Transitionen von der Erstausbildung ins Erwerbsleben
Transitions de l'Ecole à l'Emploi
Transitions from Education to Employment

YOUNG PEOPLE IN TRANSITION FROM EDUCATION TO LABOUR MARKET

Results of the Swiss youth panel survey TREE, update 2007

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SUMMARY

For the past seven years, TREE has been following a cohort of Swiss school leavers (PISA 2000/TREE cohort). This brochure gives an overview on the cohort's situation in terms of education, training and employment in 2006, six years after it has completed compulsory schooling. Members of the cohort had reached an average age of 22 years by then. About half of the sample representing the cohort was employed when surveyed 2006. On the other hand, the percentage of the cohort still enrolled in education or training had decreased – from 90% in 2002 – to one third. Compared to other OECD countries, the Swiss age group in question shows a relatively low participation rate in education and training at that stage, along with a relatively high rate of employment.

EDUCATION AND TRAINING

Those still in education or training in 2006 are mostly enrolled at the tertiary level (university, higher education). However, six years upon completion of compulsory schooling, about one in eight youths of the surveyed cohort is still enrolled in upper secondary level programmes.

By 2006, approximately four in five young adults of the surveyed cohort have graduated from upper secondary education and training. About 60% have obtained a certificate in vocational education and training (VET), while about 20% have acquired a diploma of general education. Approximately one fifth of the cohort has not obtained any post-compulsory certificate or diploma up to 2006. About half of this group has left the education system by then, be it temporarily or for good. The risk of remaining without any post-compulsory certification is particularly high among youth with low socio-economic status, PISA low achievers and youth out of education and training during the first year following the end of compulsory school. The TREE results also show that the percentage of "uncertified" youth in the French-speaking part of Switzerland is twice as high as in the German-speaking part.

Inversely, tertiary education enrolment is positively correlated to high socio-economic status and high PISA achievement. Living in urban areas rather than on the countryside, and living in the Italian-speaking part of Switzerland is also positively associated with tertiary enrolment rates.

EMPLOYMENT

Those having left the educational system by 2006 have found gainful employment in seven out of eight cases. Youth with a VET certificate have a significantly higher chance to be employed than those without any post-compulsory certification. Employment prospects for youth from German-speaking Switzerland are significantly better than in the country's other language regions. Inversely, the risk of unemployment is significantly increased in the French and Italian-speaking regions of Switzerland. About half of the cohort had been actively searching employment prior to the job they held in 2006. The average duration of their job search had been approximately three months.

Compared to the country's economically active population as a whole, the newcomers to the Swiss labour market surveyed here have to be content with significantly lower starting salaries. Half of the gainfully employed part of the PISA/TREE cohort earns less than CHF 4,200 per month (approx. € 2,500). The median for (fulltime) gross monthly income among the labour force as a whole is at CHF 5,700 (approx. € 3,400). Uncertified youths earn significantly less than those having obtained a VET certificate. So do jobholders from French and Italian-speaking Switzerland in comparison to those from the German-speaking part of the country. The TREE results also show substantial income disparities by gender: under comparable conditions and qualifications, young women earn about CHF 500 or >10% less than men.

For a large majority of the surveyed youth cohort, the transition to employment takes place under contractually satisfactory conditions. However, TREE also shows that a substantial minority experiences precariousness when performing this transition. About one fifth of youth is underemployed, performs work on

demand or has a working contract that is limited in time. Women's risk of being precariously employed is almost twice as high (26%) as men's (14%). By 2006, about one in five graduates from basic VET have ceased to work in the profession in which they had obtained their certificate – or have never done so.

GROWING UP TO ADULTHOOD

Beyond education and employment, the surveyed cohort does not seem to be in a hurry to leave the parental home. Only about 40% of the cohort has moved out of the parental residence by 2006. This percentage varies substantially according to language region, gender and educational status. Women in particular tend to leave the parental home at a substantially higher rate (49%) than men (28%).

Other critical life events such as marriage or first child birth concern only a very small percentage of the PISA/TREE cohort (5% and less).

INTRODUCTION

TREE is the first longitudinal survey in Switzerland to address issues concerning the transition from youth to young adulthood at a national level, paying special attention to their paths of education and employment once they have left compulsory education.

Previous TREE publications have focussed on what we refer to as the *first threshold*, that is, the transition from compulsory school to post-compulsory vocational and general education (for a selection of publications see p. 26). The results presented here show how youth and young adults in Switzerland cross what we call the *second threshold*: the transition from upper secondary level education to employment or tertiary-level education. The following questions have guided the analyses:

- How far has the cohort under study (school leavers in 2000) advanced on the path of post-compulsory education and training or employment?
- How successful have graduates of vocational education and training (VET) programmes been in gaining a foothold in working life?
- In comparison, how well have those fared who have (so far) failed to complete any kind of post-compulsory education?

The results presented are largely of a descriptive nature. They are complemented by multivariate analyses where possible and compared with data from other sources where available.

TREE has made an effort to prepare the results in a manner that is appealing to both scholars and interested lay readers. We hope this brochure succeeds in providing both audiences a stimulating, informative and instructive reading experience.

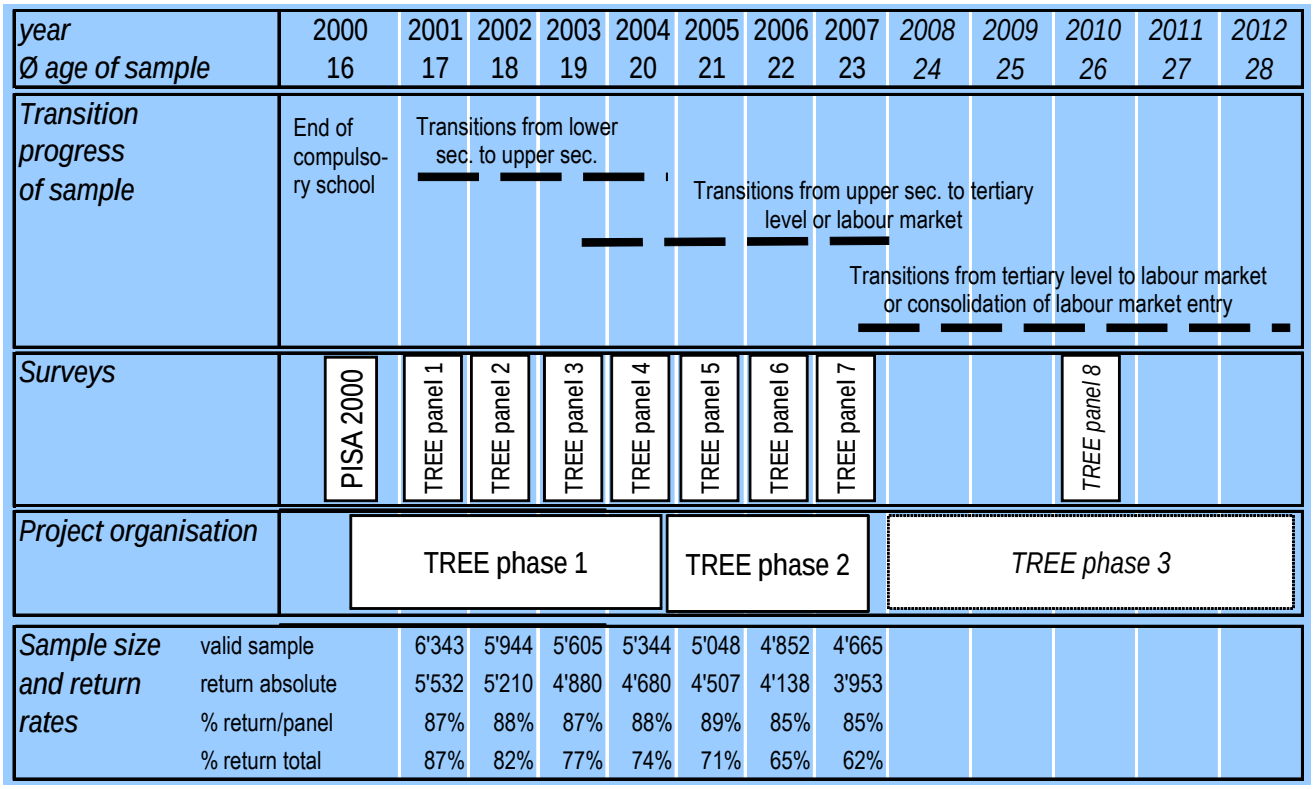
TREE PROJECT PROFILE AND METHODICAL DESIGN

TREE is the first longitudinal survey at the national level in Switzerland to address the transition of young people from school to adulthood. The survey focuses on paths of education and employment after leaving compulsory school. The TREE sample consists of approximately 6,000 young people who participated in the PISA survey (Programme for International Student Assessment) in 2000 and reached the end of compulsory education in the same year. It is a representative sample for Switzerland as a whole, the Swiss language regions and for selected cantons (Berne, Geneva, Ticino, St. Gallen).

In the first phase of the project (three follow-up surveys until 2003), we tracked the respondents' paths of education and employment at the interface of compulsory school and upper secondary education. During this first phase, the main focus was on reasons for and typical trajectories and consequences of irregular or critical educational careers, with particular attention paid to premature dropout (young people who fail to graduate from a post-compulsory education or training programme).

In the second phase of TREE (four more annual follow-up surveys between 2004 and 2007), the survey centred on what we refer to as the second threshold, that is, the transition from upper secondary level education (VET, grammar school [Gymnasium], middle school [Diplommittelschule] etc.) to working life or tertiary education tracks. In a third stage (2008-2011), another survey panel is scheduled for 2010.

FIGURE 1: TREE SURVEY DESIGN, OVERVIEW



Seven TREE panel surveys have been conducted so far. The survey method used is a combination of standardised questionnaires in written and telephone form. The results reported in this publication are mainly based on data of the sixth TREE survey panel conducted in spring 2006. At that point, roughly six years had passed since the respondents had left compulsory school. The PISA/TREE sample represents the approximately 80,000 young people in Switzerland who finished compulsory education in 2000. The data have been weighted to compensate for distortions due to sample attrition, a common effect in any longitudinal research.

Hence, TREE results are not exact values but statistically inferred estimates for the described sample, which within certain margins of error can be assumed to be representative for the population under study. In the case of TREE, this population – as mentioned – is the cohort that finished compulsory school in 2000. All calculations were performed on appropriately weighted samples. Parameter estimates and confidence interval calculations were all performed using suitable methods to adequately model the complex structure of the PISA/TREE sample.[1] The estimates in this publication as a rule are expressed in integer percentages or are rounded to thousands in case of absolute population estimates. This publication generally comments only on results and differences that are statistically significant irrespective of estimation and rounding errors. Results based on an unweighted number of cases less than 30 persons are typically not reported but marked by an asterisk and a note stating that the number of cases is too small. The appendix provides information on estimation errors and the unweighted sample.

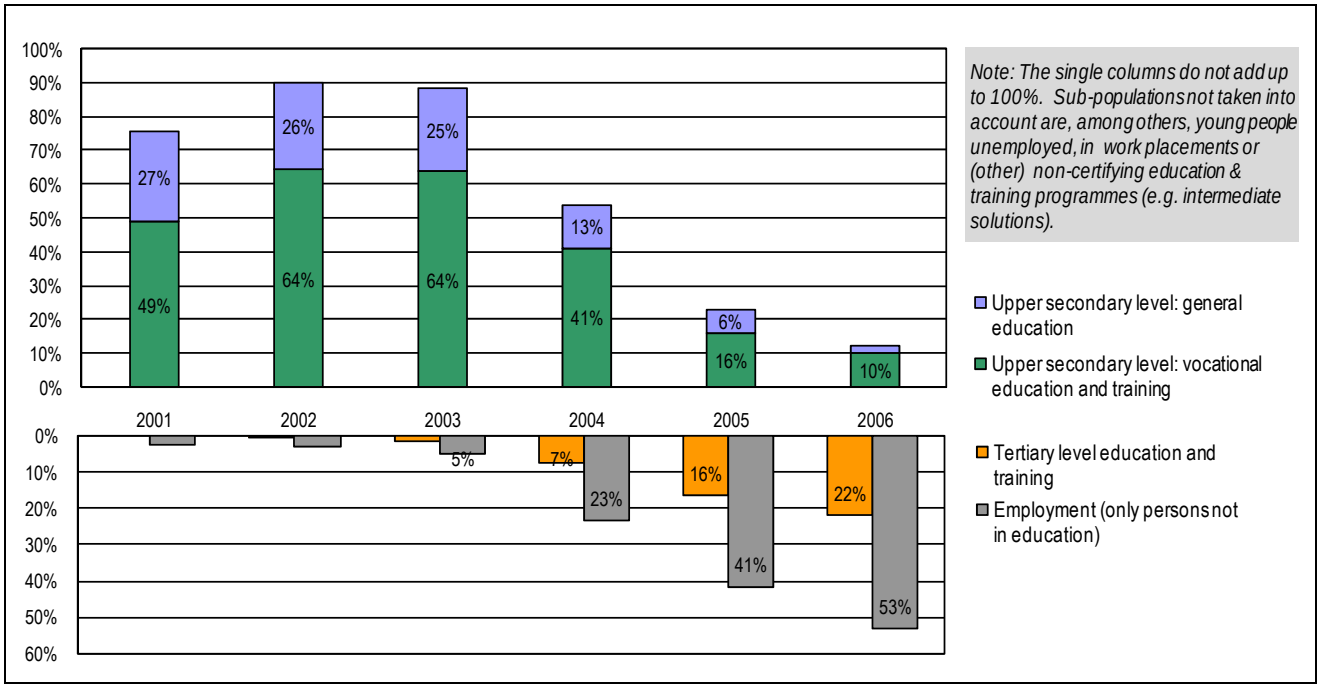
[1] SPSS: complex samples procedures; STATA: survey set for complex samples.

THE "SECOND THRESHOLD" – AN OVERVIEW

We define the "second threshold" as the transition from upper secondary level education to employment or tertiary education tracks. As Figure 2 illustrates, this transition is a process that extends over a period of several years. From the third year after finishing compulsory education, a noticeable gap begins to open up. While the rate of enrolment in upper secondary education drops sharply, the share of the cohort either gainfully employed or in tertiary education shows a steep rise.

In 2003, almost 90% of the cohort is still enrolled in (certifying) upper secondary education while only 5% is in employment. In 2004, the fourth year after the TREE cohort left compulsory school, nearly a quarter is employed and a good 60% is still in education or training – the majority at the upper secondary level. A year later, the share of those still in education has again decreased substantially to just below 40%. If we consider only upper secondary education, the share has even dropped to less than half the 2004 level (from 54% to 22%). In contrast, the share of cohort members gainfully employed in 2005 has almost doubled compared to 2004 (to 41%). The main reason for this sharp increase is that during this period two groups of young people have crossed the second threshold: those having completed a four-year VET programme and those having finished a three-year VET programme but who had been delayed in beginning VET (e.g. after attending an additional, tenth year of school or participating in an intermediate training programme).

FIGURE 2: EDUCATION/TRAINING AND EMPLOYMENT SITUATION 1-6 YEARS AFTER THE END OF COMPULSORY EDUCATION



In 2006, six years after the end of compulsory education, the cohort under study is an average age of 22. At this point in time, the share of the (mainly) employed for the first time crossed the 50% mark (53%), while the part of the cohort still in education dropped to one third. Those still in education or training are mostly enrolled at the tertiary level (university, technical college etc.) It is, however, worth noting that every eighth person in the TREE cohort is still (or again) in upper secondary education six years after leaving compulsory school. In international comparison, Switzerland displays a relatively low rate of enrolment in education and a high employment rate in this age group.[2]

[2] Cf. OECD: Education at a glance 2006. Paris 2006, p. 329 et sqq.

EDUCATION AND TRAINING

(Upper secondary) graduation

Today, successfully completing a several-year education and training programme at the upper secondary level is viewed as a minimum requirement for effective labour market integration and full social participation.[3] According to Swiss Federal Statistical Office estimates, the number of persons to meet this minimum requirement in each age cohort has ranged between 85 and 90% since the early 1990s.[4] In international comparison, Switzerland thus ranks above the OECD average in this category.

According to TREE, approximately 80% have achieved this education target within six years after leaving compulsory school. Roughly eight percent of the TREE cohort is still enrolled in upper secondary education without having obtained a certificate at this level yet (see below). By the time these young people will have completed upper secondary education, they will be at least 23 years old. The TREE findings thus testify to the fact that it is a rather slow process for a cohort to acquire a first post-compulsory certificate in Switzerland. Slow progress in obtaining certification is closely related to an insufficient number of available upper secondary education and training opportunities. Tight supply results in a substantial number of school leavers in Switzerland today who cannot expect to immediately enter a (certifying) upper secondary programme. According to the Swiss Federal Office for Professional Education and Technology's regular VET survey ("Lehrstellenbarometer" – VET Barometer], approximately 10,000 young people are waiting on the doorstep to upper secondary education (especially for access to VET programmes) every year.[5]

FIGURE 3: POST-COMPULSORY EDUCATION AND TRAINING: ENROLMENT AND CERTIFICATION IN THE SIXTH YEAR AFTER LEAVING COMPULSORY SCHOOL

Situation in spring 2006	Upper secondary level successfully completed?			Total	
	Yes		No	%	Population estimate
	VET	General education			
Upper secondary level: VET	37%	9%	54%	100%	*10,000*
Upper secondary level: general education	*	*	67%	100%	*2,000*
Tertiary level (university or university of applied sciences)	25%	74%	*	100%	*18,000*
Other education/training, work placement (not tertiary)	70%	18%	*	100%	*6,000*
Not in training or education (anymore)	76%	5%	18%	100%	*45,000*

Total						
	%	58%	22%	19%	100%	
	Population estimate	*47,000*	*18,000*	*15*		*80,000*

** Number of cases too small*

The percentages refer to the total of each row. Due to rounding errors, the row totals may not add up to 100%.

Example of how to read the table: Of those enrolled in upper secondary level VET in 2006, 54% had not yet obtained an upper secondary level diploma, while 37% had obtained a (first) VET diploma and 9% a general education diploma.

[3] OECD/CPRN (eds.): From Education to Work. A difficult transition for young adults with low levels of education. Paris 2005; BFS (ed.): Die Schweizerische Sozialhilfestatistik 2005. Nationale Resultate. BFS Aktuell. Neuchâtel, Bundesamt für Statistik 2007.

[4] Cf. Swiss Federal Statistical Office education indicators, indicator "Abgeschlossene Ausbildungen auf der Sekundarstufe II" (successfully completed upper secondary level education – own translation), www.statistik.admin.ch.

[5] Consult the regular VET survey conducted by the Swiss Federal Office for Professional Education and Technology ("Lehrstellenbarometer") at www.bbt.admin.ch .

The TREE findings reflect this situation (see Figure 2): in the first year after leaving compulsory school, only about three quarters of the cohort is enrolled in (certifying) post-compulsory education. It is not until the second year that the cohort reaches its peak rate of upper secondary enrolment (around 90%).

By 2006, 58% of the cohort had completed basic VET (at upper secondary level). Due to the circumstances indicated above, this number can be expected to rise by a few percentage points and cross the 60% mark. 22% of the TREE cohort has obtained an upper secondary level general education diploma – the majority of graduates the *Matura*, which grants access to university level education in Switzerland.

Roughly half (54%) of the group (still) enrolled in upper secondary level VET in 2006 has not yet acquired a diploma. A good third (37%) of the cohort has already attained a (first) upper secondary level VET diploma, yet has remained in upper secondary education (or has taken up VET again), for instance, in order to additionally achieve a Vocational Baccalaureate (*Berufsmatur*). In two out of three cases, youth still (or again) attending general education at the upper secondary level in 2006 have not yet obtained an upper secondary diploma. Extrapolated to the entire cohort, this means that approximately 6,000 persons (8%) are still enrolled in upper secondary education six years after the end of compulsory schooling without having attained a certificate at this level.

Dropping out of post-compulsory education and training

As Figure 3 shows, 18% of the cohort members who are not in education in 2006 (anymore) have exited upper secondary education without having graduated. For the entire cohort, this amounts to 10% or approximately 8,000 young people. The results must be viewed as a provisional snapshot since, theoretically, these young adults may still acquire an upper secondary level diploma in the future, and we may also expect part of the group currently still in education to drop out. On the whole, the "non-completion/dropout rate"[6] reported here corresponds quite well with Swiss Federal Statistical Office (FSO) estimates for this population.[7] However, we must expect a slight increase as the observation period progresses.

As Figure 4 shows (see p. 13), this overall rate varies strongly with socio-demographic and achievement characteristics. Reading literacy, as defined by PISA[8], is a significant factor in accounting for risk of not having completed a post-compulsory education six years later. Young people with poor reading literacy skills (proficiency level <2) are three times more likely to drop out of post-compulsory education (24% dropout rate) than youth commanding good skills (proficiency level 3: 7%).

There is an alarmingly strong relation between non-completion/dropout and social background. Youth from the socio-economically most disadvantaged population tercile are four times more likely to early dropout than their peers from the socio-economically most privileged tercile (15% vs. 4%). Risk of non-completion/dropout is also strongly associated with migration background: Young adults whose fathers were born in the Balkans, Turkey or Portugal are three times more likely (20%) to drop out than youth whose fathers are Swiss natives (7%).

A look at the language regions brings rather surprising findings to light. Young people from French-speaking Switzerland run twice the risk of failing to complete upper secondary education as youth from

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6 Note that when, for reasons of brevity, we speak of non-completion/dropout, this is also meant to include those who did not enter post-compulsory education to begin with.

7 Cf. Swiss Federal Statistical Office education indicators, indicator "*Abgeschlossene Ausbildungen auf der Sekundarstufe II*" (successfully completed upper secondary level education and training – own translation), www.statistik.admin.ch.

8 PISA defines reading literacy as follows: "An individual's capacity to understand, use and reflect on written texts, in order to achieve one's goals, to develop one's knowledge and potential and to participate in society." Programme for International Student Assessment, Assessing Scientific, Reading and Mathematical Literacy. A Framework for PISA 2006 http://www.pisa.oecd.org/dataoecd/63/35/37464175.pdf. For details go to http://www.bfs.admin.ch/bfs/pisa/de/index.html.

German-speaking Switzerland. This may be rooted in regional differences in the structure of post-compulsory education. For instance, we noticed that in French-speaking Switzerland approximately 60% of the PISA/TREE cohort is enrolled in education and training programmes with high requirements as compared to only 45% in German-speaking Switzerland. Conversely, in German-speaking Switzerland, 37% of the cohort attends programmes with low or medium requirements as compared to only 25% in French-speaking Switzerland.[9] This pattern of requirements can be expected to increase the risk of young people with lesser skills in French-speaking Switzerland of being left without a certified post-compulsory education. Moreover, TREE has observed that youth in French-speaking Switzerland more frequently make moves to readjust their educational careers than young people in German-speaking Switzerland. This is another factor that may have some significance in accounting for non-completion/dropout, since such reorientation, with its shifts and changes, discontinuities and temporary withdrawal, frequently goes hand in hand with a heightened risk of dropout.[10]

There is also a clear relation between the frequency of non-completion/dropout and the previous education career. Students having attended lower secondary tracks with "basic" requirements (*Realschule*, *Oberschule*) drop out twice as often as students enrolled in the "advanced" tracks (*Sekundarschule*, *Progymnasium*). TREE shows that youth who altogether discontinue education and training (even in the form of intermediate solutions) within a year of ending compulsory school are at highest risk of remaining without an upper secondary education. In roughly half of these cases, these young people find themselves in the early dropout group even six years after leaving compulsory school. Cohort members who take up some form of intermediate or preparatory training after finishing compulsory school also end up with a higher non-completion/dropout rate (17%) than those who immediately enter vocational education and training; this observation, however, is only partly statistically significant. More important for this group is the – statistically significant – lower non-completion/dropout risk as compared to their peers who, during the first post-compulsory year, remain without any education or training solution altogether (54%). From this vantage point, intermediate or preparatory programmes can be viewed to guard against non-completion/dropout.

No (statistically significant) differences were observed between women and men or between urban and rural areas.

When simultaneously considering the interplay of all factors by way of multivariate analysis[11], the following picture emerges: After controlling for all other factors, low socio-economic status and low PISA scores in reading literacy surface as “net” risk factors for non-completion/dropout. Language region also represents a risk factor in its own right. And finally, a multivariate perspective identifies absence of any training activity whatsoever during the first post-compulsory year as entailing drastic consequences. This particular group of youth faces an approximately six times higher risk of early dropout than those who managed to directly enter into a VET programme with high requirements after completing compulsory education. These findings provide impressive evidence suggesting that young people must not simply be “left to their fate” after finishing compulsory school.

On first glance, it seems astonishing that in a multivariate perspective the factors “migration background” and “type of school attended at the lower secondary level” do not appear to have an immediate, independent impact on the risk of non-completion/dropout. Of course this does not mean that they do not play a role, but rather that they have effect through other factors, such as social background, reading literacy or education and training situation in the first year after compulsory school.

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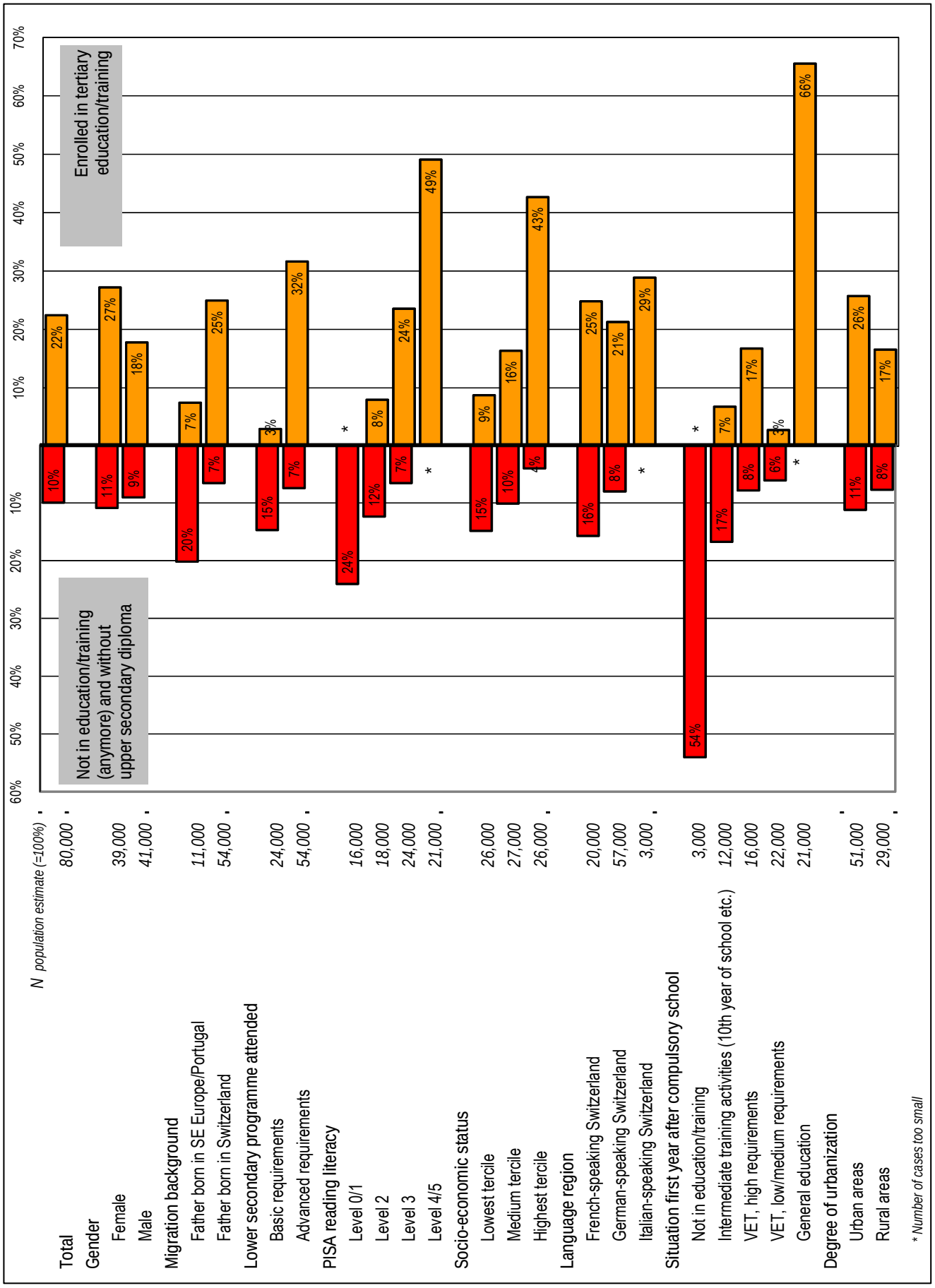
9 BFS/TREE (eds.): Wege in die nachobligatorische Ausbildung. Die ersten zwei Jahre nach Austritt aus der obligatorischen Schule. Zwischenergebnisse des Jugendlängsschnitts TREE. Reihe "Bildungsmonitoring Schweiz" des Bundesamtes für Statistik. Neuchâtel 2003, p. 38.

10 At the time of publication of this brochure, a number of TREE analyses are ongoing, devoted to examining the differences in the course of upper secondary level education in the Swiss language regions.

11 Multinomial logistic regression. See appendix for a detailed model.

FIGURE 4: UPPER SECONDARY NON-COMPLETION/DROPOUT AND ENROLMENT IN TERTIARY EDUCATION BY SELECTED CHARACTERISTICS, 2006



Tertiary level education

Six years after leaving compulsory school, a good fifth of the PISA/TREE cohort is enrolled in tertiary level education. This includes universities, universities of applied sciences and higher technical schools. This so-called tertiary rate also varies substantially with the characteristics listed in Figure 4.

As far as reading literacy, social background and migration background are concerned, the tertiary rate essentially mirrors the non-completion/dropout rate: In nearly one out of two cases, the ones who scored at the highest PISA reading literacy levels (4 and 5) are enrolled in tertiary education six years later, as compared to merely 8% of the level 2 group. Members of the socio-economically most privileged tercile of the cohort are five times more likely to be in tertiary education than those belonging to the socio-economically least advantaged tercile (43 vs. 9%). And finally, young "natives" are four times more likely to attend tertiary level education and training than young adults whose fathers were born in southeastern Europe or Portugal.

Figure 4 also demonstrates to what extent the educational pathway pursued after lower secondary education bears on the chances of gaining access to tertiary education later on. Youth having graduated from lower secondary tracks with basic requirements (Realschule/Oberschule) enter tertiary level education only in three out of a hundred cases. On the other hand, every third graduate of an advanced track (Sekundarschule, Progymnasium) goes on to the tertiary level – that is ten times as many.

Tertiary access chances are particularly low among youth who, after finishing compulsory school, go on to attend intermediate or preparatory training or directly enter into VET programmes with modest to mid-level requirements (3 and 7% respectively). On the other hand, tertiary education access is particularly frequent among the group that, moves on to general education (66%) after compulsory school.

Socio-spatial characteristics also influence the number of young people who access tertiary level education. In Italian-speaking Switzerland, they do so to a significantly higher degree (29%) than in German-speaking Switzerland (21%), and in urban areas and agglomerations at significantly larger numbers than in rural areas (26 vs. 17%). The situation in French-speaking Switzerland does not differ from the other two language regions in a statistically significant manner.

Finally, it is noteworthy that TREE shows a distinctly higher tertiary rate for women than for men (27 vs. 18%). The university entry rate, as reported by the Swiss Federal Statistical Office's scheme of education indicators[12], does not indicate gender differences to a similar extent. Perhaps these values do not reflect gender differences in terms of actual participation in tertiary education, but rather gender-specific transition behaviour in moving from the upper secondary to the tertiary level. Men might (be forced to) take longer in making this transition than women due to compulsory military service.

Multivariate analyses[13] of the characteristics considered in Figure 4 challenge these findings in two ways: After controlling for other factors, gender and migration background have no (more) effect in their own right on tertiary level education attendance six years after completing compulsory education. As has been pointed out with regard to the findings on non-completion/dropout above, this does not mean that the two factors are irrelevant. Rather, their effect may be mediated by other factors.[14]

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[12] See www.bfs.admin.ch, Bereich 15 "Bildung", Bildungsindikatoren (Section 15 "Education", education indicators)

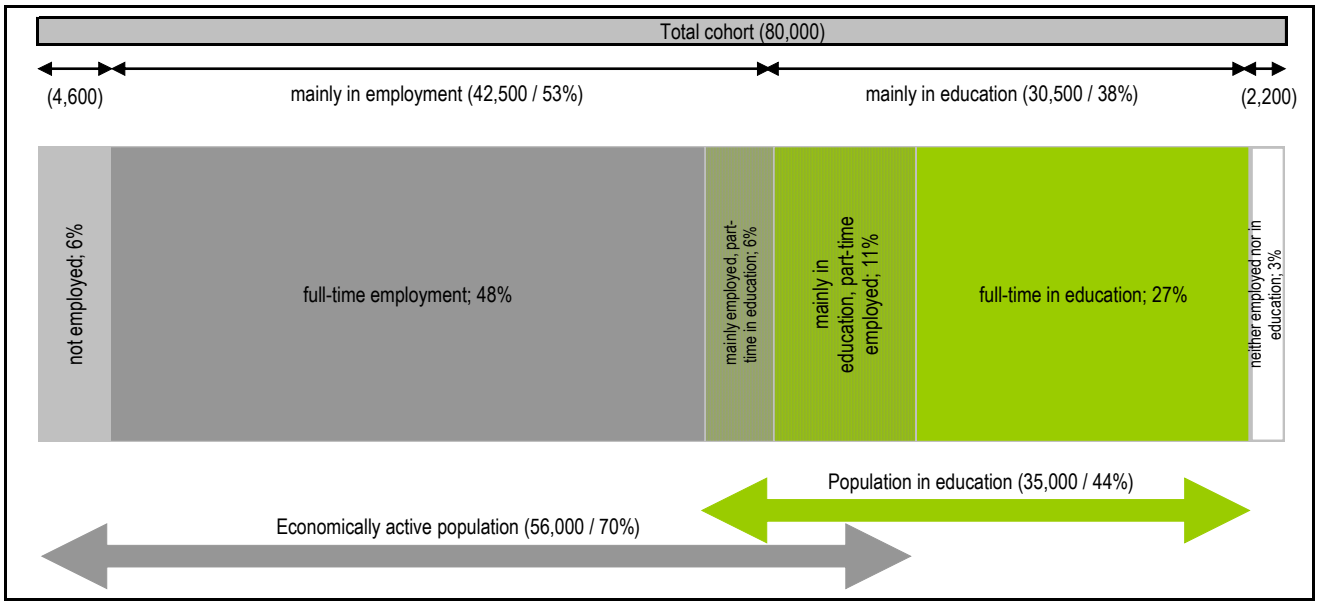
[13] Multinomial logistic regression. See appendix for a detailed model.

[14] In the suggested model, migration background and gender have effect via the factor "type of school attended in ninth grade". At this stage, young migrants are heavily underrepresented in schools with high requirements while women are overrepresented. The type of school, in turn, stongly influences the further course of an educational career and thus the likelihood of entering tertiary level education.

EMPLOYMENT

Employment and education are by no means mutually exclusive activities. As illustrated in Figure 5, a sixth of the PISA/TREE cohort pursues some form of employment while at the same time being enrolled in education six years after leaving compulsory school.[15] This group represents a quarter of the economically active cohort population and nearly a 40% share of those in education.

FIGURE 5: EMPLOYMENT AND EDUCATION/TRAINING SITUATION, 2006



Based on the observation that persons without a post-compulsory certificate have difficulty entering the labour market, in the following we focus attention on how this group in particular performs in the labour market. It will be compared with a control group of youth who have acquired a VET diploma or a professional baccalaureate.

Employment rate

The employment rate[16] among the PISA/TREE cohort, as defined in accordance with international labour market statistics, is approximately two thirds, which is considerably lower than the overall employment rate among the Swiss population aged 15-64 (78%)[17]. In contrast to the "official" definition, we will proceed by calculating the employment rate only for that part of the PISA/TREE cohort that is not mainly in education anymore.[18]

With this restriction, the employment rate among the PISA/TREE cohort lies at 87%, which is thus higher than the rate among the entire population aged 15-64. However, as Figure 6 shows, there exist considerable differences by gender, language region, and type of (upper secondary) diploma.

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15 Six percent of the cohort is mainly in employment and enrolled in part-time education. Eleven percent is mainly in education while working part-time. The first group includes employees who, in addition to working, are preparing for post-secondary VET degrees; the second group consists of, for instance, university students working at part-time jobs to supplement their income.

16 According to international standards, the employment rate is defined as the number of people employed as a percentage of the population of the same age.

17 Source: Bundesamt für Statistik, Schweizerische Arbeitskräfteerhebung SAKE, 2007 (Swiss Labour Force Survey SLFS).

18 We elect to do so, because the major part of the cohort not in employment is mainly in education. The composition of the group "not in employment" in the PISA/TREE cohort thus differs substantially from that of the Swiss population as a whole.

Persons without a post-compulsory diploma are significantly less frequently in employment than upper secondary level graduates holding a VET diploma or a professional baccalaureate (76% vs. 90%). The experience of these newcomers to the labour market confirms findings that apply to the entire population of working age, and not just in Switzerland: Employment rates increase in step with educational attainment[19].

FIGURE 6: EMPLOYMENT RATE BY UPPER SECONDARY CERTIFICATION, GENDER AND LANGUAGE REGION, 2006

		Upper secondary VET diploma	No upper secondary diploma	*N population estimate =100% (rounded to thousands)*
German-speaking Switzerland				
	Women	92%	91%	*16,000*
	Men	91%	81%	*17,000*
French and Italian-speaking Switzerland				
	Women	89%	44%	*4,000*
	Men	79%	75%	*5,000*
Total		90%	76%	*41,000*
N population estimate =100% (rounded to thousands)		*34,000*	*7,000*	

* *Numerator: number of cohort members who were mainly employed and not mainly in education (anymore) in 2006. Denominator: number of cohort members who were not mainly in education (anymore) in 2006.*

Example of how to read the table: The employment rate of German-speaking Swiss men without an upper secondary diploma stands at 81%, the rate of women from French and Italian-speaking regions with a VET diploma at 89%.

Language region, however, is a factor that strongly interferes with this general tendency. The employment rate in French and Italian-speaking (i.e. Latin) Switzerland is overall – that is, irrespective of education – markedly lower (approximately 75%) than in German-speaking Switzerland (90%). Moreover, it catches the eye that in Switzerland's Latin regions employment among women without an upper secondary level diploma is at only about half the level (at 44%) of women who hold a certificate. The finding requires more thorough scrutiny and is based on a fairly small sample (see appendix), but can clearly claim to be a statistically significant observation. A possible explanation for this disparity could be that in Switzerland's Latin parts women without a certificate more frequently completely retreat from the labour market (by not seeking employment at all) – possibly also due to the labour market structure – than in the German-speaking region.

A look at FSO labour market statistics[20] reveals that there is little variation in the overall employment rate among the regions. This is a sign that there are regional differences specific to newcomers' employment behaviour or their access to the labour market (and that do not extend to the workforce in general). We can assume the significantly larger share of young people leaving the education system without post-compulsory certification in French-speaking Switzerland as compared to the German-speaking parts to be a factor in explaining this regional disparity (see Figure 4, p. 13).

A multivariate analysis[21] of the three factors confirms this assumption. After controlling for gender and language region, chances to be employed are more than twice as high for cohort members holding a VET diploma compared to those without a post-compulsory certificate. Nevertheless, the impact of language region still holds in multivariate analysis: Gender and certification being equal, the prospects of employment in German-speaking Switzerland are twice as high as in French-speaking Switzerland and even

19 Cf. BFS (ed.): Der Arbeitsmarkt im internationalen Vergleich. Frauen und Männer im Erwerbsleben. BFS aktuell. Neuchâtel 2007.

20 FSO: Labour market indicators for 2008. Comments on findings for the period 2002–2008. Federal Statistical Office. Neuchâtel 2008.

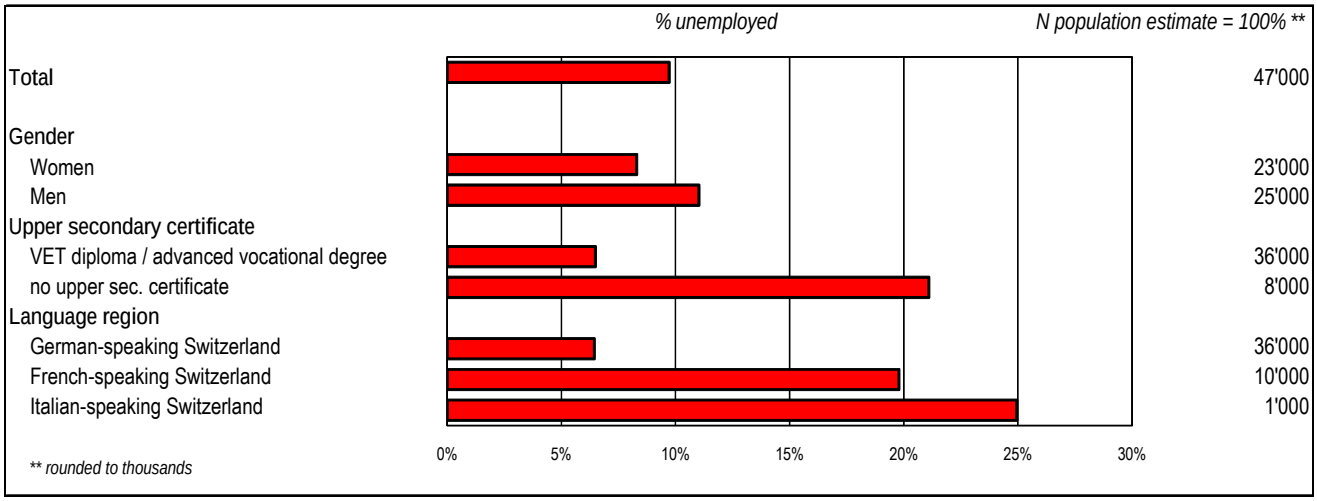
21 Multinomial logistic regression. See annex for a detailed model.

about three times as high as in the Italian-speaking region. Gender has no significant impact on employment when controlling for the other two factors.

Unemployment and job search

Approximately 10% of the economically active population in the PISA/TREE cohort were unemployed in 2006. In absolute numbers that amounts to approximately 5,000 people.[22] The Swiss labour force survey determined an unemployment rate of nearly 8% among the age group 15-24 in 2006. Taking estimation errors and differences in populations into account, we may speak of a good level of agreement between the figures from the two data sources. Accordingly, the unemployment rate among young adults is approximately twice the rate of the total workforce (4%).

FIGURE 7: UNEMPLOYMENT BY SELECTED CHARACTERISTICS, 2006



A young person without a post-compulsory certificate bears a significantly higher risk of unemployment (>20%) compared to a peer holding a VET diploma (6%). As is true for the employment rate, there are also sizable disparities in the unemployment rate by language region. Whereas the unemployment rate in German-speaking Switzerland stands at approximately 6 percent, it ranges from 20 to 25 percent in French and Italian-speaking Switzerland. Although the results need more refinement, they nonetheless strongly suggest that the conditions surrounding the transition to working life vary substantially depending on which side of the (German) language border one stands.

In contrast, gender differences or disparities between the French and Italian-speaking regions are statistically non-significant.

Approximately six in ten young adults are officially registered as unemployed with the regional employment offices. According to Weber[23], this "registration rate" more or less equals the rate for the total adult workforce (age 24-64).

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22 In accordance with international standards, a person is defined as unemployed in this paper if he or she is of working age and at the time of reference a) is not in employment, b) has been seeking a job the previous four weeks and c) is in a position to take up a new job within a week (the latter criterion c, however, cannot be verified with reference to the TREE data). This definition, which is also used by the Swiss labour force survey, SAKE, includes persons not in unemployment who are not registered as such. In contrast, the Swiss State Secretariat for Economic Affairs publishes unemployment statistics that record only unemployed persons registered with the regional employment offices.

The economically active population consists of all persons employed or unemployed according to the definition above. The unemployment rate then is the number of persons unemployed as a percentage of the economically active population.

23 Weber, Bernhard: Die Situation von Jugendlichen auf dem Schweizer Arbeitsmarkt. Die Volkswirtschaft No. 3/2007, pp. 52-54.

About half of the youth employed in 2006 had spent some time searching for a job before finding employment. In this regard, no significant differences in terms of gender or upper secondary certification stand out. In Italian-speaking Switzerland, the portion of job seekers is significantly higher than in German-speaking Switzerland (68% vs. 47%).

On average, seeking employment takes a good three months. While gender appears to have no significant impact, language region and certification does: On average, it takes job seekers in Switzerland's Latin regions longer to find employment than in the German-speaking parts. And young persons without certification spend an average month more hunting for a job than their peers with a VET diploma.

Income

The TREE results give evidence that the wages newcomers to the labour market can expect at time of entry are considerably lower compared to the entire workforce. Their average as well as their median gross monthly income lies at approximately 4,200 Swiss francs. In comparison, the median[24] monthly income of the entire Swiss workforce in 2006 stood at 5,700 francs according to the FSO income survey.

The wage differentials between newcomers to the labour market and the total workforce largely persist irrespective of whether a VET certificate has been obtained or not. Although VET graduates, on the average, take home 500 Swiss francs more every month than their peers without post-compulsory certification (see Figure 9)[25], they still have far more than 1,000 francs less in their pockets at the end of the month than the average employee.

Gender makes a big difference right from the start. The income gap is substantial. A young woman's paycheck averages 4,000 Swiss francs a month. That amounts to 400 francs less than her male counterpart (4,400), which qualifies as a statistically significant differential. The gap persists even after controlling for occupation and therefore does not simply mirror different levels of qualification (see Figure 10 and the interpretation below).

Figure 8 highlights that women in comparison to men are heavily overrepresented at the bottom of the wage scale. After extrapolating income to full-time job equivalents (to compensate for gender-specific differences in regard to part-time employment), a good fifth of the young women first entering the labour market have to settle for a monthly wage lower than 3,500 francs. Only 6 % of the young men are asked to work for such pay. The gender gap in wages widens even further when we consider actual income. The fact that women more often than men work part-time (19% of women as opposed to 8% of men) accentuates such differences: At least one out of four young women achieves an actual gross monthly income of less than 3,500 francs, nearly every sixth woman even less than 3,000. The respective percentages for men are 6 and 11%.

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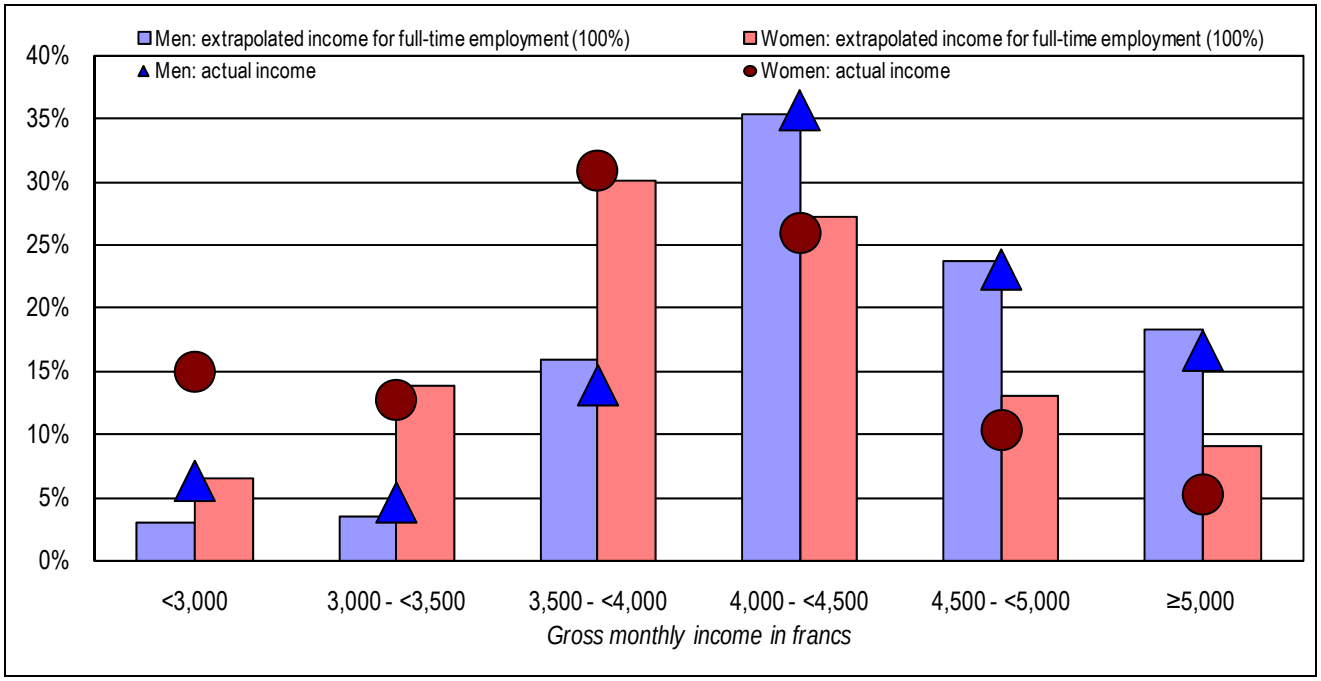
[24] Source: BFS (ed.): Schweizerische Lohnstrukturerhebung 2006 (wage distribution survey). Erste Ergebnisse. BFS aktuell. Neuchâtel, November 2007.

The median is defined as the value that splits the sample in half, that is, half of the sample is above and the other half below this value. In our case, this means that half of the workforce earns more, the other half less than 5,700 Swiss fancs. For income distributions accross entire populations, the median typically is somewhat lower than the average. As opposed to average income, the median is less vulnerable to distortion from statistical irregularities. However, since the income among the TREE cohort, standardised for full-time employment, essentially corresponds to a Gaußian distribution and shows no distortions, we have chosen to use the more common "average" instead of the median in this section.

[25] The income differential between both groups is statistically significant only in case of males.

FIGURE 8 INCOME DISTRIBUTION BY GENDER AMONG ECONOMICALLY ACTIVE COHORT MEMBERS SIX YEARS AFTER COMPULSORY SCHOOL



Example of how to read the graph: Based on actual income, 15% of all women but only about 6% of all men earn less than 3,000 francs a month. Based on extrapolated income for full-time employment, approximately 18% of all men but only 9% of all women earn 5,000 francs and more.

Figure 9 suggests that income not only varies by gender but also by graduation status and language region, in part with mutually interfering effects. Six years after compulsory school, lack of a post-compulsory certificate makes a big difference to the paycheck, especially in French and Italian-speaking Switzerland. The average wage differential between upper secondary level graduates and non-graduates lies at approximately 800 francs, which amounts to roughly 20%. Besides, there is also a substantial wage gap between the regions: On average, newcomers to the labour market in Switzerland's Latin regions make less than 4,000 francs a month (approx. 3,900), which is a few hundred francs less than their German-speaking counterparts.

FIGURE 9: MEAN INCOME BY GENDER, GRADUATION STATUS AND LANGUAGE REGION

	Gross monthly income (full-time equivalent, rounded to 100 francs)			Wage differential men-women in %	Population estimate rounded to thousands
	Women	Men	Total		
Switzerland, total	4,000	4,400	4,200	9%	25,000
VET diploma / advanced vocational degree	4,000	4,500	4,300	11%	21,000
No upper secondary certificate	3,700	3,800	3,800	3%	3,000
Diffential VET diploma/ no diploma, in %	8%	16%	12%		
German-speaking Switzerland	4,100	4,500	4,300	9%	20,000
VET diploma	4,100	4,500	4,300	9%	17,000
No upper secondary certificate	*	*	4,000		2,000
Diffential VET diploma/ no diploma, in %	*	*	7%		
French and Italian-speaking Switzerland	3,600	4,200	3,900	14%	5,000
VET diploma	3,800	4,400	4,100	14%	3,000
No upper secondary certificate	*	*	3,300		<1,000
Diffential VET diploma/ no diploma, in %	*	*	20%		

** Number of cases too small*

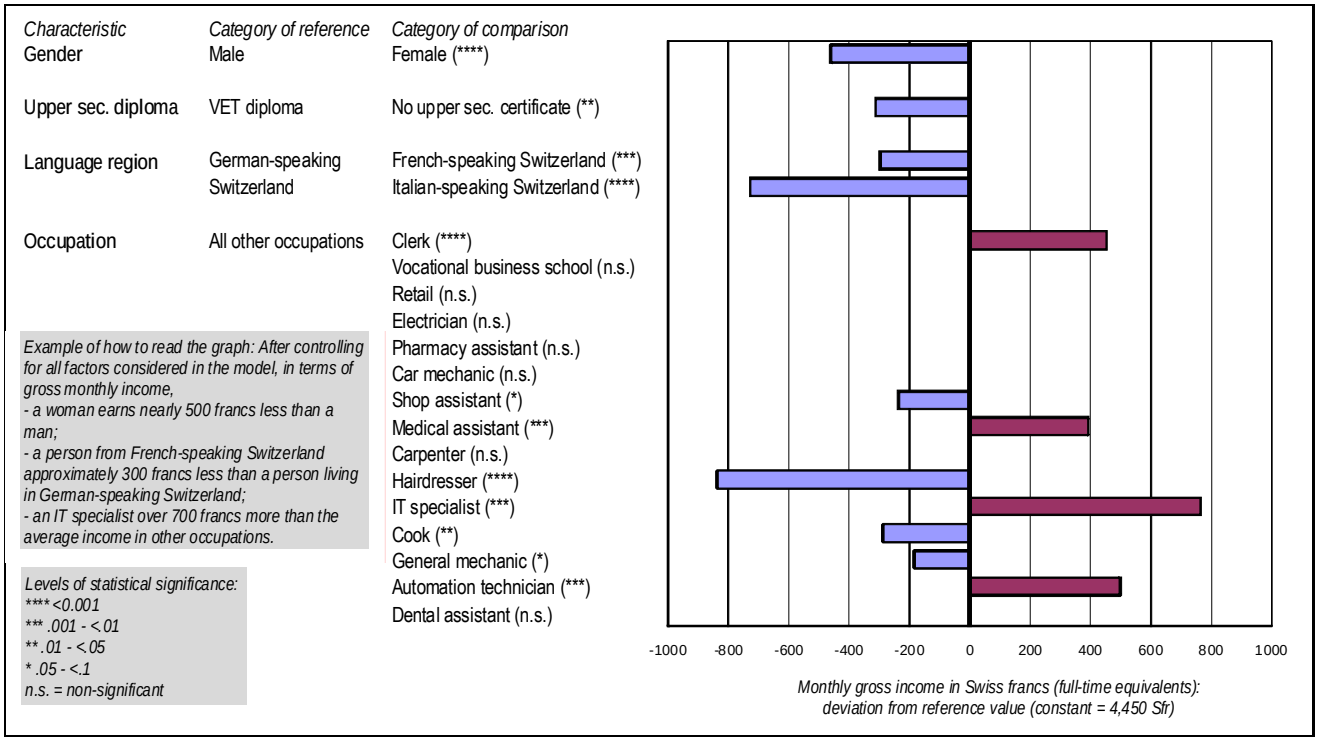
How do these different factors interact? We sought to answer this question using a multivariate model that controls for language region, gender, graduation status and occupation in which respondents were trained. This allows to avoid a good part of the distortion potentially arising from the fact that women frequently work in occupations that *generally* pay less than male-dominated jobs.

Figure 10 shows the "net" wage differential between men and women to be nearly 500 Swiss francs a month. It seems well justified to interpret this observation as a serious case of wage discrimination: Women earn approximately 500 francs a month less than men even if the male counterpart has been trained in the same occupation and comes from the same language region.

Gender-based wage discrimination in Switzerland is fairly well documented for the entire workforce. According to the Swiss Federal Statistical Office, "objective" factors, such as education, seniority or sector of employment, account for 12% of the average 20% wage differential between men and women.[26] The other 8% are a manifestation of wage discrimination. Even though the TREE analyses are not able to control for all of these factors, the results nevertheless suggest that women are already subject to substantial wage discrimination at the point of entering the workforce.

The multivariate analysis also shows that graduation from VET has an independent impact on income irrespective of all other factors. After controlling for gender, language region and occupation trained for, a young person without a post-compulsory certificate can expect to earn an average 300 Swiss francs less than a peer having completed a VET programme.

FIGURE 10: LINEAR REGRESSION ANALYSIS FOR IMPACT OF GENDER, GRADUATION STATUS, LANGUAGE REGION AND OCCUPATION TRAINED FOR ON INCOME[27]



[26] According to a study on behalf of the Swiss Federal Statistical Office and the Swiss Equal Opportunities Commission, cited in: BFS (ed.): Schweizerische Lohnstrukturerhebung 2006. Neuchâtel 2007, p.7.

[27] See appendix for a complete list of model input parameters.

Multivariate analysis also confirms income disparities among the language regions. Other things being equal, new entrants to the labour market in German-speaking Switzerland find approximately 300 francs more in their paycheck than newcomers in the French-speaking regions and even over 700 francs more than their counterparts in Italian-speaking Switzerland.

And finally, VET training occupation is a crucial determinant of expected income at point of entry into working life. After controlling for gender, graduation status and language region, young people having successfully trained to become IT specialists, clerks, automation technicians and medical assistants can expect to take home anywhere from 400 up to 800 francs more a month when first entering the labour market compared to peers holding a VET diploma in other occupations. On the other side of the coin, having trained to become a sales assistant, cook, general mechanic or hairdresser amounts to a loss in gross monthly income in the range of 200 to 800 francs.

Precarious employment

In the following, we will consider underemployment, temporary employment, work on demand and job-skills mismatch as signs of precarious employment. Our analysis strongly draws on concepts as defined and applied by the Swiss labour market survey, SAKE, and the State Secretariat for Economic Affairs (Seco).[28]

UNDEREMPLOYMENT

Underemployment is a precarious and, in the view of employees, undesirable or involuntary form of part-time employment. Among the members of the PISA/TREE cohort recorded as (mainly) in employment, roughly one out of eight (13%) are employed on a part-time basis – women clearly more often than men (19% vs. 8%), employees in Western and Southern Switzerland much more frequently than in the German-speaking parts of the country (20% vs. 12%). Approximately three out of four part-time employees work at 50 to 90% of the full-time level, the other quarter works less than 50% time.

Nearly half of all part-time employment falls into the category of underemployment. Forty-six percent of the PISA/TREE cohort employed on a part-time basis claim that they would prefer to work full-time. Gender makes no difference in this respect. Based on total employment, this results in a 6-7% underemployment rate (women: ~ 9%, men: 4%). The underemployment rate is significantly higher in Western and Southern Switzerland (13%) as compared to German-speaking Switzerland (5%). It affects cohort members without a post-compulsory certificate at a higher rate as well (23%). However, because of small case numbers, these results represent borderline cases in terms of statistical significance.

The overall underemployment rate for the PISA/TREE cohort is fairly close to the rate SAKE determined for the entire Swiss workforce (6%).

TEMPORARY EMPLOYMENT

Approximately ten percent of the young people in employment were working on the basis of contracts scheduled to terminate within a year. Women are twice as often in temporary employment as are men (14% vs. 7%). Language region makes no difference in this respect. For the entire Swiss workforce, SAKE calculated a temporary employment rate of 7 percent, which is a bit lower than we determined for the PISA/TREE cohort, and gender disparities are also less pronounced.[29] A KV Schweiz (Swiss Association

[28] Ecoplan: Prekäre Arbeitsmarktverhältnisse in der Schweiz. Arbeitsmarktpolitik No. 9. seco, Bern 2003.

[29] Cf. the labour market indicators at the Federal Statistical Office website: www.statistik.admin.ch.

of Commercial Employees) study[30] reports considerably higher temporary employment rates (30% and more) among graduates of training programmes for clerks and occupations in retailing. However, the sample and period under study are not comparable to TREE.

WORK ON DEMAND

Eight percent of the TREE population in employment works on demand, which means that these employees only go to work when their employer asks them to. There are no significant differences related to gender or language region. Young persons without an upper secondary level certificate more often work in on-demand arrangements (12%) than VET graduates (6%). The observed disparity, however, is just below the level of statistical significance. For the total Swiss workforce, SAKE has determined an on-demand rate of 6.5 percent.[31]

JOB-SKILLS (MIS)MATCH

In 2006, approximately four out of five members of the PISA/TREE cohort in employment holding a VET diploma work in the occupation they were trained for. A vast majority of VET graduates is hence given the opportunity to actually pursue the careers they trained for. On the other hand, nearly a fifth of the cohort in employment is not (or no longer) active in the occupation it trained for. Roughly half of this group, however, works in the same occupational field and at the same level of qualification. This leaves a group of 10% VET graduates who are inadequately qualified for their current jobs.[32] While in this regard no statistically significant differences due to gender and language region were noted, occupation trained for does have an effect. Hairdressers and cooks, for instance, face a higher statistical risk of experiencing this type of inadequate employment in comparison to all other occupations.

PRECARIOUS EMPLOYMENT AT A GLANCE

The findings for each of the precariousness indicators suggest that a large majority of the young people entering the labour force do so under "normal" conditions. In a cumulative perspective, however, our analysis shows that a notable minority of our newcomers make their first steps onto the labour market under precarious circumstances.

For nearly a fifth of the PISA/TREE cohort in employment in 2006, at least one of three precariousness indicators applies: underemployment, temporary employment or work on demand. Women work twice as often in precarious arrangements as men (26% vs. 14%). If we consider only young persons in employment holding a VET diploma and check for job-skills mismatch[33], the overall precariousness rate jumps to 26%. This rate also affects women statistically significantly more frequently than men (30% vs. 22%).

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30 Margreiter, Ralf; Heinimann, Eva: Perspektiven nach der Lehre Umfrage zur Stellensituation bei Lehrabgänger/innen im kaufm. Berufsfeld und im Detailhandel. Zwischenbericht August 2007. KV Schweiz, Zurich.

31 BFS (ed.): SAKE 2006 in Kürze. Wichtigste Ergebnisse der Schweizerischen Arbeitskräfteerhebung. Neuchâtel 2007.

32 For a more detailed account, especially on determinants of job-skills mismatch, see Kathrin Bertschy: Erfolgreicher Übergang von der Lehre ins Erwerbsleben. Langfristige Effekte von sozialer Herkunft und besuchtem Schultyp. Lizenziatsarbeit an der Forschungsstelle für Bildungsökonomie der Universität Bern. Bern 2007.

33 According to our definition of job-skills mismatch, this type of employment by definition does not apply to persons without a post-compulsory VET diploma.

GROWING UP TO ADULTHOOD

Passage into working life is certainly not the only transition that youth have to make in the period between the end of compulsory education and the early stages of adulthood. Leaving the parental home and establishing an independent household, first stable partner relationships, marriage and parenthood are all important transitions.

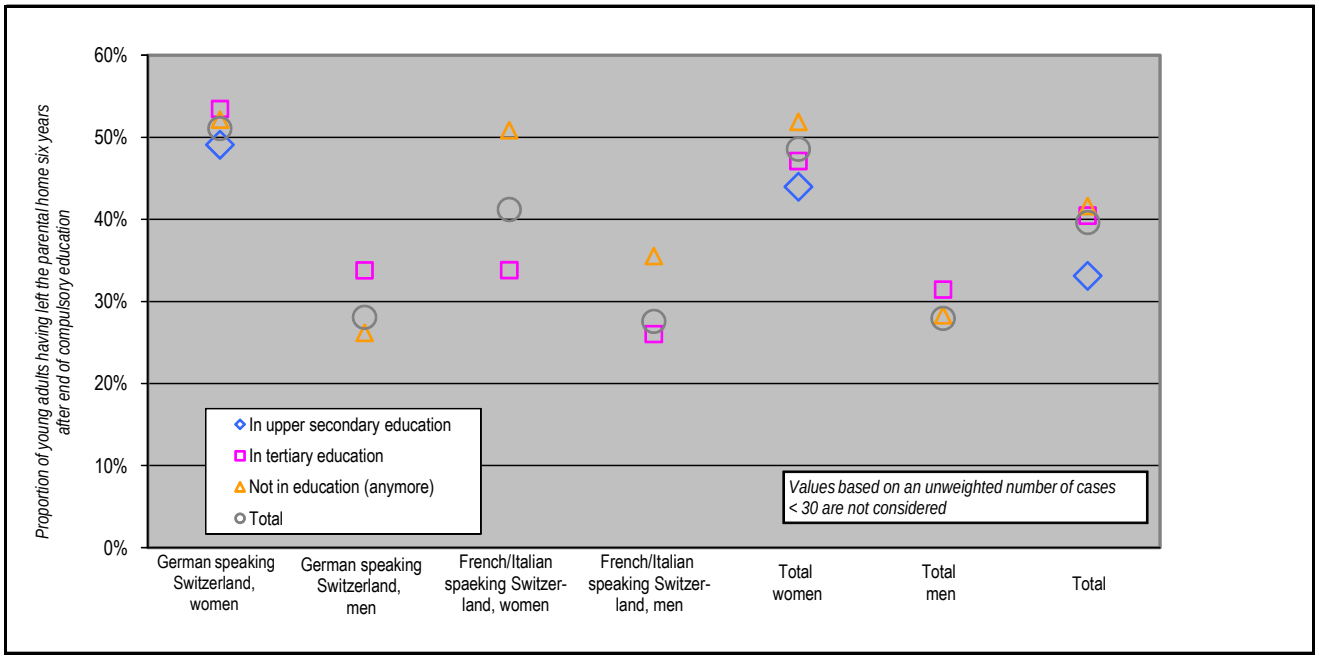
Our interim findings for the TREE panel six years after the end of compulsory education indicate that the young people in our survey are in no hurry to leave the parental home. By 2006, at a mean age of 22, only about 40% of the PISA/TREE cohort had done so. The rate varies considerably by language region, gender and education status.

In particular, the rate of women not living with their parents anymore is nearly twice the rate of men (49% vs. 28%). The "Hotel Mommy" factor, often lamented in studies on the topic with regard to young Italian males, thus also shows in the behaviour of young male adults in Switzerland.

The expectation that the education and employment situation would have an impact on the "home-leaving rate" was not confirmed, at least not for German-speaking Switzerland. Only males in tertiary education exhibit a slightly higher but statistically non-significant rate compared to other males. By contrast, the "home-leaving rate" among women in Western and Southern Switzerland shows considerable disparities depending on education situation. Women not in education (anymore) have left the parental home far more often than their female peers who are still in education.[34]

In the period under observation, only a tiny minority in the PISA/TREE cohort (5% and less) has experienced other life events of major significance, such as marriage or birth of the first child.

FIGURE 11: LEAVING THE PARENTAL HOME BY LANGUAGE REGION, GENDER AND EDUCATION SITUATION



[34] In case of women in Western and Southern Switzerland, there are statistically significant differences between the categories "not in education (anymore)" and "in tertiary level education".

CONCLUSION AND PROSPECTS

The TREE data for the first time allow to analyse the transition from education to working life for an entire cohort of school leavers in Switzerland. At the centre of attention in this publication are young people who made this transition from VET (within six years, by 2006). This group of VET graduates (upper secondary level) is compared to a control group having left the education system without a post-compulsory certificate (e.g. VET diploma or diploma of general education).

So far, the overall assessment of the transition processes under study ends on a positive note. At 87%, the employment rate among cohort members not in education anymore is high. First analyses of job-skills (mis)matches, that is, the fit between acquired skills and current employment, also present a favourable picture. Six years after the end of compulsory education, some four out of five VET graduates work in the occupations they trained for.

The part of the cohort attempting to gain a foothold in the labour market without a post-compulsory certificate is clearly at a disadvantage. The young people lacking such certification are less frequently employed, search longer for employment, earn less and are more often subject to precarious forms of employment, such as underemployment or work on demand. A comparison with the 2005 TREE results[35] suggests that the disadvantages this group is exposed to in contrast to their certified peers increase over time.

Yet, the transition of the young, certified newcomers to the labour force does not always proceed smoothly either. Their unemployment rate stood at approximately 7% in 2007, which was twice the rate of the entire Swiss workforce. The incidence rate of unemployment over a longer period of time can even be expected to be considerably higher. Roughly a quarter of the certified cohort members in employment are subject to precarious employment arrangements, such as temporary or underemployment, work on demand or job-skills mismatch.

The glaring disparities in some of the most important labour market parameters associated with gender and language region are striking. The TREE results clearly testify to the fact that women with comparable qualifications to men already experience wage discrimination when first entering the labour market. The findings also suggest that the circumstances of entering the labour market are substantially different for young adults in German-speaking Switzerland than for their peers in the French and Italian-speaking parts. The latter face considerably lower employment and higher underemployment rates, a significantly enhanced risk of unemployment and lower wages. Besides, TREE results indicate that in French-speaking Switzerland a markedly greater number of young adults remains without a completed post-compulsory education compared to the German-speaking region.

The findings reported raise at least as many (additional) questions as they attempt to answer. The results published still require more thorough scrutiny in various respects. For instance, more refined analyses of the labour market transition are called for, considering characteristics such as branches and economic sectors, occupational fields or areas of qualification. Particularly the careers of the TREE participants are a key area in need of further analyses, in a dynamic perspective geared toward identifying patterns and trajectories. Here, TREE for the first time offers the unique opportunity to dynamically link the conditions and modalities under which a cohort of school leavers enters and passes through upper secondary education with features characteristic of their later transition to working and adult life.

[35] Meyer, Thomas: School-to-work transition in Switzerland. Results as of 2004 from the TREE panel survey. Bern, TREE 2005.

SHORT GLOSSARY

Certificate, certification: see → graduation

Graduation (rate); certificate, certification: This publication is primarily concerned with graduates of upper secondary level education and training programmes extending over three or more years (Federal VET certificate, academic or vocational baccalaureate or equivalent degrees). Preparatory and other non-standardised short-term training programmes at the upper secondary level are not considered.

Latin parts or regions in Switzerland: French and Italian-speaking Switzerland.

Non-completion/dropout, without upper secondary level education: TREE considers persons as being without upper secondary level education who have either prematurely dropped out of an → upper secondary level education and training programme (→ graduation; certificate, certification) or have failed to enter such an education to begin with.

PISA: Programme for International Student Assessment

PISA/TREE cohort: The PISA/TREE cohort consists of a panel of 6,000 youth, representative for Switzerland and its language regions, who participated in the first PISA survey and ended compulsory education in 2000 and since then have participated in TREE's regular yearly panel surveys.

Tertiary level: The tertiary level (ISCED[36] level 3) refers to university level education, including the universities of applied sciences as well as the technical colleges and other post-secondary programmes that require an upper secondary level certificate.

Threshold: A term used to indicate a critical point of transition in German-speaking life course transition research. The transition from compulsory school to post-compulsory education is generally referred to as the *first threshold*, whereas the transition from upper secondary or tertiary level education to the labour market is called the *second threshold*.

TREE: Acronym for the Swiss youth panel survey "Transitions from Education to Employment".

Unemployment: In this survey, respondents that claim to be unemployed are considered to be unemployed irrespective of whether they are officially registered as such with an employment office. "Registered unemployment" is additionally recorded in its own right.

Upper secondary level: In Switzerland, the upper secondary level (ISCED level 3) follows the lower secondary level, which is the last stage in compulsory education. It includes → VET programmes and general education programmes. Today, an upper secondary level certificate is regarded to be a minimum requirement for successful entry into the labour market with good prospects for stable employment.

VET: Vocational education and training

[36] International Standard Classification of Education

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SELECTED TREE PUBLICATIONS

BFS/TREE (eds.): Wege in die nachobligatorische Ausbildung. Die ersten zwei Jahre nach Austritt aus der obligatorischen Schule. Zwischenergebnisse des Jugendlängsschnitts TREE. Reihe "Bildungsmonitoring Schweiz" des Bundesamtes für Statistik. Neuchâtel 2003.

OFS/TREE (Hg.): Parcours vers les formations postobligatoires. Les deux premières années après l'école obligatoire. Série “Monitorage de l'éducation” de l’Office fédéral de la statistique. Neuchâtel 2003.

Sandra Hupka, Stefan Sacchi & Barbara E. Stalder: Does the Swiss VET System encourage inequity? Working paper. Bern: TREE 2006.

Meyer, Thomas: School-to-work transition in Switzerland. Results as of 2004 from the TREE panel survey. Bern, TREE 2005.

Meyer, Thomas: When being smart is not enough: institutional and social access barriers to upper secondary education and their consequences on successful labour market entry. The case of Switzerland. Bern, TREE 2003.

All of the above publications (and many more) can be accessed and downloaded at the project website (www.tree-ch.ch).

APPENDIX:
ESTIMATES, ESTIMATION ERRORS, SAMPLE SIZES AND DETAILED PARAMETERS OF THE MULTIVARIATE MODELS

Figure 2: Education and employment situation 1-6 years after end of compulsory education

		Estimate in %	95% confidence interval upper boundary	95% confidence interval lower boundary	Estimation for population total	95% confidence interval upper boundary	95% confidence interval lower boundary	No. of cases, unweighted non pond.
2001	Upper secondary level: VET	49.0%	46.3%	51.7%	39'175	36'058	42'293	2'372
	Upper secondary level: general education	26.7%	23.5%	30.2%	21'337	18'601	24'073	2'117
	Tertiary level education							
	Employment (only persons not in education [anymore])	2.2%	1.7%	2.8%	1'746	1'273	2'219	80
2002	Upper secondary level: VET	64.4%	61.3%	67.5%	51'522	47'618	55'426	2'824
	Upper secondary level: general education	25.7%	22.7%	28.9%	20'531	17'974	23'087	2'018
	Tertiary level education							
	Employment (only persons not in education [anymore])	2.6%	2.0%	3.5%	2'096	1'513	2'679	90
2003	Upper secondary level: VET	63.8%	60.7%	66.9%	51'035	47'137	54'934	2'634
	Upper secondary level: general education	24.8%	21.8%	28.0%	19'794	17'247	22'340	1'866
	Tertiary level education	1.5%	1.1%	2.2%	1'223	768	1'677	53
	Employment (only persons not in education [anymore])	4.7%	3.8%	5.8%	3'743	2'940	4'545	150
2004	Upper secondary level: VET	41.4%	38.8%	44.1%	33'140	30'314	35'967	1'660
	Upper secondary level: general education	12.7%	11.6%	14.0%	10'188	9'189	11'187	1'173
	Tertiary level education	7.2%	5.9%	8.8%	5'784	4'647	6'921	419
	Employment (only persons not in education [anymore])	23.4%	21.3%	25.6%	18'708	16'516	20'900	767
2005	Upper secondary level: VET	16.4%	14.7%	18.3%	13'157	11'552	14'762	672
	Upper secondary level: general education	6.4%	5.5%	7.6%	5'163	4'313	6'013	400
	Tertiary level education	16.3%	14.0%	18.9%	13'059	11'164	14'955	1'225
	Employment (only persons not in education [anymore])	41.4%	38.6%	44.2%	33'176	29'939	36'414	1'367
2006	Upper secondary level: VET	10.3%	8.9%	11.9%	8'220	6'997	9'442	400
	Upper secondary level: general education	2.2%	1.7%	2.8%	1'758	1'307	2'210	114
	Tertiary level education	21.9%	19.4%	24.7%	17'525	15'353	19'696	1'577
	Employment (only persons not in education [anymore])	53.1%	50.1%	56.1%	42'493	38'637	46'348	1'534

Figure 3: Education situation and graduation status in sixth year after leaving compulsory school

Upper secondary level VET								
	VET diploma	36.5%	30.2%	43.4%	3'527	2'911	4'191	169
	General education diploma	9.3%	6.7%	12.9%	899	643	1'244	67
	No certificate	54.1%	47.7%	60.5%	5'225	4'599	5'837	229
Upper secondary level general education								
	VET diploma	16.7%	9.3%	28.2%	258	143	436	16
	General education diploma	15.9%	7.6%	30.3%	245	117	469	15
	No certificate	67.4%	52.8%	79.3%	1'042	816	1'226	64
Tertiary level								
	VET diploma	25.3%	20.7%	30.6%	4'596	3'755	5'551	321
	General education diploma	73.7%	68.4%	78.5%	13'391	12'425	14'245	1'278
	No certificate	0.9%	0.2%	4.3%	171	36	779	4
Other education situation								
	VET diploma	70.0%	61.7%	77.2%	3'940	3'470	4'345	168
	General education diploma	18.0%	13.6%	23.5%	1'014	765	1'323	97
	No certificate	11.9%	6.8%	20.2%	671	381	1'135	31
Not in education (anymore)								
	VET diploma	76.4%	72.8%	79.6%	34'377	32'789	35'819	1'324
	General education diploma	5.3%	4.0%	7.0%	2'393	1'805	3'161	155
	No certificate	18.3%	15.3%	21.8%	8'252	6'902	9'797	197
Total								
	VET diploma	58.4%	55.0%	61.7%	46'696	44'000	49'336	1'998
	General education diploma	22.4%	19.5%	25.6%	17'942	15'616	20'504	1'612
	No certificate	19.2%	17.1%	21.5%	15'361	13'672	17'200	525

	Estimate in %			Estimation for population total			No. of cases, unweighted non pond.
		95% confidence interval			95% confidence interval		
		upper boundary	lower boundary		upper boundary	lower boundary	
Figure 4(a): Without upper secondary level certificate, by selected characteristics, in 2006							
Total	9.9%	8.2%	12.0%	7'956	6'338	9'574	188
Gender							
Female	10.9%	8.1%	14.4%	4'298	2'967	5'630	90
Male	9.0%	6.9%	11.8%	3'658	2'644	4'671	98
Migration background							
Father born in S-E Europe / Portugal	20.2%	14.0%	28.2%	2'154	1'310	2'997	46
Father born in Switzerland	6.6%	4.9%	8.8%	3'517	2'454	4'580	97
Type of lower secondary school attended							
Exigences élémentaires	14.7%	11.0%	19.4%	3'598	2'414	4'782	79
Exigences étendues	7.4%	5.6%	9.8%	3'975	2'807	5'143	93
PIS-reading-literacy							
Proficiency level 0/1	24.0%	18.1%	31.2%	3'853	2'645	5'061	59
Proficiency level 2	12.4%	8.6%	17.5%	2'250	1'355	3'145	59
Proficiency level 3	6.6%	4.6%	9.4%	1'595	989	2'201	50
Proficiency level 4/5	1.2%	0.7%	2.1%	258	110	406	20
Socio-economic status							
Lowest tercile	14.8%	11.4%	19.0%	3'871	2'781	4'961	76
Medium tercile	10.1%	7.1%	14.2%	2'680	1'705	3'656	60
Highest tercile	4.0%	2.6%	6.1%	1'056	591	1'520	49
Language region							
French-speaking Switzerland	15.7%	12.5%	19.6%	3'077	2'275	3'879	99
German-speaking Switzerland	8.0%	6.0%	10.7%	4'600	3'198	6'002	74
Italian-speaking Switzerland	8.7%	6.5%	11.6%	279	193	364	15
Education situation 1 year after leaving compulsory school							
Not in education	54.1%	38.3%	69.1%	1'882	935	2'828	23
Intermediate training programme	16.7%	11.4%	23.9%	1'683	981	2'386	43
VET, high requirements	7.8%	4.2%	14.2%	1'217	428	2'006	27
VET, low/medium requirements	6.1%	3.7%	9.8%	1'151	592	1'711	35
General education	2.6%	1.5%	4.6%	499	209	789	21
Degree of urbanization							
Urban agglomeration	11.2%	8.8%	14.1%	5'730	4'269	7'190	136
Rural areas	7.8%	5.4%	11.0%	2'226	1'363	3'089	52
Figure 4(b): Tertiary level education, by selected characteristics, in 2006							
Total	22.4%	19.9%	25.2%	17'952	15'778	20'125	1'600
Gender							
Female	27.2%	23.9%	30.7%	10'746	9'335	12'157	992
Male	17.8%	15.3%	20.7%	7'205	6'132	8'279	608
Migration background							
Father born in S-E Europe / Portugal	7.5%	5.4%	10.3%	797	569	1'026	78
Father born in Switzerland	25.0%	21.9%	28.3%	13'379	11'526	15'232	1'188
Type of lower secondary school attended							
Exigences élémentaires	3.0%	2.1%	4.2%	722	484	961	94
Exigences étendues	31.6%	28.3%	35.1%	16'913	14'732	19'093	1'418
PIS-reading-literacy							
Proficiency level 0/1	1.5%	0.8%	2.6%	235	99	371	15
Proficiency level 2	8.0%	6.1%	10.4%	1'448	1'071	1'824	125
Proficiency level 3	23.6%	20.5%	26.9%	5'718	4'853	6'583	495
Proficiency level 4/5	49.1%	44.1%	54.1%	10'543	8'800	12'287	964
Socio-economic status							
Lowest tercile	8.7%	6.7%	11.3%	2'281	1'720	2'842	155
Medium tercile	16.3%	13.6%	19.4%	4'328	3'595	5'061	385
Highest tercile	42.7%	38.7%	46.8%	11'245	9'664	12'827	1'050
Language region							
French-speaking Switzerland	24.8%	21.9%	28.0%	4'862	4'244	5'480	722
German-speaking Switzerland	21.3%	17.9%	25.1%	12'168	10'086	14'250	645
Italian-speaking Switzerland	28.9%	26.6%	31.3%	922	839	1'005	233
Education situation 1 year after leaving compulsory school							
Not in education	0.8%	0.2%	2.7%	26	-6	59	3
Intermediate training programme	6.8%	4.5%	10.1%	683	402	964	48
VET, high requirements	16.7%	13.8%	20.1%	2'597	2'015	3'180	213
VET, low/medium requirements	2.8%	1.9%	4.2%	525	316	735	34
General education	65.5%	61.7%	69.1%	12'458	10'448	14'468	1'222
Degree of urbanization							
Urban agglomeration	25.7%	22.3%	29.5%	13'190	11'096	15'285	1'152
Rural areas	16.6%	12.8%	21.2%	4'761	3'317	6'206	448

		Estimate in %	95% confidence interval		Estimate for population total	95% confidence interval		No. of cases, unweighted non pond.
			upper boundary	lower boundary		upper boundary	lower boundary	
Figure 5: Employment and education status, 2006								
Not employed		5.7%	4.6%	7.1%	4'600	3'700	5'700	207
Full-time employment		47.6%	45.2%	48.7%	38'100	36'200	39'000	1'351
Mainly in employment, part-time in education		5.5%	4.4%	6.9%	4'400	3'500	5'500	183
Mainly in education, part-time employed		11.3%	10.3%	12.4%	9'100	8'300	10'000	796
Full-time in education		26.8%	25.7%	27.8%	21'400	20'500	22'200	1'468
Neither in education nor in employment		2.7%	1.9%	3.8%	2'200	1'600	3'100	107
Figure 6: Employment rate by graduation status, gender and language region, 2006								
German-speaking Switzerland with VET diploma/advanced vocational degree								
	Women	91.7%	86.6%	95.0%	13'068	11'113	15'024	411
	Men	91.1%	87.2%	94.0%	15'142	13'198	17'087	361
German-speaking Switzerland without upper sec. certificate								
	Women	91.5%	81.3%	96.4%	2'676	1'690	3'663	41
	Men	80.7%	54.8%	93.5%	1'687	800	2'575	25
Fr/It.-speaking Switzerland with VET diploma/advanced vocational degree								
	Women	89.1%	83.4%	93.1%	2'794	2'325	3'264	298
	Men	79.1%	69.4%	86.3%	3'108	2'519	3'697	212
Fr/It.-speaking Switzerland without upper sec. certificate								
	Women	44.2%	22.4%	68.4%	732	281	1'184	32
	Men	74.9%	57.0%	87.0%	1'466	771	2'162	43
Total								
	VET diploma/advanced vocational degree	90.0%	87.5%	92.0%	34'125	30'701	37'548	1'282
	No upper sec. certificate	76.0%	66.8%	83.3%	6'563	5'014	8'111	141
Figure 7: Unemployment by selected characteristics, 2006								
Total		9.7%	7.8%	12.1%	4'576	3'672	5'673	207
Gender	Female	8.3%	6.1%	11.2%	1'868	1'369	2'526	100
	Male	11.0%	8.1%	14.9%	2'708	1'979	3'663	107
Upper sec. certificate	VET diploma/advanced vocational degree	6.5%	5.1%	8.3%	2'369	1'847	3'030	119
	No upper sec. certificate	21.1%	14.4%	29.9%	1'755	1'194	2'488	53
Language region	G.-sp. Switzerland	6.4%	4.6%	9.0%	2'322	1'644	3'252	65
	Fr.-sp Switzerland	19.8%	14.6%	26.3%	1'901	1'400	2'527	99
	It.-sp. Switzerland	25.0%	21.1%	29.2%	353	299	413	43
Figure 8: Income distribution by gender among economically active members of cohort six years after compulsory school								
Men: extrapolated income for full-time	<3,000	3.0%	1.4%	6.4%				16
	3,000 - <3,500	3.5%	2.3%	5.2%				33
	3,500 - <4,000	16.0%	11.7%	21.5%				80
	4,000 - <4,500	35.4%	28.7%	42.8%				138
	4,500 - <5,000	23.8%	18.9%	29.4%				96
	5,000 or more	18.4%	13.7%	24.2%				50
Men: extrapolated income for full-time	<3,000	6.6%	4.5%	9.5%				62
	3,000 - <3,500	13.9%	10.3%	18.4%				97
	3,500 - <4,000	30.2%	24.7%	36.2%				187
	4,000 - <4,500	27.2%	22.6%	32.5%				182
	4,500 - <5,000	13.1%	8.6%	19.5%				78
	5,000 or more	9.0%	6.2%	13.1%				51
Men: actual income	<3,000	6.3%	3.9%	10.0%				37
	3,000 - <3,500	4.6%	2.8%	7.5%				32
	3,500 - <4,000	13.9%	9.9%	19.1%				76
	4,000 - <4,500	35.6%	28.7%	43.1%				134
	4,500 - <5,000	23.0%	18.3%	28.5%				91
	5,000 or more	16.6%	12.0%	22.6%				42
Women: actual income	<3,000	15.0%	11.3%	19.6%				117
	3,000 - <3,500	12.7%	9.3%	17.2%				95
	3,500 - <4,000	30.8%	25.5%	36.8%				171
	4,000 - <4,500	26.0%	21.3%	31.2%				170
	4,500 - <5,000	10.4%	7.8%	13.7%				72
	5,000 or more	5.2%	3.1%	8.6%				30

		Estimate in %	95% confidence interval		Estimate for population total	95% confidence interval		No. of cases, unweighted non pond.
			upper boundary	lower boundary		upper boundary	lower boundary	

Figure 9: Mean income by gender, graduation status and language region

Women	Switzerland, total	3,997	3,900	4,093		657
	Swiss total: VET diploma / advanced vocational degree	4,030	3,920	4,140		553
	Swisss total: no upper sec. certificate	3,720	3,478	3,962		42
	G.-sp. Switzerland: total	4,076	3,967	4,186		393
	G.-sp. Switzerland: VET diploma	4,070	3,942	4,198		340
	G.-sp. Switzerland: no upper sec. certificate	3,888	3,653	4,122		23
	Fr./It.-sp. Switzerland: total	3,612	3,475	3,750		264
	Fr./It.-sp. Switzerland: VET diploma	3,800	3,682	3,918		213
	Fr./It.-sp. Switzerland: no upper sec. certificate	2,944	2,401	3,488		19
Men	Switzerland, total	4,442	4,342	4,542		413
	Swiss total: VET diploma / advanced vocational degree	4,519	4,420	4618		367
	Swiss total: no upper sec. certificate	3,834	3,426	4,242		31
	G.-sp. Switzerland: total	4,507	4,406	4,610		255
	G.-sp. Switzerland: VET diploma	4,539	4,434	4,644		235
	G.-sp. Switzerland: no upper sec. certificate	4,142	3,639	4,645		12
	Fr./It.-sp. Switzerland: total	4,189	3,909	4,470		158
	Fr./It.-sp. Switzerland: VET diploma	4,421	4,135	4,707		132
	Fr./It.-sp. Switzerland: no upper sec. certificate	3,530	2,947	4,113		19
Total	Switzerland, total	4,186	4,110	4,262		1,070
	Swiss total: VET diploma / advanced vocational degree	4,250	4,166	4,334		920
	Swiss total: no upper sec. certificate	3,762	3,533	3,992		37
	G.-sp. Switzerland: total	4,255	4,172	4,338		648
	G.-sp. Switzerland: VET diploma	4,278	4,185	4,372		575
	G.-sp. Switzerland: no upper sec. certificate	3,955	3,717	4,193		35
	Fr./It.-sp. Switzerland: total	3,884	3,723	4,045		422
	Fr./It.-sp. Switzerland: VET diploma	4,102	3,923	4,280		345
	Fr./It.-sp. Switzerland: no upper sec. certificate	3,312	2,854	3,770		38

Figure 11: Leaving the parental home by language region, gender and education situation

Men, German-speaking Switzerland					
	In upper secondary education	24.3%	12.4%	42.1%	14
	In teritary education	35.4%	28.5%	42.9%	76
	Not in education (anymore)	26.2%	20.0%	33.5%	85
	Total	28.2%	23.8%	32.9%	196
Women, German-speaking Switzerland					
	In upper secondary education	49.3%	38.3%	60.4%	54
	In teritary education	53.5%	46.8%	60.0%	169
	Not in education (anymore)	52.1%	45.6%	58.7%	211
	Total	51.1%	46.7%	55.5%	473
Men, Fr./It.-speaking Switzerland					
	In upper secondary education	12.1%	6.7%	20.7%	15
	In teritary education	25.3%	19.9%	31.6%	95
	Not in education (anymore)	35.7%	26.5%	46.0%	69
	Total	27.7%	22.5%	33.5%	186
Women, Fr./It.-speaking Switzerland					
	In upper secondary education	34.6%	19.0%	54.5%	22
	In teritary education	33.6%	27.8%	40.0%	188
	Not in education (anymore)	50.8%	42.3%	59.1%	165
	Total	41.1%	36.1%	46.4%	416
Men, Switzerland, total					
	In upper secondary education	20.6%	11.8%	33.5%	29
	In teritary education	32.2%	27.2%	37.7%	171
	Not in education (anymore)	28.4%	23.0%	34.5%	154
	Total	28.0%	24.5%	31.8%	382
Women, Switzerland, total					
	In upper secondary education	44.5%	35.5%	53.8%	76
	In teritary education	47.0%	42.0%	52.2%	357
	Not in education (anymore)	51.8%	46.3%	57.3%	376
	Total	48.6%	45.1%	52.1%	889
Men and Women, Switzerland, total					
	In upper secondary education	32.7%	25.7%	40.5%	105
	In teritary education	40.9%	37.2%	44.8%	528
	Not in education (anymore)	41.6%	37.4%	46.0%	530
	Total	39.7%	37.0%	42.4%	1,271

Regression model for predicting education non-completion/drop out by sixth year after leaving compulsory school

Method: multivariate logistic regression
Dependent variable: upper secondary non-completion/drop out six years after end of compulsory education
Independent variables: gender, migration background, lower secondary school type, PISA reading literacy, socio-economic status, language region, education situation in first year after compulsory education, degree of urbanization

Characteristic	*Category of reference*	*Category of comparison*	*Odds ratio*	*Lin. std. e.*	*Sig.*	*CI 95%*	
						low	*high*
PISA reading literacy	medium	low	2.78	0.906	0.002	1.47	5.28
		high	0.15	0.062	0.000	16.7	2.98
Gender	male	female				n.s.	
Father's native country	other	Balkans, Turkey, Portugal				n.s.	
Lower secondary school	advanced requirements	basic requirements				n.s.	
Socio-economic status	medium tercile	lowest tercile	2.66	0.846	0.002	1.42	4.97
		highest tercile				n.s.	
Degree of urbanization	urban agglomeration	rural area			0.687	n.s.	
Language region	G-sp. Switzerland	Fr.-sp. Switzerland	2.38	0.699	0.003	1.34	4.24
		It.-sp. Switzerland				n.s.	
Education situation in first year after compulsory education	VET, high requirements	No VET	6.25	3.241	0.000	2.26	17.3
		VET, low requirements				n.s.	
		VET, medium requirements				n.s.	
		General education	0.41	0.186	0.051	5.91	1.00
		Intermediate training				n.s.	
		Other solutions				n.s.	

No. of obs.	3.863	F(10.409)	10.36
Design df	418	Prob. > F	0.000

Regression model for predicting tertiary education non-completion/drop out six years after leaving compulsory school

Method: multivariate logistic regression
Dependent variable: tertiary level education six years after end of compulsory education
Independent variables: gender, migration background, lower secondary school type, PISA reading literacy, socio-economic status, language region, education situation in first year after compulsory education, degree of urbanization

Characteristic	*Category of reference*	*Category of comparison*	*Odds ratio*	*Lin. std. e.*	*Sig.*	*CI 95%*	
						low	*high*
PISA reading literacy	medium	low	0.17	0.065	0.000	0.08	0.36
		high	1.80	0.224	0.000	1.40	2.29
Gender	male	female			n.s		
Father's native country	other	Balkans, Turkey, Portugal			n.s.		
Lower secondary school	advanced requirements	basic requirements	0.42	0.080	0.000	0.29	0.61
Socio-economic status	medium tercile	lowest tercile			n.s.		
		highest tercile	1.69	0.239	0.000	1.28	2.23
Degree of urbanization	urban agglomeration	rural area	0.78	0.099	0.049	0.60	1.00
Language region	G-sp. Switzerland	Fr.-sp. Switzerland			n.s.		
		It.-sp. Switzerland			n.s.		
Education situation in first year after compulsory education	VET, high requirements	No VET	0.10	0.064	0.001	0.03	0.36
		VET, low requirements	0.17	0.064	0.000	0.08	0.35
		VET, medium requirements	0.40	0.126	0.004	0.21	0.74
		General education	7.34	1.132	0.000	5.42	9.94
		Intermediate training			n.s.		
		Other solutions			n.s.		

No. of obs.	*3.557*	*F(16.396)*	*41.11*
Design df	*411*	*Prob. > F*	*0.000*

Regression model for predicting employment six years after leaving compulsory school
(only persons not mainly in education (anymore))

Method: multivariate logistic regression
Dependent variable: in employment six years after end of compulsory education
Independent variables: gender, upper secondary certificate, language region

Characteristic	*Category of reference*	*Category of comparison*	*odds ratio*	*linearized std. error*	*P>t*	*95% confidence interval*	
						lower boundary	*upper boundary*
Gender	male	female			n.s.		
Upper sec. certificate	VET diploma/advanced voc. degree	No upper sec. certificate	0.421	0.109	0.001	0.253	0.699
Language region	G.-sp. Switzerland	Fr.-sp. Switzerland	0.434	0.097	0.000	0.279	0.673
		It.-sp. Switzerland	0.288	0.053	0.000	0.200	0.414

No. of observations	1,845	F(5.400)	13.85
Design df	404	Prob > F	0.000

Figure 10: Linear regression for impact of gender, graduation status, language region and occupation trained for on income

Dependent variable: gross monthly income (full-time equivalents)
Independent variables: gender, upper secondary certificate, language region, occupation trained for

Characteristic	*Category of reference*	*Category of comparison*	Coefficient	Std. e.	t	Sig.	CI 95%	
							lower boundary	upper boundary
Gender	male	female	-461.68	81.78	-5.65	0.000	-622.56	-300.80
Upper sec. certificate	VET diploma/advanced voc. degree	No upper sec. certificate	-311.61	133.88	-2.33	0.021	-574.98	-48.24
Language region	G.-sp. Switzerland	Fr.-sp. Switzerland	-297.69	89.67	-3.32	0.001	-474.09	-121.29
		It.-sp. Switzerland	-726.47	57.64	-12.6	0.000	-839.86	-613.07
Occupation trained in	All other occupations	Clerk	452.31	105.07	4.3	0.000	245.61	659.01
		Vocational business school (n.s.)	-36.68	115.66	-0.32	0.751	-264.22	190.86
		Retail	-62.76	91.54	-0.69	0.493	-242.84	117.33
		Electrician	112.45	127.75	0.88	0.379	-138.86	363.77
		Pharmacy assistant	-24.84	164.91	-0.15	0.880	-349.25	299.57
		Car mechanic	-49.42	108.73	-0.45	0.650	-263.32	164.48
		Shop assistant	-236.60	128.07	-1.85	0.066	-488.54	15.35
		Medical assistant	393.77	149.80	2.63	0.009	99.07	688.47
		Carpenter	-53.70	145.24	-0.37	0.712	-339.41	232.02
Model parameters		Hairdresser	-836.96	125.10	-6.69	0.000	-1083.07	-590.86
Number of obs	1,070	IT specialist	764.81	257.89	2.97	0.003	257.48	1272.14
Population size	24,503	Cook	-288.20	121.97	-2.36	0.019	-528.14	-48.26
Design df	327	General mechanic	-183.77	97.21	-1.89	0.060	-375.01	7.47
F(20, 308)	20.93	Automation technician	499.22	163.07	3.06	0.002	178.42	820.01
Prob > F	0	Dental assistant	103.07	121.75	0.85	0.398	-136.45	342.59
R-squared	0.2228	Constant	4459.60	79.81	55.88	0.000	4302.59	4616.61

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