months for those from traditional programmes.

THE PROFESSIONAL SUCCESS OF BACHELOR GRADUATES

Views vary about what can be taken as the most salient measures of the professional success of graduates. Hence, a variety of measures are addressed here: as regards employment conditions, whether graduates are employed full-time or part-time, whether they have an unlimited or a fixed-term employment contract, and how much they earn; as regards the links between higher education and professional assignment, the extent to which the level of educational attainment corresponds to the professional position and the extent to which the knowledge acquired during the course of study is used on the job. Finally, the graduates were asked to rate their level of overall satisfaction with their job. An overview of their responses is provided in [table 5](#).

Table 5. Aspects of the Professional Success of 2007 and 2008 Graduates from Higher Education Institutions in Germany Being Employed Solely One and a Half Years after Graduation (per cent)

| | University of applied sciences | | | University | | | Total |
|---|--------------------------------|--------------|------|------------|--------------|-------|--------|
| | BA | Trad. degree | MA | BA | Trad. degree | MA | |
| Full-time employed | 90 | 92 | 91 | 85 | 85 | 91 | 89 |
| Unlimited term contract | 66 | 75 | 85 | 55 | 65 | 68 | 70 |
| Gross annual income (arith. mean; thousand Euro) | 33.8 | 36.5 | 45.0 | 29.4 | 36.9 | 36.2 | 36.6 |
| Adequate level of employment | 81 | 86 | 85 | 75 | 82 | 78 | 83 |
| High use of competences | 48 | 51 | 64 | 35 | 50 | 56 | 51 |
| High job satisfaction | 69 | 67 | 65 | 63 | 66 | 66 | 66 |
| N | 614 | 6,443 | 359 | 1,094 | 17,309 | 1,148 | 26,967 |

Source: INCHER-Kassel KOAB graduate surveys 2009 and 2010

It should be noted that the following analysis addresses only those employed graduates who are only employed. Excluded are those who study along employment or are formally participating in initial professional training programmes. This decision

was taken because many Bachelor graduates who are studying part-time do not try to find a job that is commensurate to their competences and career aspirations.

Part-time and full-time employment

Nine out of ten graduates from higher education institutions in Germany who are solely employed are employed full-time two years after graduation. The respective proportion does not differ between university Bachelor graduates and graduates from traditional university programmes (85 per cent each), and are similar for Bachelor graduates and graduates from traditional programmes of universities of applied sciences (90 per cent and 92 per cent respectively).

Fixed-term and unlimited employment

As [table 5](#) shows, the rates of Bachelor graduates from higher education institutions in Germany employed on an unlimited contract are 10 per cent lower each in the case of graduates from universities (55 per cent as compared to 65 per cent) and from universities of applied sciences (66 per cent as compared to 75 per cent) than the respective rates among graduates from traditional programmes. [Table 5](#) also shows that the rates of unlimited employment are highest for Master graduates. One must bear in mind that graduates from universities embark more often on careers in the public sectors where a high proportion of employees has a fixed-term contract in the initial years than those from universities of applied sciences.

Table 6. Unlimited-term Contracts of 2007 and 2008 Graduates from Higher Education Institutions in Germany Being Employed Solely One and a Half Years after Graduation, by Group of Fields of Study (per cent)

| | University of applied sciences | | | University | | | Total |
|-------------------------------------|--------------------------------|--------------|----|------------|--------------|----|-------|
| | BA | Trad. degree | MA | BA | Trad. degree | MA | |
| Humanities and social sciences | 40 | 45 | 74 | 45 | 49 | 50 | 47 |
| Economics | 83 | 81 | 94 | 71 | 80 | 80 | 82 |
| Mathematics and natural sciences | 61 | 53 | 67 | 45 | 68 | 69 | 65 |
| Computer science | 81 | 87 | 90 | 88 | 88 | 87 | 87 |
| Engineering | 77 | 84 | 82 | 79 | 83 | 73 | 83 |
| Agriculture, food science, forestry | 60 | 67 | 56 | 55 | 59 | 62 | 65 |

Source: INCHER-Kassel KOAB graduate surveys 2009 and 2010

[Table 6](#) shows the differences in permanent employment by group of fields of study. Obviously, there is no regular pattern of differences between graduates from universities and universities of applied sciences across disciplines. On the one hand, university Bachelor graduates in mathematics and natural sciences are far less often employed on a permanent contract than those in traditional programmes;

on the other hand, graduates from universities of applied sciences in mathematics and natural sciences are even more often employed permanently than those in traditional programmes.

Table 6 indicates that unlimited term contracts are obtained by at most half of the solely employed graduates one-and-a-half years after graduation in select groups: university graduates from all types of programmes in humanities and social sciences, graduates from Bachelor and traditional programmes in humanities and social sciences of the universities of applied sciences, and university Bachelor graduates in mathematics and natural sciences.

Income

As can be seen in table 5, the annual gross income of university Bachelor graduates (29,400 Euro) is on average 20 per cent less than that of graduates from traditional university programmes (36,900 Euro). A comparison of the information provided in table 5 and table 7, however, suggests that this large difference is a compositional effect of fields of study. Within the individual groups of field of study, the difference is only that large in mathematics and natural sciences (21 per cent), whereas it is somewhat less in engineering (15 per cent) and clearly less in economic fields (12 per cent), cultural and social sciences (11 per cent), agricultural, food and forestry sciences (8 per cent) and computer science (4 per cent). We must bear in mind that Bachelor programmes are viewed in the German public sector as leading to second-rank careers (“gehobener Dienst”), whilst Master programmes are supposed to lead to first-rank careers (“höherer Dienst”), whereby the income according to career varies by more than 15 per cent.

Table 7. Gross Annual Income of 2007 Graduates from Higher Education Institutions in Germany Being Employed Solely One and a Half Years after Graduation, by Group of Fields of Study (arithmetic mean in thousand Euro)

| | University of applied sciences | | | University | | | Total |
|-------------------------------------|--------------------------------|--------------|------|------------|--------------|------|-------|
| | BA | Trad. degree | MA | BA | Trad. degree | MA | |
| Humanities and social sciences | 28.1 | 30.5 | 41.3 | 26.0 | 29.1 | 32.7 | 29.7 |
| Economics | 37.8 | 39.2 | 54.1 | 35.7 | 40.5 | 39.8 | 40.2 |
| Mathematics and natural sciences | 35.9 | 34.7 | 33.8 | 28.4 | 36.0 | 38.3 | 35.7 |
| Computer sciences | 42.5 | 40.5 | 40.5 | 40.6 | 42.5 | 40.4 | 41.3 |
| Engineering | 37.1 | 39.3 | 43.1 | 34.7 | 41.1 | 37.9 | 39.9 |
| Agriculture, food science, forestry | 27.9 | 28.0 | 29.7 | 25.0 | 27.3 | 31.6 | 28.3 |
| Total | 33.8 | 36.5 | 45.0 | 29.4 | 36.9 | 36.2 | 36.6 |

Source: INCHER-Kassel; KOAB Graduate Survey 2009

The average income of graduates from traditional university programmes in Germany and that of graduates from university Master programme are about the same. This suggests that the new university degree is accepted by German employers more or less equally well as the traditional university degree. [Table 7](#), however, shows that there are enormous variations by group of field of study. In some groups, the graduates from traditional university programmes earn clearly more than Master graduates, but the reverse is true for other groups of fields of study.

The income of Bachelor graduates from universities of applied sciences is on average 7 per cent less than that of Bachelor graduates from traditional programmes at these institutions. The differences vary by field: The former earn 8 per cent less in cultural and social sciences, 6 per cent less in engineering, 4 per cent less in economic fields, but 3 per cent more in mathematics and natural science and 5 per cent more in computer science. As the new Bachelor programme at university of applied sciences is usually one year shorter than the traditional programmes at these institutions and often comprises less practical experiences, this income difference could be viewed as normal by employers.

[Table 7](#) shows that the annual income of graduates from traditional programmes at universities of applied sciences across all fields is as high as that of graduates from traditional programmes from universities. This finding – surprising at first glance – is due to the fact that fields of study which are not closely linked the respective occupational areas are not represented in the universities of applied science. In large fields represented both at universities and universities of applied sciences, notably engineering and economic fields, the income of university graduates is somewhat word missing than that of graduates from universities of applied sciences.

The most surprising information in [table 7](#) as regards remuneration is the high income of the Master graduates from universities of applied sciences which is clearly higher than that of university Master graduates. This is due to the fact that many Master programmes of the former institutions have set a longer period of professional work as entry requirements. As a consequence, graduates from these programmes are not viewed by the employers as being in the phase of initial adjustment to the world of work about one-and-a-half years after graduation, but already as somewhat experienced professionals.

Link between level of educational attainment and employment

An “adequate level of employment” is stated in [tables 5 and 8](#) if graduate in response to the question “In your opinion, which academic degree is best suited for your current job?” responded either “A higher academic degree” or “My academic degree”. According to this mode of analysing the vertical link between study and employment, the proportion of university Bachelor graduates who consider themselves as not adequately employed is 25 per cent; this is somewhat higher than among their colleagues from traditional university programmes (18 per cent) and Master programmes (21 per cent). Graduates from universities of applied sciences consider themselves more seldom as inappropriately employed, whereby the quota

among Bachelor graduates (18 per cent) is also slightly higher than among graduates from traditional programmes (15 per cent each).

Table 8. Link between Level of Education and Present Job Perceived by 2007 and 2008 Graduates from Higher Education Institutions in Germany Being Employed Solely One and a Half Years after Graduation (per cent)

| | University of applied sciences | | | University | | | Total |
|------------------------------|--------------------------------|--------------|-----|------------|--------------|-------|--------|
| | BA | Trad. degree | MA | BA | Trad. degree | MA | |
| A higher academic degree | 12 | 7 | 10 | 14 | 5 | 6 | 6 |
| My academic degree | 70 | 79 | 75 | 61 | 77 | 72 | 77 |
| A lower academic degree | 5 | 7 | 13 | 6 | 11 | 16 | 9 |
| No academic degree necessary | 13 | 8 | 2 | 19 | 7 | 5 | 8 |
| Total | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| N | 407 | 4,780 | 250 | 941 | 16,001 | 1,042 | 23,421 |

Source: INCHER-Kassel; KOAB Graduate Survey 2009 and 2010

Altogether, many graduates in Germany perceive a close link between their level of educational attainment and their early-career job. Only 9 per cent believe that a lower-level degree would be appropriate, and 8 per cent deem a higher education degree as not necessary. There are differences, though, by groups of field of study, as is seen in [table 8](#). University Bachelor graduates in mathematics and natural sciences (62 per cent) as well as in agriculture (67 per cent) consider their job least often as corresponding to their level of education. University graduates of all categories in agriculture as well as in humanities and social sciences note such a match between level of education and job less often than the graduates on average.

Table 8. Adequate Level of Education for Present Job Perceived by 2007 and 2008 Graduates from Higher Education Institutions in Germany Being Employed Solely One and a Half Years after Graduation, by Group of Fields of Study (per cent)

| | University of applied sciences | | | University | | | Total |
|-------------------------------------|--------------------------------|--------------|-----|------------|--------------|----|-------|
| | BA | Trad. degree | MA | BA | Trad. degree | MA | |
| Humanities and social sciences | 85 | 86 | 83 | 73 | 75 | 72 | 78 |
| Economics | 85 | 83 | 82 | 85 | 83 | 80 | 83 |
| Mathematics and natural sciences | 78 | 83 | 100 | 62 | 85 | 83 | 84 |
| Computer sciences | 88 | 88 | 92 | 91 | 84 | 84 | 86 |
| Engineering | 91 | 91 | 91 | 86 | 87 | 84 | 89 |
| Agriculture, food science, forestry | 86 | 78 | 80 | 67 | 72 | 75 | 78 |

Source: INCHER-Kassel; KOAB Graduate Survey 2009 and 2010

Use of competences and links between field of study and work tasks

The horizontal link between study and work was addressed in the German study with the question: "To what extent are the knowledge and skills you acquired during study used in your current job?". Hardly any links (the lowest two points on a five-point scale from 1 "to a very high extent" to 5 "not at all") were noted by 25 per cent of the university Bachelor graduates as compared to 16 per cent each of the university graduates from traditional programmes and from Master programmes (table 5). The corresponding rates for graduates from universities of applied sciences were 17 per cent, 15 per cent and 11 per cent. Hardly any links were observed by university Bachelor graduates in humanities and social sciences (29 per cent as compared to 21 per cent among graduates from traditional programmes) and university Bachelor graduates in mathematics and natural sciences (29 per cent as compared to 20 per cent). In contrast, there are hardly any differences in this respect between the various types of degrees and types of higher education institutions in the field of computer science.

Table 9. Link between Field of Study and Work Tasks Perceived by 2007 and 2008 Graduates from Higher Education Institutions in Germany Being Employed Solely One and a Half Years after Graduation (per cent)

| | University of applied sciences | | | University | | | Total |
|--|--------------------------------|--------------|-----|------------|--------------|-----|--------|
| | BA | Trad. degree | MA | BA | Trad. degree | MA | |
| My field of study is the only possible/by far the best field for my present work tasks | 38 | 43 | 32 | 21 | 38 | 31 | 40 |
| Some other fields could prepare for the area of work as well | 46 | 44 | 55 | 48 | 45 | 52 | 46 |
| Another field would have been more useful for my present work tasks | 12 | 8 | 7 | 17 | 10 | 10 | 9 |
| In my present work the field of study does not matter | 4 | 4 | 6 | 14 | 7 | 7 | 6 |
| Total | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| N | 482 | 5,400 | 276 | 893 | 15,270 | 939 | 23,260 |

Source: INCHER-Kassel; KOAB Graduate Survey 2009 and 2010

In addition, the affinity of study and work was addressed with respect to the relationship between field of study and work tasks. Again, the university Bachelors most often missed a link between study and work tasks: 31 per cent stated either that another field of study would have been more useful or that the field of study would not matter. As table 9 shows, less than 20 per cent each of the other categories of graduates noted such a discrepancy between field of study and work tasks. The highest rates of such a limited or non-existing link between field of study and

occupational tasks were reported by university Bachelor graduates in the humanities and social sciences (39 per cent) and in mathematics and natural sciences (35 per cent).

Job satisfaction

The graduates from German higher education institutions less often expressed a high extent of job satisfaction (66 per cent) than the graduates from most countries addressed in this publication. Thereby, the rates hardly differ between the different categories of graduates that were analysed:

- 69 per cent of Bachelor graduates from universities of applied sciences,
- 65 per cent of Master graduates from universities of applied sciences, and
- 67 per cent of graduates from traditional programmes at universities of applied sciences;
- 63 per cent of university Bachelor graduates,
- 66 per cent of university Master graduates, and
- 66 per cent of the traditional programmes at universities.

There are variations by field of study. It is worth noting that Bachelor graduates in computer sciences are most highly satisfied: 85 per cent at universities as compared to 77 per cent among their peers in traditional programmes and 79 per cent as compared 72 per cent at universities of applied sciences.

CONCLUSION

In the summary of the main findings it is important to note that the proportion of graduates with a Bachelor's and Master's degree only makes up a small part of all graduates. Second, the graduate survey one-and-a-half years after graduation cannot illustrate long-term professional development.

16 per cent of the Bachelor graduates of German universities report that they completed one semester abroad during the course of their studies. At Master's level 17 per cent study temporarily abroad (Bachelor graduates from universities). Considering that three-quarters of university Bachelor graduates continue their studies, one can estimate that about 27 per cent of students in the Bachelor-Master system have studied abroad before the degree with which they start employment. Among the graduates from university programmes of the old system, the corresponding percentage is much lower at 19 per cent.

The relatively high international mobility of graduates of the new programmes, however, can partly be explained by the high proportion of humanities and social sciences graduates among them. This field of study group already had an above average international mobility in the past.

Of the graduates from the universities of applied sciences, 14 per cent studied abroad during the course of the Bachelor study. Among the graduates of the old traditional degree programmes from universities of applied sciences, this figure is only 9 per cent. Here too, the new study system clearly proves beneficial for studies abroad.

In addition, almost as many graduates have been abroad during their studies for other study-related purposes (foreign language courses, summer schools, internships, etc.). Summing up these shorter stays abroad during their studies with semesters abroad, it turns out that in total 28 per cent of Bachelor graduates from universities and 27 per cent of the Bachelor graduates from universities of applied sciences acquired experience abroad during their studies.

The European ministers called for a target of the Bologna process whereby 20 per cent of graduates should have spent some time abroad from studying or internships in 2020.

Considering the estimated value of other statistics that about 3 per cent of German graduates spend their entire study up to the degree abroad, the result is: German higher education institution students have already reached the Bologna target for mobility for 2020 a decade earlier.

The KOAB surveys can help to answer the question of which percentage of Bachelor graduates goes into employment after they graduate, and which percentage continues their studies. It was shown that there are several variants in calculating the rate of continuing studies, depending on whether you consider people who are exclusively studying or people who are working while studying. The rate of continuing studies among Bachelor graduates determined in this report as 78 per cent at universities and 43 per cent at universities of applied sciences includes both groups, people who are exclusively studying and those who are working while studying.

In an international comparison between countries with a longer experience with the Bachelor-Master system (USA, UK and Australia), these rates seem high. However, it should be considered that these countries have a much higher entrance rate. On the other hand, if you make a comparison between the rate of graduates from long study programmes in Germany (about 10 to 11 per cent of a cohort) and the rate of Master graduates in these countries (about 12 per cent of a cohort), these differences appear small. Since it is not foreseeable that in the near future the entrance rates in Germany will dramatically increase, a high rate of continuing studies as determined in the KOAB graduate survey seems adequate to keep to the qualification level in its current state. Countries whose higher education system also consists of two types of higher education institutions (universities and universities of applied sciences) report similarly high rates of continuing studies.

Only 4 per cent of Bachelor graduates from German universities and 6 per cent of graduates from German universities of applied sciences remain unemployed. The average job search duration of Bachelor graduates from German higher education institutions does not differ from that of graduates of the old system.

57 per cent of Bachelor graduates of German universities are employed full-time compared to 67 per cent of graduates from the old long study programmes. This can be explained by the fact that Bachelor graduates more often study while working. Considering only the regular employees (exclusively working) then almost 90 per cent of graduates are working full-time and there are no relevant differences in the contract situation between the new and the old degrees.

The rate of employees with unlimited term contracts 1½ years after graduation among university Bachelor graduates (36 per cent) and other university graduates (38 per cent) is almost equal. In both cases, the initially fixed-term employment in public service has a heavy impact. Considering only regular employees, somewhat larger differences between old and new study programmes become apparent, the latter having fewer unlimited term contracts .

The income of graduates from new study programmes in most of the fields of study groups is slightly lower than among the traditional study programmes. The differences are less obvious (less than 10 per cent) at universities of applied sciences. The differences are highest among graduates in mathematics / natural science (-21 per cent to the disadvantage of the Bachelor's), engineering (-15 per cent), of economics (-12 per cent) and humanities and social sciences (-15 per cent).

The graduates from university Bachelor programmes in Germany do not rate the relationship between study and work as positively as the graduates from the old long university study programmes. This is reflected in the assessment of whether employment matches the level of qualification (77 per cent compared to 87 per cent; 69 per cent compared to 84 per cent for regular employees), and in the statement that knowledge acquired during the studies can mostly be used in the job (45 per cent compared to 55 per cent, 35 per cent compared to 50 per cent for regular employees). With regard to high job satisfaction the picture is similar: 53 per cent compared to 63 per cent (63 per cent compared to 66 per cent for regular employees).

The results of the KOAB graduate survey of 2009 cannot support the fears of an acceptance issue of university Bachelor graduates in general.

Looking at the individual fields of study it shows two extremes (both STEM² subjects): Bachelor graduates in mathematics and natural science seem to have a much more problematic entry into professional life than traditional graduates. For most of the above mentioned indicators they fare far less well than traditional graduates. The margin increases (for some indicators even significantly) when compared to Master graduates. However, for Bachelor graduates in computer science there are next to no differences, both in comparison to traditional university graduates and Bachelor graduates from universities of applied sciences.

A comparison of the results from the years 2009 and 2010 shows no significant changes. Only a higher rate of continuing studies among graduates of the cohort of 2008 can be seen. Whether this was influenced by economic development (financial and economic crisis in 2008/2009) cannot be clarified with our data.

² STEM: Science, Technology, Engineering, and Mathematics

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