

Where do they come from and where do they go? Students' pathways in a binary higher education system.

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Introduction

Differentiation and convergence

Differentiation and convergence of higher education systems have been discussed intensely over the last years, both in research (for example de Boer et al. 2017; for Switzerland: Lepori et al. 2014) and in politics (for Switzerland, see for example SWIR 2014). Processes of both differentiation and convergence are identified.

The growth of higher education systems leads to differentiation within these systems (e.g. de Boer et al. 2017; Enders et al. 2013, but also already in the mid-1990s: Meek et al. 1996). From the mid-1990s, a binary higher education system was implemented in Switzerland through the establishment of universities of applied sciences (UAS) and universities of teacher education (UTE) (Goastellec 2017). Furthermore, the Bologna reform allows comparability and thus a more demand-driven system. This is associated with positive effects such as the more targeted use of resources (Meier & Schimank 2002).

Simultaneously, processes of convergence are identified, for example in the field of further education or in third mission activities (Kiener 2017). „Higher Education Institutions are faced with the challenge of offering the full range of services. In this context, homogenization processes take place through the adoption of other successful concepts” (Simon 2013, p. 39, transl.). According to this, diversification takes place through expansion - and not through restriction – which leads to convergence as a result of the effort to profiling (Meier & Schimank 2002). Accordingly, „Higher Education Institutions (HEIs) construct their otherness, and that is exactly how they assimilate” (Meier & Schimank 2002, p. 88, transl.).

The establishment of UAS in Switzerland

At ISCED 6 level, the Swiss higher education system is composed of different types of HEIs: colleges of higher education, UAS, UTE and universities (incl. federal institutes of technology) (see Figure 1). The colleges of higher education build the “tertiary B” level, aimed at vocational education / training. The tertiary B level and UTE are not included in this analysis, which focusses on UAS and universities.

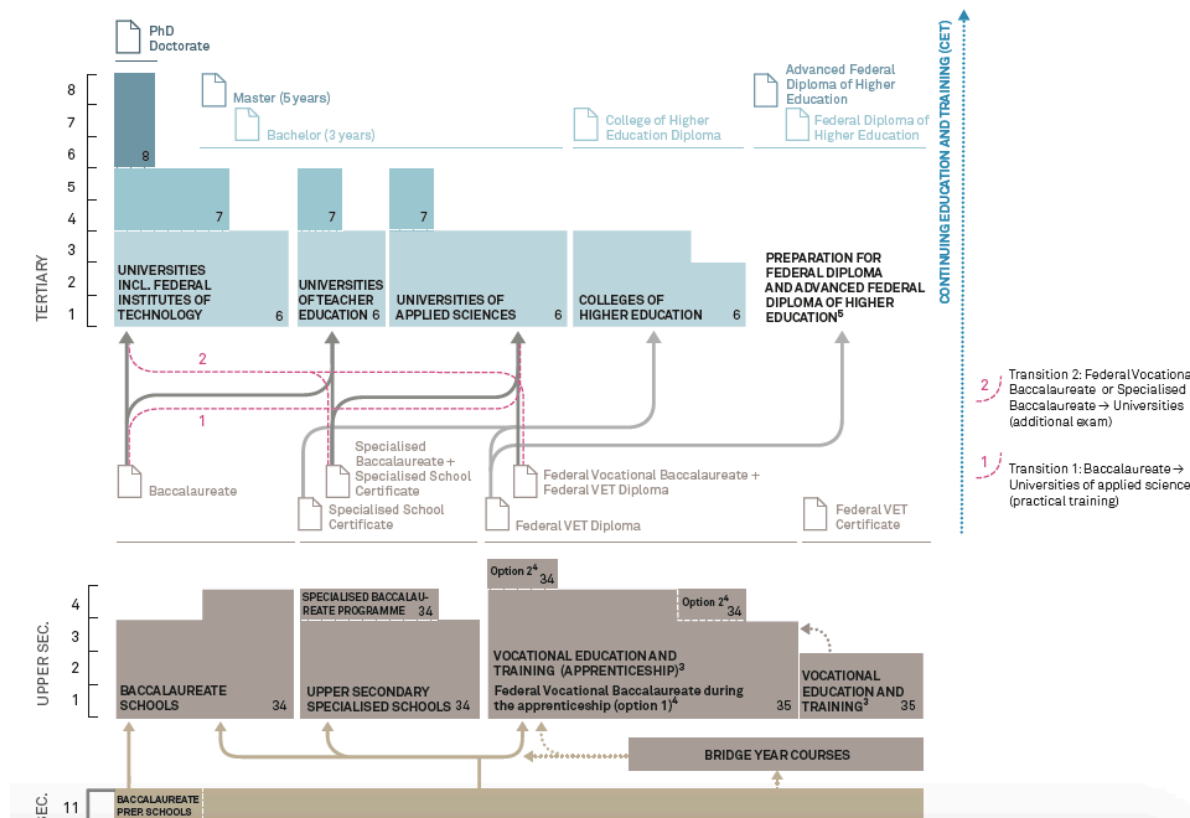


Figure 1: The Swiss (higher) education system. Source: www.edk.ch (13.08.2018)

„The development of HEIs in Switzerland can be traced back to mechanisms of path dependence. UAS were created, whose organization (focus on teaching), whose staff (high proportion of part-time lecturers with the main task of teaching) and whose students with their educational background were very similar to the predecessors (colleges of higher education)” (Weber et al. 2010, p. 708, transl.). „First and foremost, this concerned international recognition of qualifications and the upgrading of vocational training. However, this coincided with the enormous momentum that has changed European HEIs since the late 1990s, including the Bologna Process, the implementation of New Public Management and the increasing autonomy of HEIs from the administration” (Kiener 2017, p. 79, transl.). Over time, the identity of UAS changes: from the training institution (Botschaft BR 1994 zum Fachhochschulgesetz) to the place for innovation and knowledge transfer (Federal Targets 2005), from good teaching to excellence and engine of innovation also in research (Kiener 2013, pp. 343-345). Inderbitzin (2016, pp. 46-47) writes that UAS were initially encouraged to become more scientific, while now being accused of being undergraduate and losing touch with practice. According to Kiener (2017, p. 79, transl.), „until today both the warning about academization of the UAS and the warning about second-classness of UAS exist in the Swiss higher education system.” This field of tension is closely linked to the formula "equivalent but different", formalized in the Swiss Higher Education Act. „Although UAS and universities award equivalent educational qualifications, the UAS should, unlike the universities, orient themselves to the professional world or practice, and not to the science system. They are supposed to empower problem-solving and innovation, not to advance science” (Kiener, 2017, p. 79, transl.).

In the discussion about differentiation and convergence, it should be noted that the various departments at UAS and universities are positioned very differently. „The heterogeneity of the faculties and the corresponding different positions in the education system as well as in relation to economy and society must always be considered” (Lepori & Müller 2016, p. 22, transl.).

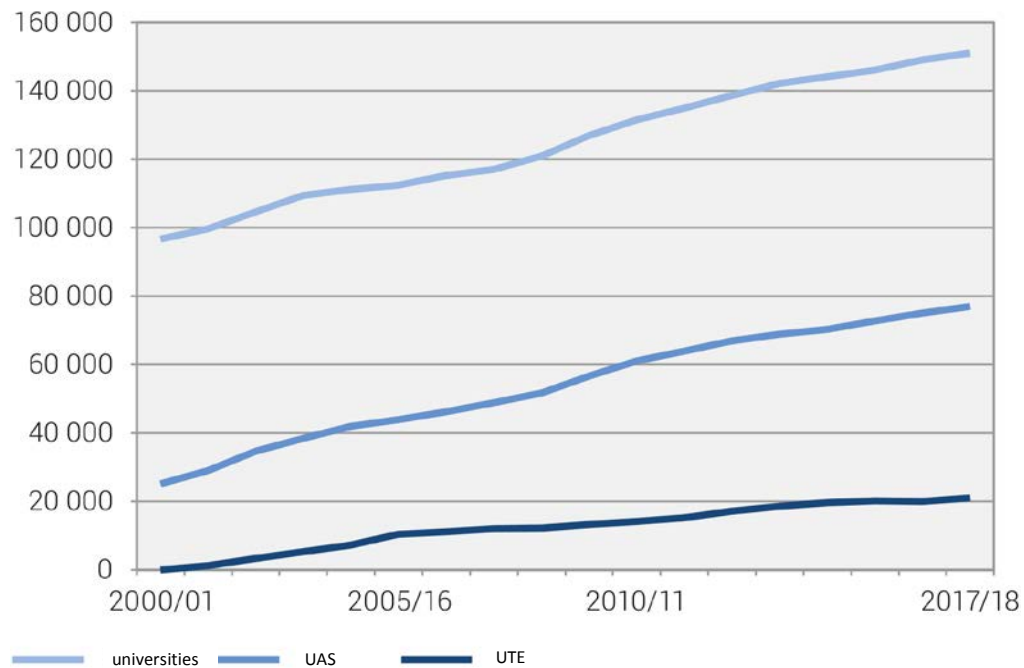


Figure 2: student numbers (all degree levels) since 2000. Source: SFSO 2018

In terms of numbers, UAS have seen a rapid growth since their establishment. In the same time period, also the number of students at universities has increased, showing thus that the establishment of UAS did not lead to a drain of students from universities, but rather foster the general increase of the Swiss student population (Figure 2)

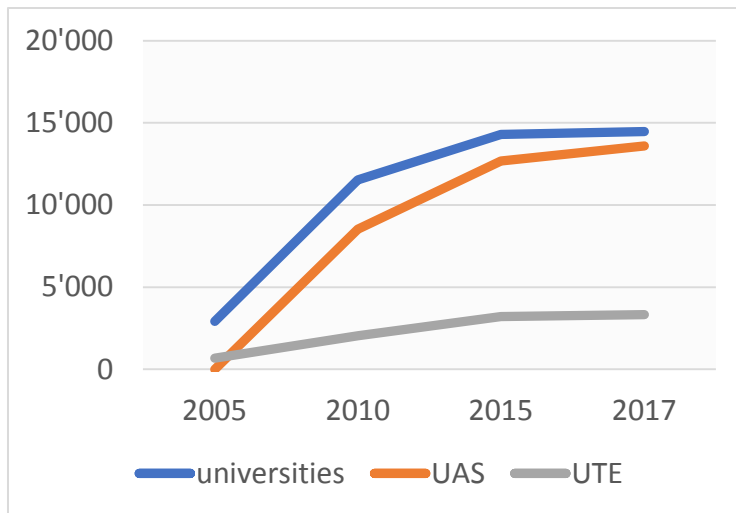


Figure 3: Bachelor degrees per year at universities, UAS and UTE. Data source: SFSO.

As illustrated by Figure 3, the number of Bachelor degrees awarded is similar for universities and UAS, showing thus that at this degree level, the UAS are clearly well established. Since 2009, UAS can also award Master degrees. However, as Figure 4 shows, at this degree level the universities prevail. At universities, the Bologna process lead to a restructuring of the offer in Bachelor and Master degrees, while Master degrees at UAS are usually newly created.

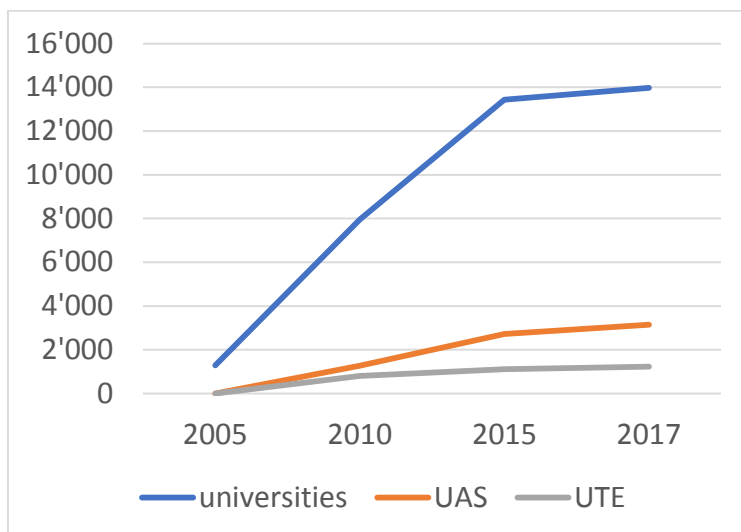


Figure 4: Master degrees per year at universities, UAS and UTE. Data source: SFSO.

Data & Research Question

In this paper, we look at processes of differentiation and convergence from the students' point of view. 20 years after the establishment of UAS, we ask for effects of this differentiation of the higher education system in terms of student population. While analyzing the student population, we focus on the HEI's function of providing services to society, on the links between higher education and the labour market. On the one hand, we look at the course of entry and exit in terms of the geographic location of students. This aspect is closely linked to the high importance of regional innovation systems and the retention of knowledge in the region for economic development (Notz 2015; Titze et al. 2015). On the other hand, the relation to the world of work is considered in the form of vocational training before and professional activities during the study as well as the professional situation after graduation, which gives us an insight into the students' employability.

The analysis is based on data from the Swiss graduate survey and other statistical data. The Swiss graduate survey is organised by the Swiss Federal Statistical Office SFSO: every two years, all graduates of Swiss universities that have completed their studies in the previous year – including UAS and UTE – receive the invitation to participate to this survey. The response rate varies, overall it is at around 60%. Obviously, there might be some bias in the data given the voluntary nature of the survey. To counteract this risk, we use weighted data, relying on a weighting variable proposed by the SFSO itself.

Based on this data, the paper tries to answer the following questions: If we look at the student population, is there a trend towards convergence of the two types of HEIs (universities and UAS) in terms of a) geographical pathways of students and b) relationships with the labour market?

We focus on the Bachelor and Master level, as the UAS are not (yet) granted the right to award doctoral degrees. We compare student pathways at different aggregation levels, always looking at differences between UAS and universities: in the whole country, in one specific region and in three fields of studies within this region, which are taught both at universities and UAS, thus fields where the establishment of UAS implied a diversification in the educational offer. These three fields are:

- Engineering and IT, including:
 - UAS: Aviation, Electrical Engineering, Engineering and Information Technology, Computer Science, Mechanical Engineering, Systems Engineering, Transportation Systems, Engineering and Management
 - Universities: Industrial Management and Manufacturing, Electrical Engineering, Computer Science, Mechanical Engineering, Materials Sciences
- Economics and services
 - UAS: Banking and Finance, Business Administration, Business Information Technology, Business Law
 - Universities: Business Administration, Business Information Technology, Economics
- (applied) psychology, including:

- UAS: applied psychology
- Universities: psychology

We base our analyses on data from the SFSO survey 2015, which was submitted to graduates from 2014, as this is the newest available data, comparing them with data from the SFSO survey 2009 (graduates from 2008): in 2005, most Swiss HEI had implemented Bologna, thus in 2008 there was already a reasonable share of Bachelor and Master graduates. Following the guidelines of SFSO, we use weighted data, based on a variable calculated by the SFSO. For some items, we also look at data from the 2003 survey.

For questions related to the background of the students (where do they come from?), we consider data of university beginners, i.e. Bachelor or, for years where Bachelor degrees were not yet completely established, diploma and licentiate, while for the pathways after studies, we look at Master degrees (or, where Master was not yet established, diploma and licentiate). The fact that we look at data from a time period in which the Bologna process was still in its implementation phase possibly implicates some biases in the data.

Results

Relation to the labour market

Vocational education before studying

With the establishment of UAS, Switzerland strengthened its vocational tradition, creating a pathway to higher education studies for people with a vocational background that was more straightforward than before. Simultaneously, the “Berufsmaturität” was introduced, a vocational school-leaving certificate (vocational baccalaureate) that gives access to UAS studies, and, with a transition exam, also to universities. Similarly, holders of a general “Maturität”, the baccalaureate, can access UAS studies after a certain period of practical working experience (a requisite which strongly varies between fields of study).

At the national level, overall 27.9 % of all respondents (survey 2015, Bachelor degree holders, overall n=26'584) did an apprenticeship before their studies. However, as can be expected, they are not evenly distributed between the types of HEI: At UAS, 53.1% of all degree holders did an apprenticeship, while at universities only 6.2% did so.

In the considered region, there is a higher share of people with a vocational background at UAS than in the whole country:

Out of the 27.9% respondents with an apprenticeship within the region (see Figure 6), 85% studied at a UAS, while 15% choose a university. For those without an apprenticeship, the opposite holds true: 16% of them are at a UAS, 84% at a university. Of all respondents that studied at a university, only 6.3% did an apprenticeship, while 67.6% of the respondents from a UAS did an apprenticeship before studying. This reflects that the pathways intended by the policy makers are the most common pathways. But it shows also that the UAS became an attractive option for students without a vocational background.

Figure 5 gives additional information by showing the type of university admission diploma and the type of HEI for the considered region. This figure clearly indicates that the foreseen pathways (vocational education → UAS / general education → university) are still the main pathways, most students at UAS have a vocational education, and thus some experience in the labour market, before they start studying. However, there is a good share of holders of general university admission degrees studying at UAS, which might indicate that this new type of higher education is also interesting for other students than those it was originally thought for.

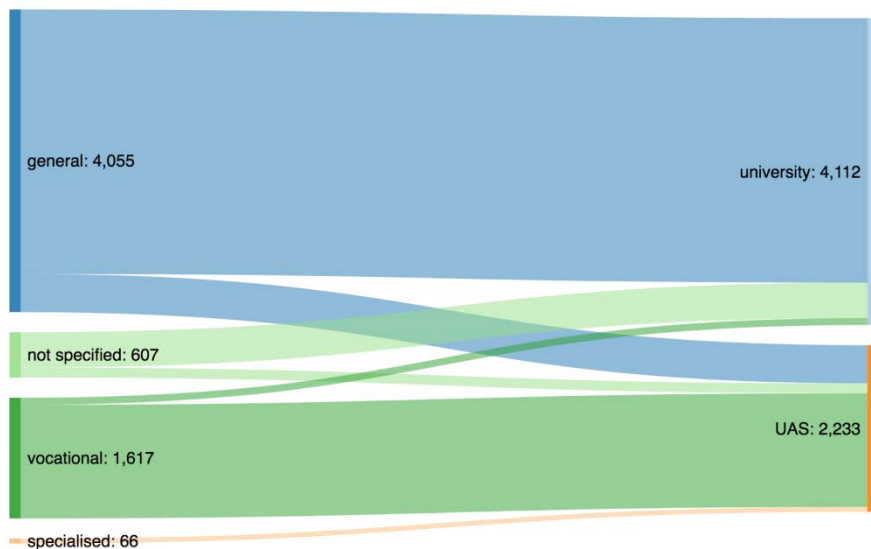


Figure 5: Type of university admission certificate and type of HEI, Bachelor, survey 2015, only UAS and universities in considered region, weighted data. Data source: SFSO, built with sankeymatic.com

“General” includes all types of baccalaureate degree, also called “gymnasiale Maturität”, while “specialised” is a specific type of upper secondary degree which is specialised in its nature, but without an apprenticeship (Diplommittelschule, Fachmaturität). “vocational” includes all upper secondary (Berufsmittelschule) and also tertiary B (colleges of higher education) degrees of vocational education. “not specified” includes among others all foreign degrees. “vocational” and “not specified” thus also include people being admitted to higher education after an entrance examination.

In the three fields of study, the difference between UAS and universities is stronger than on average (see Figure 6), probably influenced by the fact for which we choose these fields: they are offered at both types of HEI, while other fields, such as for example medicine (only at universities) or other health professions (only at UAS) are clearly attributed to one or the other type of HEI.

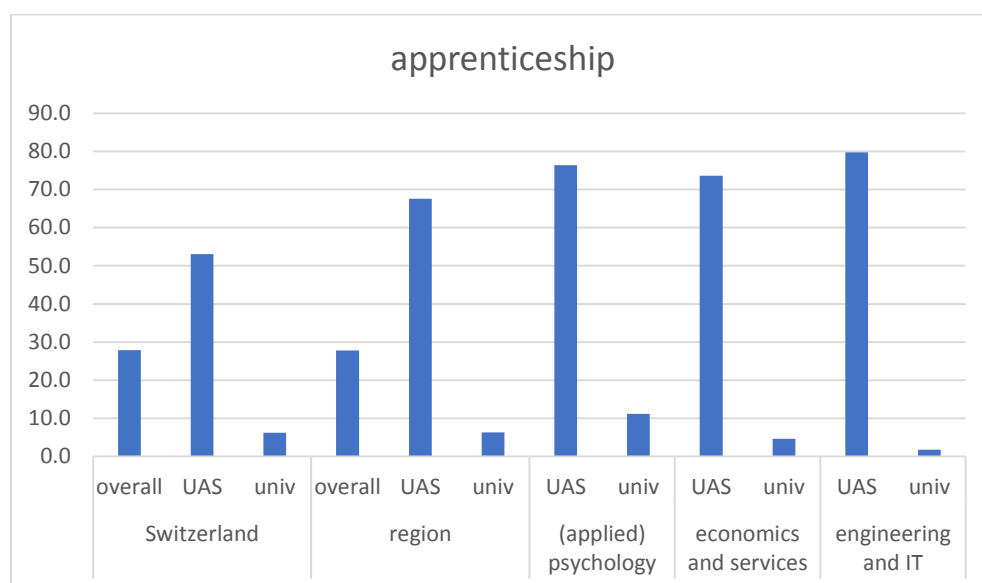


Figure 6: Share of students with an apprenticeship (vocational education) before studying, Bachelor, survey 2015. Data source: SFSO

The parent's background

It seems that not only one's own background, but also the background of parents influences the choice of the type of HEI. Figure 7 shows, for the considered region, that the share of students with at least one parent holding a higher education degree is much higher at universities than at UAS, while UAS students more often have parents with an upper secondary level degree without university admission exam, which most often corresponds to a vocational education, i.e. an apprenticeship. While this figure includes all degree levels (also doctorate), the picture is very similar when looking only at Bachelor students.

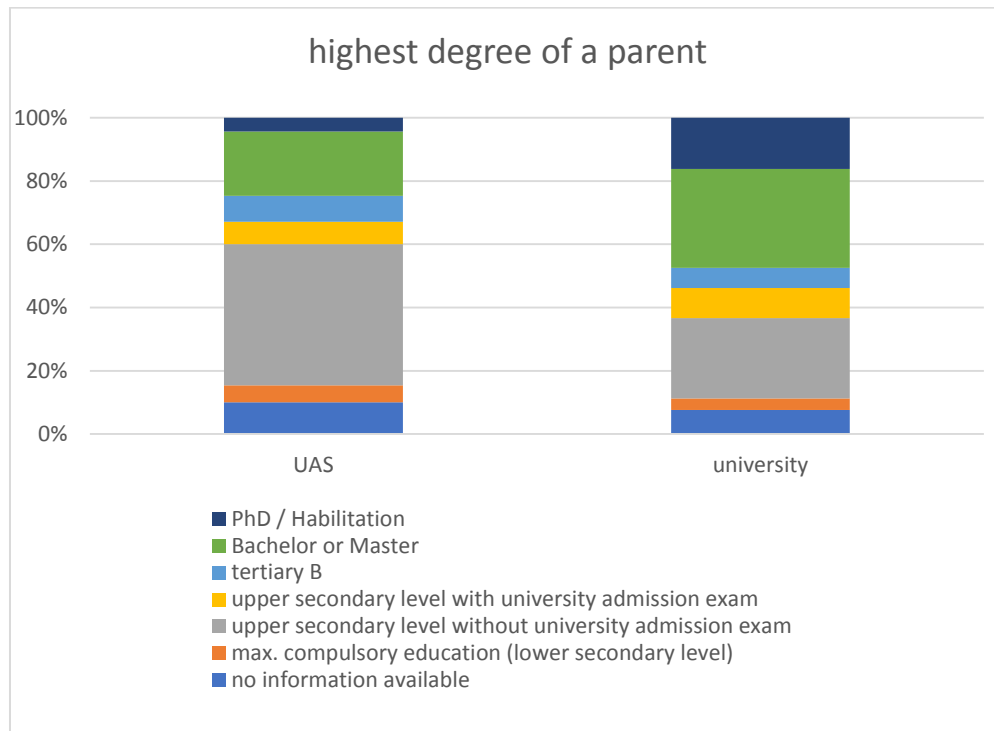


Figure 7: highest degree of a parent, all degree levels, 2015, only considered region. Data source: SFSO

Figure 8 gives more details for the different aggregation levels, showing the share of students with at least one parent holding a university degree for 2009 and 2015. In all fields, the difference between UAS and universities is considerable.

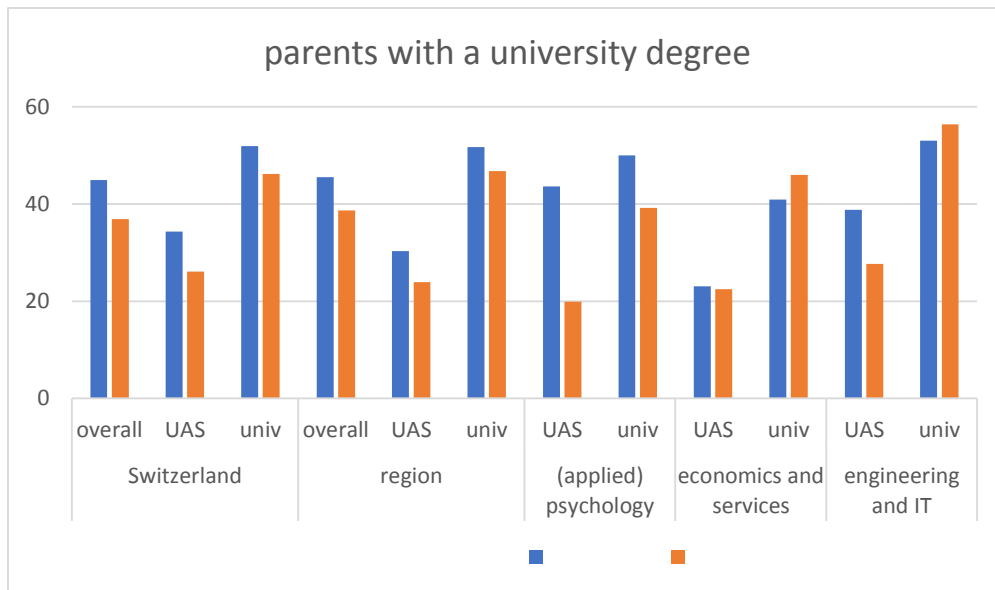


Figure 8: Share of students (%) with at least one parent holding a higher education degree. Bachelor. Data source: SFSO

Work during studies

Students often continue or establish relations to the labour market also during their studies. Overall, the share of Bachelor students who do occasionally or regularly work during their studies is rather high; around half of all students regularly work during their studies, half of them in a job that is related to their field of studies. Neither at national (Figure 9) nor at regional level (Figure 10) the differences between universities and UAS are very strong. However, it seems that UAS students are working slightly more often during their studies than their colleagues from the universities. Especially, they are more often doing regular work and work that is related to their field of study.

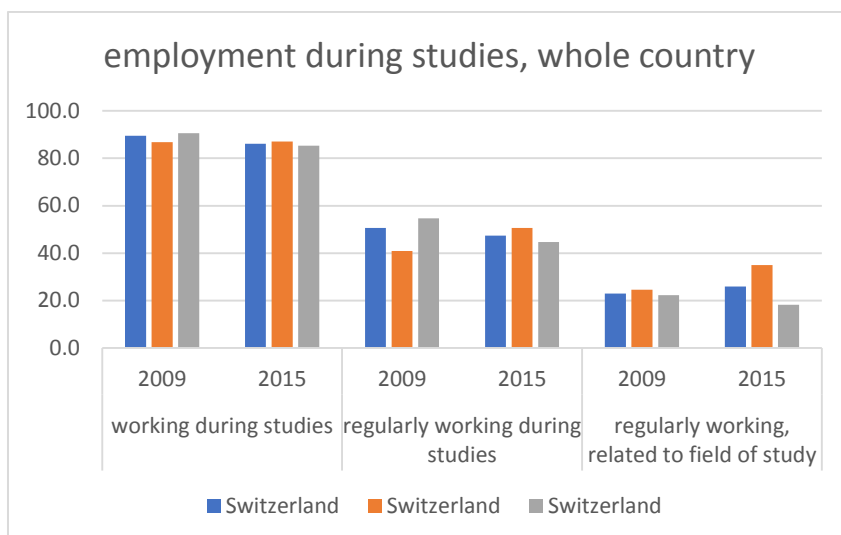


Figure 9: Share of students working during studies, Bachelor, whole country

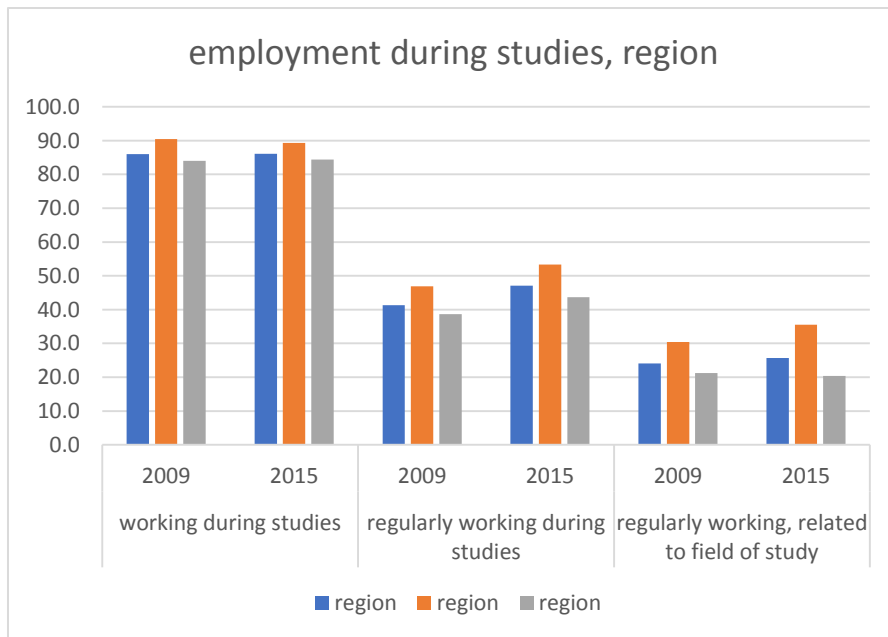


Figure 10: Share of students working during studies, Bachelor, region

A look at the fields of study shows that engineering and IT students are less likely to be regularly working during their studies than their colleagues from psychology and economics (Figure 11). Here, too, at least in the data 2015, students from UAS are working more often than their colleagues at universities. Data from 2009 shows two missing columns, as in these fields Bachelor degrees were not yet awarded in the considered region.

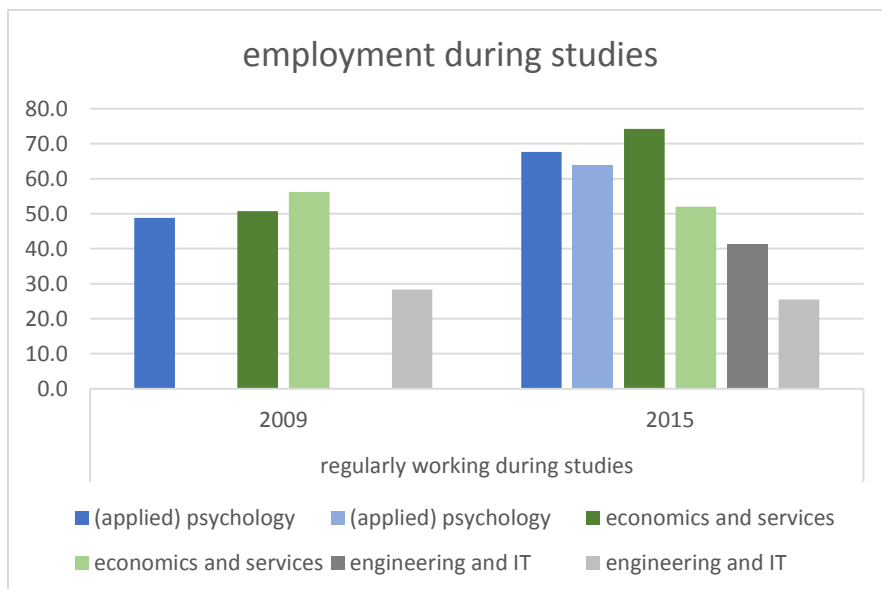


Figure 11: Share of students regularly working during studies, Bachelor, three fields of study

The difference between the fields is similar when looking only at those students enrolled in fulltime study courses, excluding thus parttime students. Here, the share of students

regularly working during their studies is above 60% for both UAS and university in (applied) psychology, and at around 25% in engineering and IT.

Master after Bachelor degree

Since 2009, UAS are allowed to offer Master degrees; also, graduates from a UAS Bachelor have the possibility to continue with a university Master, often with some additional requirements to fulfil. However, when looking at the data, it comes clear that UAS students see the Bachelor degree as a – at least intermediary – conclusion, while university students generally continue with a Master degree. Figure 12 shows the share of respondents that had continued with a Master degree at the moment of the survey, i.e. one year after their Bachelor graduation.

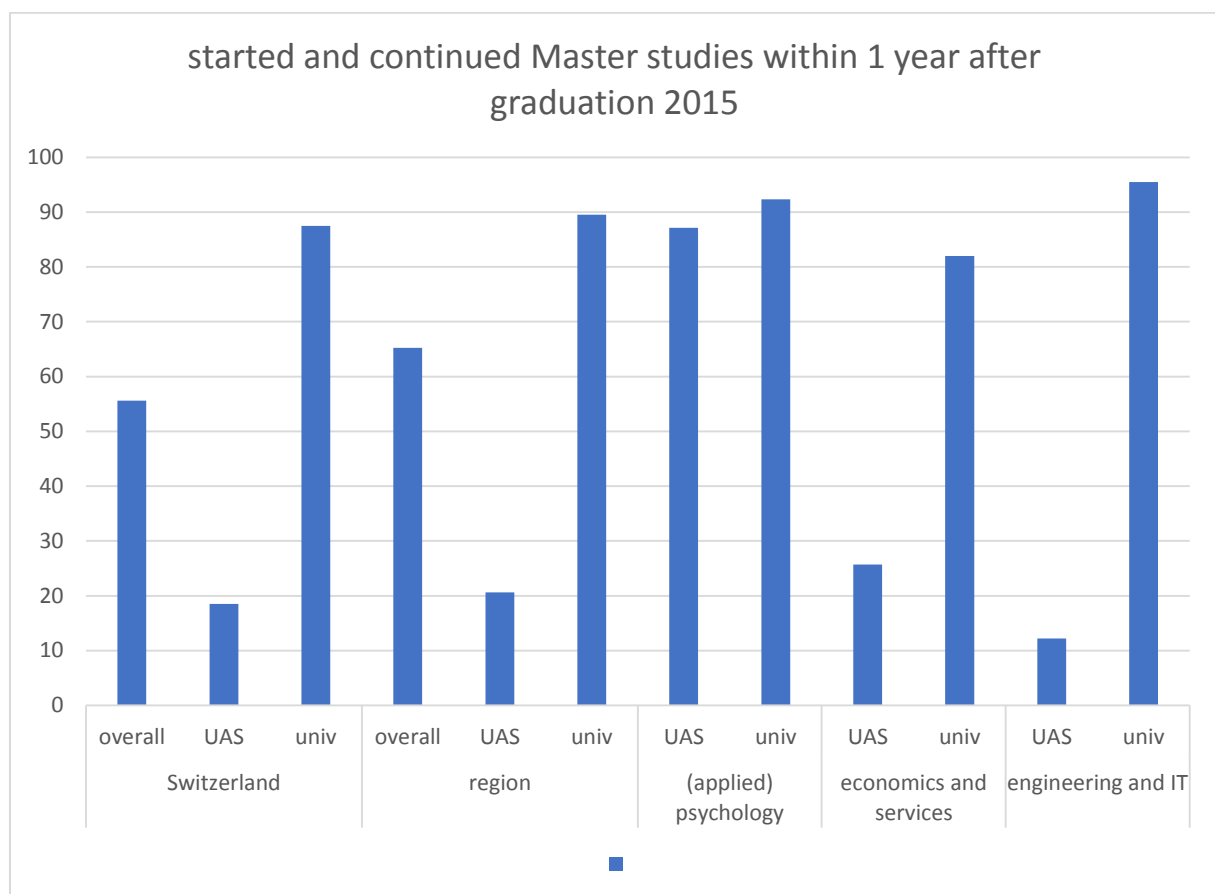


Figure 12: Share of students continuing at the MAster level within 1 year after graduation from Bachelor, only Bachelor, 2015

Here, too, differences between the fields of study are visible. While for (applied) psychologists, a Bachelor degree does not seem sufficient neither from UAS nor from university, Bachelor graduates from economics and services are much more likely to look for an employment after their degree, especially if they studied at an UAS. In engineering and IT, differences between UAS and university are striking. While a UAS Bachelor in these fields is preparing for professional life, at universities the Bachelor is seen rather as an intermediary step. This might also be influenced by the fact that Bachelor graduates in the sample in these fields in the considered region hold a Bachelor from a specialised university with a strong international orientation and reputation.

Employment situation

For the employment situation, we consider data from Master graduates, or, for earlier years, from licentiate and diploma graduates. Figure 13 shows the share of respondents employed one year after graduation, considering only those who are available for employment. Overall, this share is at 93.2%, and within the considered region it amounts to 95.8%. Throughout the years, we observe a slight increase of employment rates among HE graduates – despite the ILO unemployment rate for Switzerland being rather stable or even slightly increasing in these years.

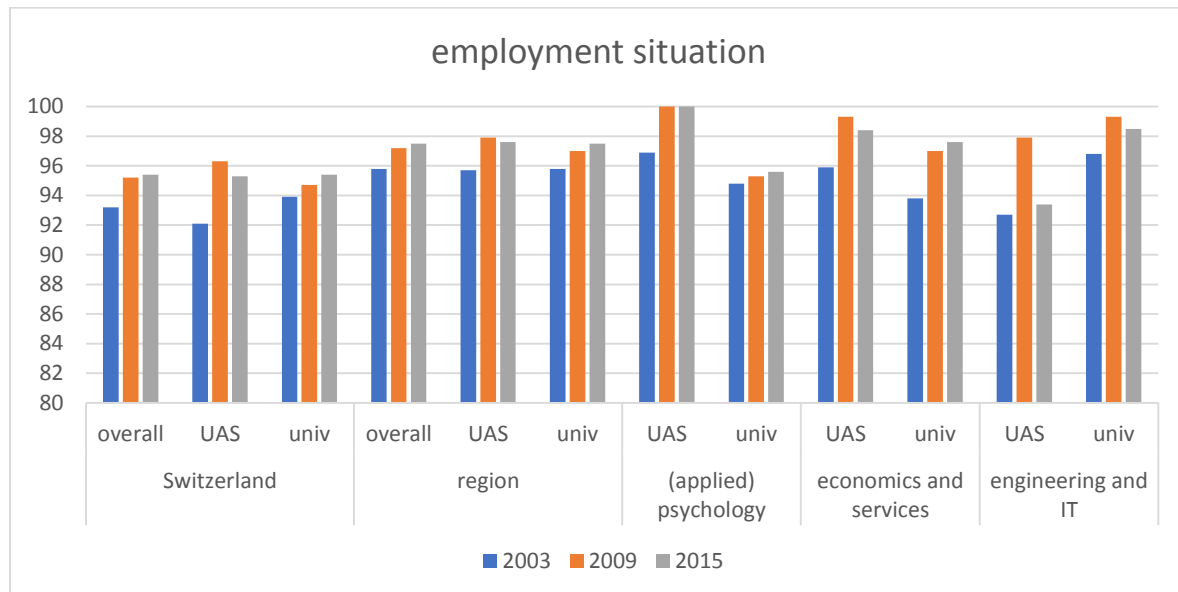


Figure 13: Employment situation 1 year after graduation, only respondents available for employment

2003: Licentiate and diploma degrees

2009: Licentiate, diploma and Master

2015: Master degrees

Being employed does not necessarily mean being employed appropriately. Therefore, Figure 14 displays a possible aspect of appropriateness of a position: whether a HE degree was requested or not. For psychologists the share of respondents with an appropriate position increased throughout the observed years. Interestingly, in 2015 it is clearly higher for UAS graduates than for university graduates (94.5% vs 86.9%). Even though the number of respondents from UAS is rather small ($n=25$ vs $n=205$ for universities), this difference seems considerable. Graduates in the fields of economics and services are less often in an appropriate position if they studied at a UAS than if they hold a university degree. Here, it seems that the graduates 2008 (respondents 2009) from both types of HEI had more difficulties in finding appropriate positions than in the other years. This is reflected also for engineering and IT graduates from UAS, while their university colleagues do not show much variance throughout the years. Here, too, as for the psychologists, in 2015 the share of appropriate positions is higher for UAS graduates (93%, $n=24$) than for university graduates (86.5%, $n=519$).

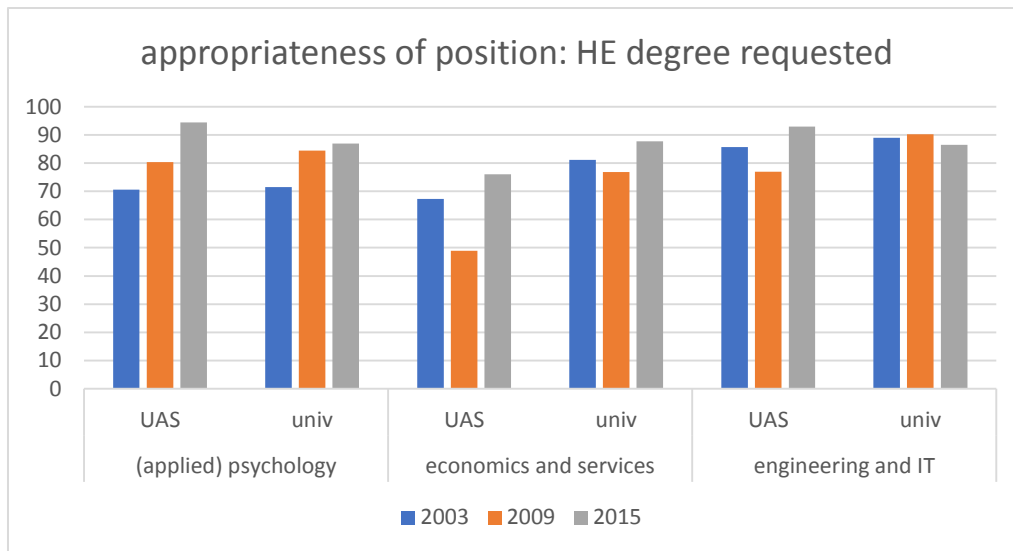


Figure 14: Was a higher education degree required for the current position?

2003: Licenciante and diploma degrees

2009: Licenciante, diploma and Master

2015: Master degrees

Income

Overall, one year after graduating, graduates from UAS have higher incomes than their colleagues from universities. However, as this might to a large extent be influenced by disciplinary characteristics and thus the composition of the fields of study (i.e., graduates from law starting with an internship after graduation), we only present data for the fields of study.

Here (Figure 15), we see a confirmation of this general result: In all three fields of study UAS graduates get higher incomes. However, we also see that in psychology there is a larger spread between the first and third quartile, while in engineering and IT wages seem to be more standardised. If we compare average incomes, the difference between UAS and universities is strongest in psychology, where UAS graduates earn 12.7 % more than their university colleagues (data 2015), and lowest in economics and services (+3.6%).

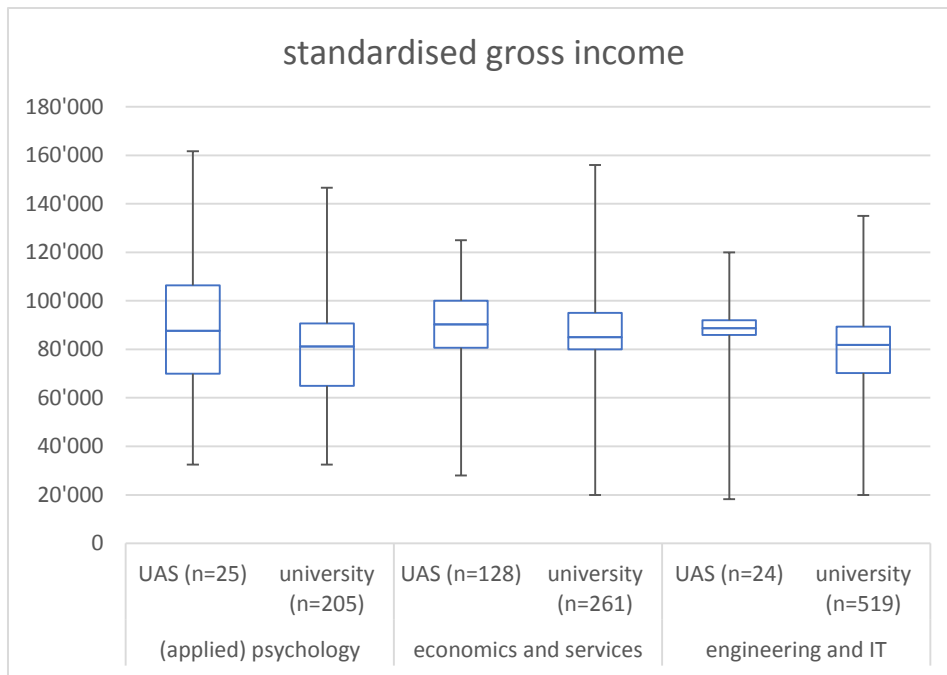


Figure 15: Boxplot standardised gross income per year one year after graduation, Master, 2015, CHF

Figure 16 compares psychology graduates who did an apprenticeship before their studies with those who did not, for UAS and universities. In both cases, we see that those students who did an apprenticeship before have a higher median income than those who did not. This holds also true for averages, which is 8.4% higher for UAS graduates with an apprenticeship compared to their UAS colleagues without an apprenticeship, and 10.8% higher at university. Graduates from UAS without an apprenticeship have a similar average income as their university colleagues with an apprenticeship. Thus probably both the type of HEI and the previous vocational experience might influence on the gross income one year after graduation.

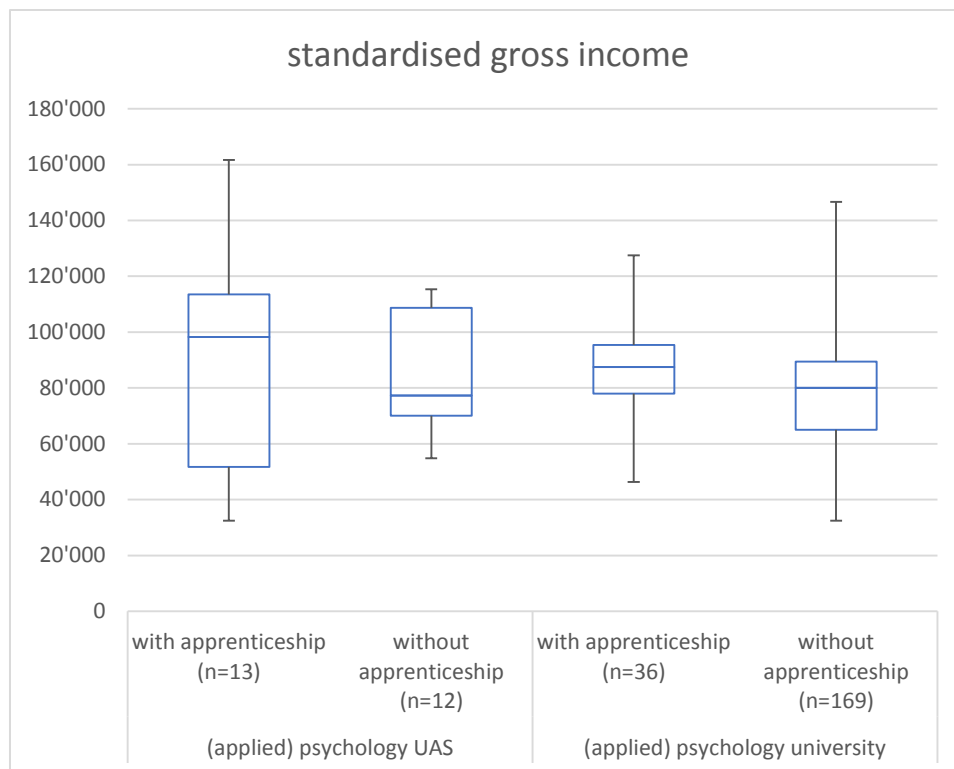


Figure 16: Boxplot standardised gross income per year one year after graduation, only (applied) psychology, Master, 2015, CHF

Geographical mobility

Foreign university admission diploma

The UAS mission was, first of all, a regional one, while universities with their long tradition often have a stronger international orientation. At the national level, this is not reflected very much in the student body at the Bachelor level. Figure 17 shows the share of Bachelor students with a foreign university admission diploma.

The region we considered is not a region that is situated very close to the country's borders, but its universities have a strong international reputation. This is reflected in the data, where we clearly see that in this region universities have a higher share of students with international admission diploma than UAS. It comes particularly true for economics and services and engineering and IT, where the share of students with a foreign university admission diploma is (close to) zero at UAS over all years, while (applied) psychology at UAS seems to be more attractive for international students.

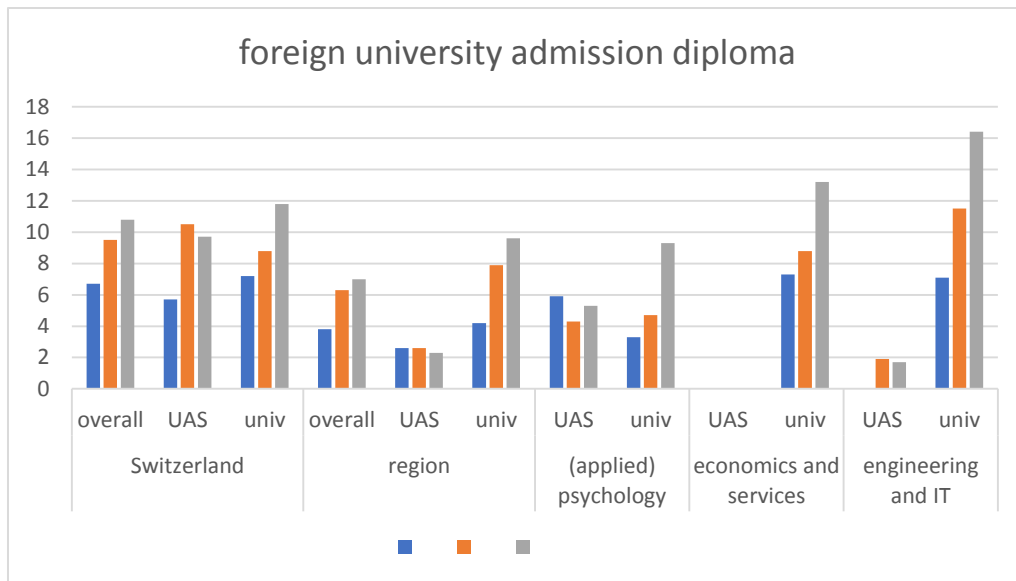


Figure 17: share of students (%) with a foreign university admission diploma. Bachelor/Licentiate/Diploma. Data source: SFSO

Geographical background

Figure 18 gives a more detailed account of the student's geographical background, showing the region of their place of residence before they studied. It distinguishes between the same region of the HEI, the same linguistic region within Switzerland, other linguistic regions in Switzerland and foreign countries. At UAS, the share of students from the same region is clearly higher than at university, indicating thus a stronger regional anchoring. Correspondingly, students from abroad and from other linguistic regions are more often found at universities than at UAS.

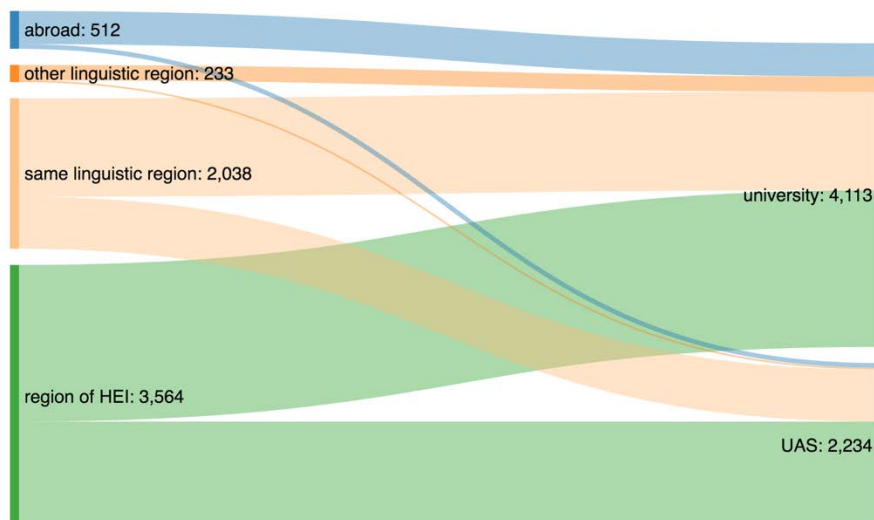


Figure 18: geographical background of respondents, place of residence before studying, Bachelor, region, 2015.

So overall, there's no surprise in these data. We can observe that the pathways of students to the different types of HEI generally correspond to what was intended by the policy makers. The introduction of UAS has widened access to higher education considerably; in

terms of access to HEI, the creation of the new type of HEI has led to a differentiation in the student body. Even though there are students going diverse pathways, also depending on regional and disciplinary differences, UAS are mainly chosen by local students with a vocational background, while universities have students generally without vocational training, but from a broader geographical range.

Geographical destinations

After the Bachelor degree, most UAS graduates stay in the same region of their HEI, while another large group continues to study or is not employed for other reasons (29%). This not employed category is the largest category at universities (92%). Excluding the «not employed» category, the largest share of students stays in the region of the HEI, with this share being slightly higher at UAS (76%) than universities (72%). Similarly, also the share of students staying in the same linguistic region within Switzerland is higher for UAS (22%) than universities (20%), even though this difference is rather small. Mobility towards foreign countries or other linguistic regions of Switzerland is observed nearly exclusively among university Bachelor graduates, but here, too, only to a very low extent (6% of all employed graduates abroad, 2% in other linguistic regions in Switzerland).

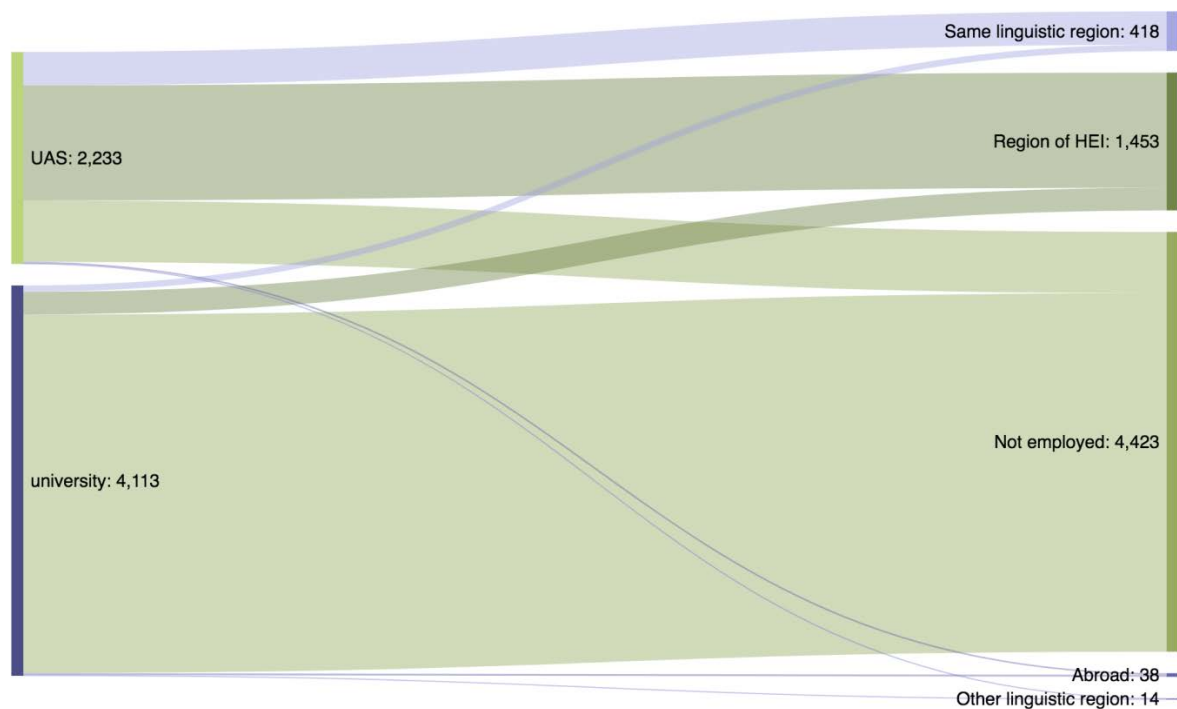


Figure 19: Place of work after Bachelor, region

After Master degrees, obviously, the picture changes (Figure 20), but not considerably, if we exclude the «not employed» category. The region of the HEI still dominates (72% at UAS, 70% at universities), followed by the same linguistic region (20% at UAS, 19% at universities). 8% of all UAS Master degree holders are employed abroad or in another linguistic region, the same holds true for 11% of university Master graduates.

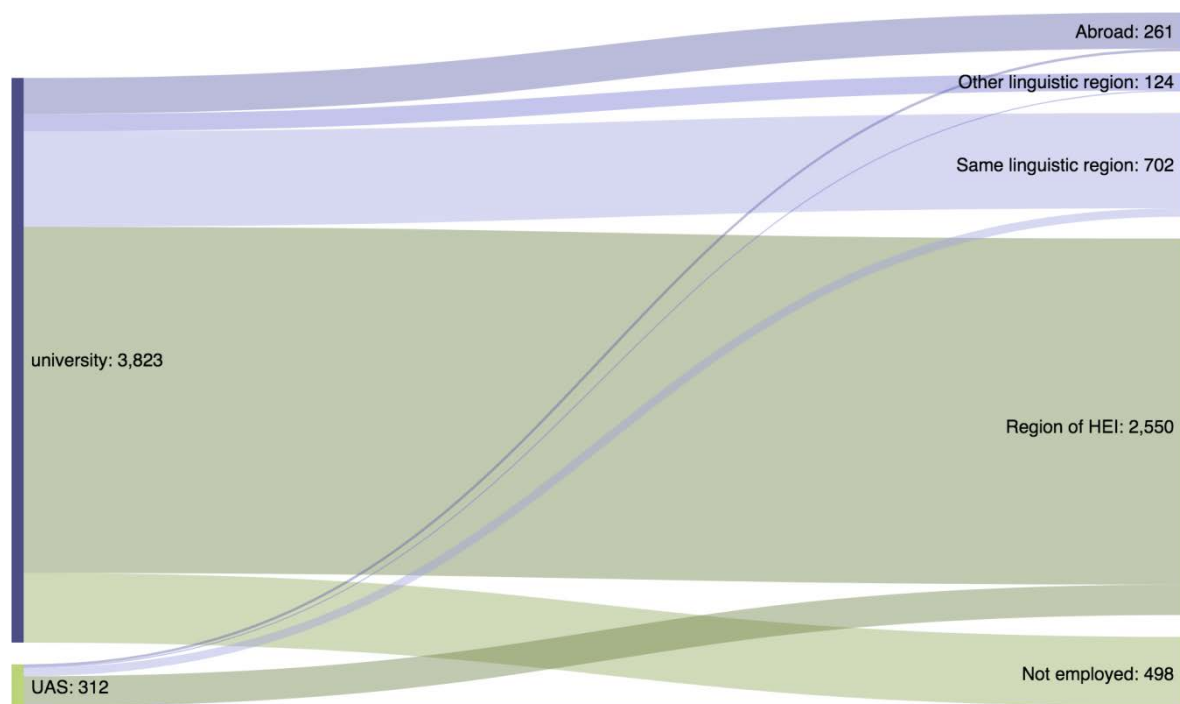


Figure 20: Place of work after Master, region

Overview of pathways

It is then interesting also to look at the overall pathways of students, comparing where they come from with where they go. The following figures give some insights into this data.

Figure 21 gives an overview on the pathways, combining the information contained in the previous figures. It shows that, overall, the share of students from the region of the HEI is higher at UAS (63%) than at universities (51%). It is interesting that, despite the UAS' regional orientation, roughly one third of all UAS students are from another region, even though this is most often the same linguistic region (33%). At universities, 17% of all students come from abroad, 6% from another linguistic region within Switzerland.

Considering the place of work one year after graduation, the share of graduates staying in the region of the HEI increases in both types of HEI when compared to the geographical origins of the students. Now, 76% of all UAS graduates and 70% of all university graduates stay in the region. Thus, the aspect of strengthening the regional labour market exists for both types of HEI, but is interestingly even stronger in the case of universities.

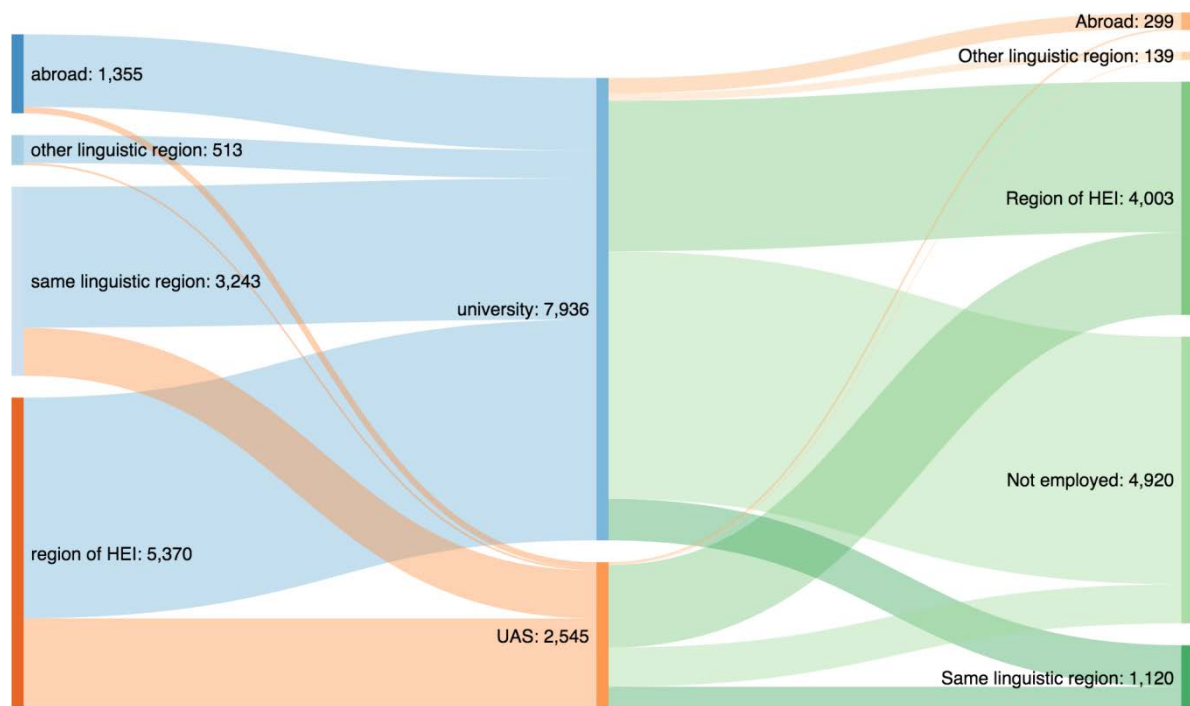


Figure 21: Pathways of Bachelor and Master students before and after studies, only region

Figure 22 (UAS) and Figure 23 (universities) allow to identify individual pathways. Here, it comes clear again that in both cases, the share of graduates staying in the region of the HEI is higher than the share of graduates that came from this same region when starting their studies. Interestingly, universities seem to have a higher boosting effect on the region than UAS: their overall output to the region (graduates employed in the region) is 56% higher than the input from the region (students living in the region before their studies). For UAS, this increase is of 21%. The UAS' input from the region is 62% and its output to the region is 76% , for universities the numbers are 47% input and 73% output.

There are some differences if we look at the various regions of origin: At UAS, 90% of all students who lived in the region of the UAS already before their studies stay there, while for universities this share is at 81%. Also for students coming from another linguistic region, the share of those remaining in the region of the HEI is higher at UAS (68%) than at universities (51%). However, in this case we have a rather small n (32) for UAS.

In the other two cases, students from abroad and from the same linguistic region, the “glue effect” of the HEI seems higher at university: 69% of university students from abroad stay in the region of the HEI, versus 66% at UAS, for students from the same linguistic region the share of “remainers” is 57% (universities) vs 48% (UAS). Especially in the case of students from the same linguistic region this might be influenced by the fact that the region we look at is a region in which many sectors offer jobs for highly qualified people.

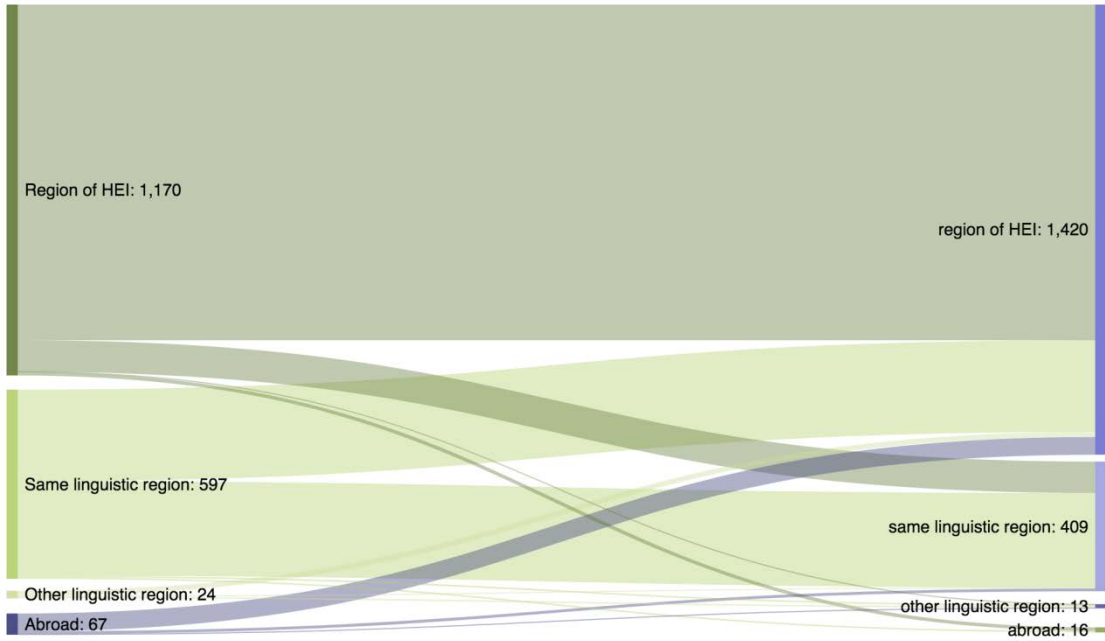


Figure 22: Pathways of Bachelor and Master graduates at UAS, before and after studies, only region, only employed graduates

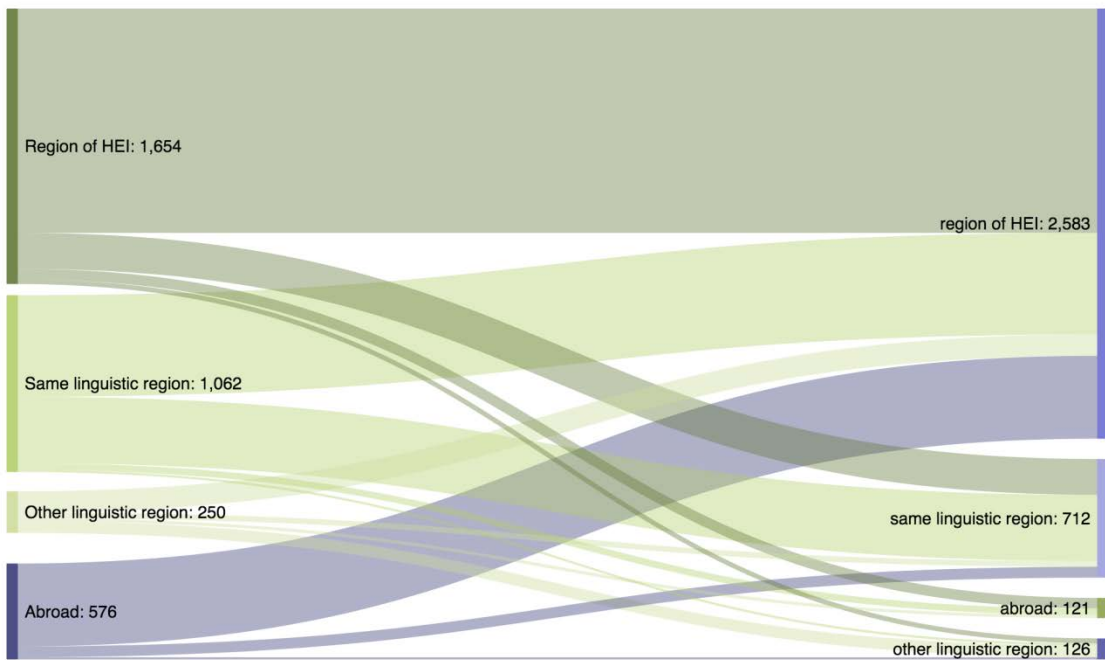


Figure 23: Pathways of Bachelor and Master graduates at universities, before and after studies, only region, only employed graduates

Discussion and Conclusion

At the beginning of this paper, we asked whether there is a trend towards convergence of the two types of HEIs in terms of geographical pathways of students and their relationships with the labour market.

Concerning the relationship to the labour market, we see that generally UAS attract more students with a vocational background than universities, but there is also a considerable share of students without a vocational background at UAS and, to a much lesser extent, with a vocational background at universities. UAS thus seem to be attractive also for university admission degree holders, which might indicate that with the establishment of the UAS, the higher education offer has been widened not only for people from a vocational background.

We also see some differences between UAS and universities if we look at the highest degree of the parents. UAS seem to have a higher levelling function than universities, as the share of students from a non-academic family is higher at UAS. This share, however, also depends on the field of study. It will be interesting to observe the development of this share in the future, when the kids of UAS degree holders become higher education students.

Integration in the labour market during studies seems to strongly depend on the field of study. Here, we could have expected a higher share of employment at UAS students, as they were integrated in the labour market already before their studies, but data did not confirm this. What is not included in our analysis, however, are internships. At UAS, in several fields internships are mandatory, while they are usually not foreseen at universities.

While a UAS Bachelor is often qualifying to take up professional work, university Bachelor graduates usually continue their studies with a Master within one year after graduation. Here, too, differences between fields of study are striking: While psychologists continue with a Master's degree also at UAS, economists and engineers from UAS usually start working after their Bachelor's degree.

Employment rates are high for graduates from both universities and UAS. Whether employment is appropriate to the degree level strongly depends on the field. While psychologists usually work in positions that require a higher education degree, economists, especially from UAS, also take over positions that were open also for people with other educational backgrounds. Concerning income, UAS degree holders have higher incomes immediately after graduation. However, as a closer look at psychology has shown, some other factors might influence this: UAS psychologists without a vocational background have a similar income to university psychologists with a vocational background. This leads to the question of other variables that should be considered in analyses. Besides vocational background, also age, gender, nationality or other variables should be included in further analyses.

Concerning the geographical pathways of students, we observe that, generally, UAS have both a larger input from and output to the region than universities. Universities, however, have a stronger gluing effect for students from outside the region of the HEI and especially for those from the same linguistic region. We interpret this as follows: Students with a vocational background, thus typical UAS students, are more strongly integrated in their region of origin, as they also have professional ties, might have left their parent's house already, while students with a general background conclude their upper secondary education and have "only" ties to the region in terms of their private life. The latter are thus

more likely to be mobile – and to put down roots in a new region. We guess that UAS students from another region within the same linguistic region are thus also more likely to commute to their place of studies (Switzerland being a rather small country with good public transportation), while university students are more likely to relocate the centre of their life.

When it comes to students from other linguistic regions in the country, UAS graduates are more likely to stay in the region of the HEI than their university colleagues. Here, we interpret that the distance requires a relocation of the centre of one's life, which raises probably the willingness to stay after graduation. UAS study courses are typically more strongly linked to the labour market, through internships, projects with partners from industry, teachers with engagements also outside higher education, and thus UAS students are more likely to get in contact with the labour market already during their studies. This might explain why UAS students from other linguistic regions are more likely to stay than their colleagues from university.

Hence overall, from the point of view of students' pathways and integration with the labour market, we see differences, but also similarities between the two types of HEI. When it comes to integration with the labour market, in several aspects disciplinary differences seem to play an important role. It would be interesting to have a closer look also at other fields of study, especially also at those fields that are offered only at one type of HEI. Regarding regional integration, we were, at first sight, surprised that universities seem to have a stronger impact on the regional labour market. Extending the analyses, for example comparing different regions of Switzerland or looking at specific fields of study which are offered only in certain HEI, might shed more light on this finding.

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