Measuring the success of transition: the results of a pre-study in Switzerland

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Keywords

Education, Wages, Job satisfaction, Schools, Work, Switzerland

Abstract

In 1997-1998, seven universities of applied science were created in Switzerland. Together with the traditional academic universities, they are among the main pillars of the country's tertiary education system. These new institutions represent a continuation of Switzerland's dual educational system and have to position themselves in the education market as such. Feedback on the success and failures of their graduates can be an important source of information for assessing their position and informing policy. The article examines how successful graduates of the Berne School of Business and Administration, a member school of the Berne University of Applied Science, have been in making the transition from the educational world to working life. The study was conducted using salary regressions and an analysis of the appropriateness of the jobs found by the students after completing their studies. All of the data contained herein are based on a survey of people who graduated between 1997 and 1999.

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Education + Training
Volume 44 · Number 4/5 · 2002 · pp. 199–207
 · ISSN 0040-0912
DOI 10.1108/00400910210432086

Introduction

Studies of people who graduate from universities and move into the labour market have been conducted in Switzerland since 1977, i.e. for more than 20 years now (see for example Diem, 2000). Since 1993, more or less with an eye on the country's upcoming creation of universities of applied science (corresponding to Fachhochschulen in Germany), these studies have also included graduates of engineering schools and of higher institutions of economics and business administration, social work and design (see Martinez, 1999). Since these studies have always surveyed the entire population graduating in a given year, the degree of detail sought by the questionnaires has, for obvious reasons, been limited. Their primary focus has been on the economic aspects of the transition, and their time frame has been narrowly limited to the initial period of employment following graduation. Much of the data needed for a quantitative and qualitative evaluation of the transition, and to judge the quality of the education provided and the curriculum's suitability, are not gathered by the questionnaires that are normally used. The goal of the present study is to break through these constraints and, by including schooling data (such as grades) and conducting a follow-up survey three years after graduation, to be able to examine and evaluate the actual transition to the graduate's first post-graduation job in a broader context. In doing this, we regard the transition as a multidimensional process, extending over a particular time that can be viewed as an institutional relation between the school and the occupational life (see e.g. Ryan and Büchtemann, 1996).

Both the survey instrument and the methods of analysis were utilized in an initial pilot study of three graduation-year cohorts from one institution. While the data thus gathered cannot be viewed as representative for the entire range of universities of applied science, we believe that the results presented here can provide information on the usefulness of this type of analysis despite this

The authors would particularly like to thank Mr Beat Bürki, President of the Gesellschaft Berner Betriebsökonomen, Mr Christoph Schär, Dean of the Berne School of Business and Administration, and Ms Monika Pätzmann for their support in conducting the survey and making information available. Two anonymous referees

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limitation and the ensuing small number of cases observed.

Study design

Object of study

The study covered students who graduated in 1997, 1998 and 1999 from the Berne School of Business and Administration, a member school of the Berne University of Applied Science. Universities of applied science were established in Switzerland in 1997, building upon existing higher institutions of study to offer successful apprentices the possibility to continue their education on the tertiary level. Apprentices follow traditionally a three- to four-year dual education (i.e. one that emphasizes both theory in school and practice in the enterprise[1]) and in order to continue on the tertiary level they have to follow supplementary courses that qualify them for the entry into one of the universities of applied science but not the academic universities. The studies offered at universities of applied science are either full-time three-year or four-year courses if the student only studies part-time. One of the major differences between universities of applied science and traditional academic universities is the range of possible studies. Certain studies like law, medicine, physics or mathematics can only be studied at the academic universities. The same holds for economics while business administration is offered at both types of institution.

Those students who graduated in 1997 and 1998 were sent two questionnaires. The first one contained questions on their work situation in the six months following the completion of their studies, and the second focussed on their current employment (in November 2000), two to three years following graduation. Those who graduated in 1999 received only the first questionnaire since they could only be asked about their initial employment at the time that the survey was conducted. The retrospective view that resulted for the 1997 and 1998 graduates was unavoidable because the number available for observation would otherwise have been too small.

The survey took place in November 2000. The addresses were made available by the Gesellschaft Berner Betriebsökonomen (GBEB) (the association of graduates of the Berne School of Business and Administration). This enabled us to write to almost all those who graduated in the relevant years (206 of 226). Final grades, IQ test results[2] and information on the major fields of study were provided in an anonymous form by the school's administration.

Certain characteristics of the program of studies at the Berne School of Business and Administration had a decisive influence on the students' specializations and the type of degree they earned. The most important of these characteristics were taken into our analysis as possible determining criteria. The unquestionably most critical option having an impact on the graduate's future is the choice between attending school full-time and completing the program in three years, or attending it part-time while also working, in which case the program lasts four years. In addition, the school requires students to choose a major field of study in which they can deepen their professional qualifications. Four such majors are currently offered: banking and finance[3], marketing, accounting, and public management. At the end of the program there is a mandatory thesis project that lasts eight weeks and for which the students receive a separate grade in addition to their final examination grades. Besides the variables describing the school setting, a list of personal characteristics and labour market factors were taken into account. Personal characteristics were gender, age, civil status and prior working experience. The latter included the economic sector as well as the part of the company, in which the respondent worked, the number of employees in the firm and the duration of the search until the first job was found.

Survey and rate of return

Of the 206 graduates we wrote to, 121 (= 58.7 percent) responded. The parent population and the respondents offer the following picture: women (73 percent) and 1999 graduates (63.9 percent) were over-represented among the respondents. (Since substantially fewer women than men study at the Berne School of Business and Administration – they made up 16.4 percent of the student body – a slight over weighting of women in the sample was more than welcome.) In contrast, there was no over- or under-representation of full-time or part-time students, of any major field, or of any

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grade-point average among either the parent population or the respondents. The grade-point average was 4.76 for all of the graduates (the scale ranges from a low of 1 to a high of 6), and 4.78 for the respondents.

Evaluation of the study program

Importance of the course of studies in general

The study program by itself is not, of course, the only factor important for developing competencies and thus doing well when making the transition to the labour market after graduation. When asked which factors were most important for getting their first job after graduation, personal behaviour was mentioned most frequently. In second place, and marked as "important" by more than 60 percent of the respondents, was the fact that their degree was from the Berne School of Business and Administration. Professional experience (37 percent), education prior to these studies (22 percent), and grades earned during the program (5 percent) were considered to be substantially less important. The minor importance of grades that was subjectively felt by respondents is confirmed by an analysis of the determinants of starting salaries. The thesis project and the subject of the thesis were viewed as being much more important than final grades when looking for employment, even though only about 3 percent of the graduates said that finding their first job was related in some way to their thesis.

Factors determining salaries

In economic theory, an employee's wage corresponds to his/her marginal productivity and thus provides information on how the labour market judges his/her productivity (see e.g. Borjas, 2000). Although the graduates examined here represent a rather homogeneous group of employees, the salaries they obtained varied greatly[4]. Thus we used a salary function – with the above named personal, schooling and labour market factors as independent variables – to try to define the determinants of wage differences and from this draw conclusions concerning the study program. The data allowed us to estimate two salary functions, one for the job held immediately after making the transition to the labour market, and the second for the salary currently earned, after two or three years of work experience. When estimating the first salary function, we began by inserting into the model all of the independent variables that in accordance with economic theory might have an influence on the salary. We then eliminated one after the other those variables that proved not to be significant. Some of the most important variables that turned out not to be significant as salary determinants were grades (neither the overall grade-point average at graduation nor the final grade in the chosen major), gender, and where the initial job was situated in the employer's hierarchy. Thus, precisely with respect to grades our results matched the graduates' perception that these were not relevant for the job search or for their initial employment.

While model 2 adopted model 1's salary function, the salary functions shown in Table I differ in that in model 2 the rate of unemployment when the graduates entered the job market was used as the dummy variable instead of the graduation year. This showed that the lower salaries obtained by the 1997 and 1998 graduates relative to the 1999 graduates can be almost completely explained by conditions in the labour market. If the unemployment rate increases by one percentage point, the graduates' entry salaries decline, *ceteris paribus*, by 5 percent. The salary regressions also show that a job in a public administration or smaller company was penalized on the earnings side, while an additional year of work experience resulted in a salary increase of 2 percent. Graduates who did not immediately find a job, as well as those who did not have a longer break between graduation and when they started working, earned about 5 percent less. However, the factor with clearly the greatest influence on salary was whether the student attended the school full-time or part-time. Full-time students earned about 16 percent less on their first job than their part-time colleagues who had studied and worked concurrently. Since differences relating to work experience were accounted for and other differences proved not to be significant, we also tested whether this impressive gap in salaries could be explained by personality differences between the two groups. A model that is not presented here showed that the

Table I Determinants of salary after graduation (influences on salary in percent)

Dependent variable	Model 1 Logarithm of hourly earnings	Model 2 Logarithm of hourly earnings
Work experience (effect per year)	2*	2*
Full-time student	–16*	–16*
1998 graduate	–5***	
1997 graduate	–13*	
Public administration	–7***	–7***
Company with less than 50 employees	–7**	–7**
Job search took one to three months	–5***	–5***
Unemployment rate		–5*
No. of observations	103	103
Adjusted R^2	0.523	0.528

Notes: * = 1; ** = 5; *** = 10 significance level. Reference person: The reference person was enrolled part-time, graduated in 1999, works in a company with more than 50 employees, took either less than one month or more than three months to find a job, and is employed in the private economy

choice of whether to study full-time or part-time was explained by the age of the student, her/his IQ, and her/his father's educational level (part-time students were on average two years older, showed a higher IQ and their fathers had a higher educational level). Using this model we estimated the probability of someone choosing to study full-time rather than part-time. This estimated probability was then inserted as an instrument (see for example Card, 1995; Kling, 2000; Angrist and Krueger, 2001) into the model's salary regression in place of the full-time/part-time choice. While the new variable for the full-time/part-time choice lost some of its significance, the coefficient remained at approximately –17 percent, roughly as high as in the previously estimated salary regressions. This result shows that even if factors that can explain the student's choice of whether to enrol full-time or part-time are taken into account, the difference in salaries caused by this decision remains. The labour market thus appears to judge the two groups quite differently even when the people involved are virtually identical with regard to all of the other criteria.

Determinants of current salary

The salary regressions contained in models 3 and 4 examine the determinants of the salary being received at the time of the survey (November 2000). Comparison with the salary equations for the graduate's initial job also shows which factors exert a constant influence on salary, and which may be of a transitory nature or even new. We were only able to examine salaries for the 1997 and 1998 graduates, i.e. those who had been in the labour market for at least two years. Model 3 shows that in particular the influence of the full-time/part-time choice did not diminish (see Table II). However, this does not yet answer the question of whether the reward is greater if one studies part-time rather than full-time. Part of the salary advantage enjoyed by part-time students is compensation for the fact that they are, on average, older when they graduate and thus have a shorter remaining working life during which they can amortize the costs of their education. Another element is that such students have higher opportunity costs (in the form of foregone earnings) than full-time students even though they receive a part-time salary from their employers while they are studying. Finally, the dropout rate is higher for part-time students, so that they can charge a "risk premium" on top of their salary (see for example Wolter and Weber, 1999). It is also interesting to note that 1998 graduates, who had a year less of work experience, suffered a significant salary disadvantage of 6 percent even though they enjoyed a salary advantage of almost 8 percent when they entered the job market thanks to an improvement in economic conditions. In contrast, the pure difference in salaries due to work experience declined as work experience increased. This would seem to indicate that while the economic environment has a genuinely large influence on the absolute level of entry salaries, these differences even out relatively quickly. Graduates who majored in

Table II Determinants of salary in current job (influences on salary in percent)

Dependent variable	Model 3 Logarithm of hourly earnings	Model 4 Salary difference
Work experience	2***	
Full-time student	–18*	
Major field of study: public management	–12*	
1998 graduate	–6***	–6***
Married	15*	
Employment sector: audit and business advsiory services	–9**	
Job requiring university degree	23*	
Company with less than 50 employees	13**	
In current job 13-18 months	–9**	
In current job 31-38 months	–19*	
Continuing education and training	10*	11*
Change of job		6***
No. of observations	63	63
Adjusted R^2	0.548	0.196

Notes: * = 1; ** = 5; *** = 10 significance level. Reference person: the reference person is unmarried, studied part-time, graduated in 1997, works in a company with more than 50 employees, does not work in the Audit and Business Advisory Sectors, holds a middle or senior management position or is self-employed, and has not changed jobs since graduating. His/her current job requires at most a degree from a university of applied science

public management had a salary disadvantage, although this was at entry limited to those who took jobs in the public sector. Among the other sectors of employment, only graduates working in audit and business advisory services graduates suffered a significant salary disadvantage relative to the others. Married graduates enjoyed a salary advantage, as did those who worked in smaller companies, although the latter also tended to have a salary disadvantage at entry. Graduates who had never changed jobs since entering the labour market suffered a truly substantial salary disadvantage which was visible after only two years and had swelled to almost 20 percent after about three years. Those graduates who occupied a position for which an academic university education was normally required enjoyed a pronounced salary advantage. Even though they were, technically speaking, "underqualified"[5] for their job, holding it gave them a salary advantage (see for example Groot and Maassen van den Brink, 2000 for a meta-analysis on under- and over-qualification).

Finally, continuing education and training activities involving at least 40 course hours also had a positive impact on salary. Here it should be borne in mind that most of the graduates who continued with their education did this with their employer's support. This, however, brings up the problem that an employer's decision to pay to train an employee further, and the size of that employee's salary, may be positively correlated since we can assume that an employer will send, primarily, the more productive employees for additional training. For this reason we cannot conclusively argue that the influence of the continuing education and training variable results from the effect of continuing education, or that it depends on better employees being the ones to receive additional training. There are various ways to correct for this selection bias. Model 4 uses one of the simplest methods for checking whether selection biases explain the effect. This model does not examine the influence on the size of the salary, but on the change between the person's entry salary and current salary. Such an examination provides unbiased results if it is assumed that differentiating attributes between the more and less productive employees are constant (fixed-effect model). Thus model 4 does not examine any constant attributes as factors influencing salary growth. The graduation year alone is built into the model as a dummy variable because by the nature of things salary growth should be different for the first two and first three years. For control purposes (but not shown in this paper), the entry salary was also

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tested as an explanatory variable in order to be certain that salary growth could not be explained simply by the fact that those who receive a higher initial salary also experience greater salary growth. The results of model 4 show that continuing education and changing jobs at least once after entering the labour market both have a significant influence on salary growth. These results would appear to indicate that the positive influence of continuing education and training on salary is not simply the result of a selection problem but is, in fact, caused by the continuing education and training itself.

Appropriateness of the job

Salary by itself, of course, does not determine whether someone will be satisfied with their job. We thus examined the graduates' satisfaction with their positions, taking into account various dimensions of satisfaction. We looked at the possibilities for exerting influence at the workplace, and asked the respondents for their assessment of the job requirement level. The five possible answers were "low", "rather low", "appropriate", "rather high", and "high". A job can only be considered to be appropriate for a university graduate with respect to these two criteria if both the level of requirements needed to perform the activity, and the opportunities to exert influence and develop one's potential, correspond to the graduate's expectations. We assumed that respondent would be satisfied with their job, if their qualification would match their occupation (see e.g. Groot and Massen van den Brink, 1999; Joyup *et al.*, 2001). Using ordered profit estimates, we examined the factors that influence these two dimensions of a job's appropriateness as regards both the first position assumed after graduation and that held after two to three years.

Opportunities to exert influence

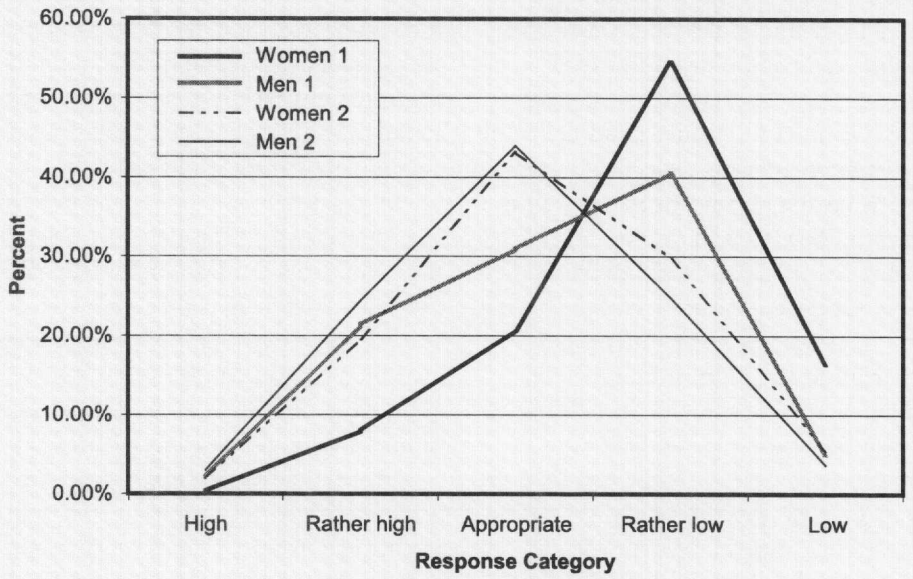
The following factors proved to be significant for the initial job. Men, and graduates who had studied part-time, held a middle or senior management position, or worked in companies with less than 50 employees, said that they had significantly more opportunities to exert influence. Those employed in the commercial sector, on the other hand, had significantly fewer opportunities to influence matters. If we compare these results with those for the salary equation (Table I, model 1), the following pattern appears. There are, on the one hand, factors (gender, management position, sector) that have no impact on salary but play a significant role in the person's subjective assessment of her/his ability to influence matters at work; and there are other factors that play a significant role in both analyses, although they may not always go in the same direction. Those who studied full-time say that they have less influence and also earn less, i.e. they are doubly disadvantaged. Graduates working in companies with less than 50 employees, on the other hand, earn less, but this is balanced by their greater opportunities to influence what happens.

Two to three years after graduation, there are no longer many factors discernible that could cause significant differences in the graduate's opportunities to exert influence in his/her current job. The size of the company is still significant. New is that those who have advanced to the enterprise's top management levels have substantially more influence than in their initial positions; and that 1997 graduates, with their additional year of work experience, have more influence than those who graduated in 1998. The latter point is also an indication that, viewed overall, influence increases as work experience is accumulated. As Figure 1 shows, the proportion of "appropriate" responses rose while "low" and "rather low" went down. This – the fact that employers offer these graduates positions that provide substantial opportunities to exert influence, and that the graduates have more such opportunities as they gain work experience – is a sign that the labour market has a good opinion of these graduates. Turning to the non-significant factors, it is unquestionably worth noting that gender-related differences, as well as those that relate to whether the person studied full-time or part-time, disappear over time; and that many factors that have a significant influence on salary have no impact on opportunities to exert an influence.

Level of job requirements

The same assumption is made here as with opportunities to exert an influence, i.e. that the more exacting the activity's requirements, the more interesting the job will be. We can

Figure 1 Opportunities to exert influence – estimation of probabilities of response categories



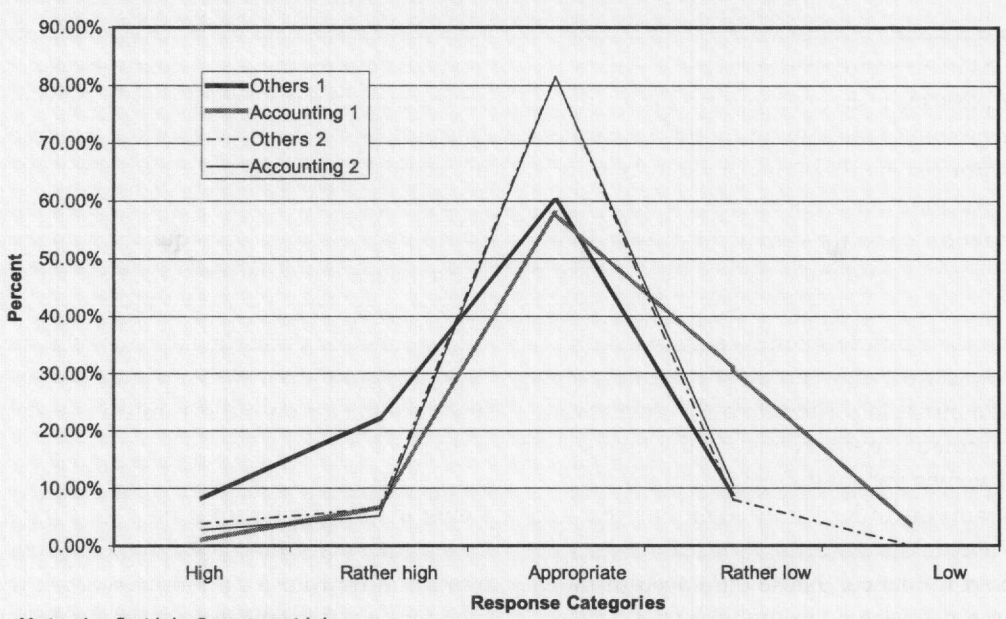
Note: 1 = first job; 2 = current job

assume that one of the most important reasons for studying at the tertiary level is that this opens the door to activities that are more demanding and interesting. The requirements can, of course, be too high, but we did not inquire into this.

As regards the first job after graduation, the respondents reported significantly higher job requirements if they majored in a field other than accounting (see also Figure 2), worked in audit and business advisory services, or held a top management position. Graduates who graduated in 1997, or were employed in marketing reported significantly lower requirements. Contrary to all previous analyses, however, there were no significant differences between those who had studied full-time and part-time.

Figure 2 shows that compared to those with other majors ("others" in the chart), substantially more accounting graduates had as their first job a position whose requirements they judged to be "low" or "rather low". This may, in part, be related to

Figure 2 Level of job requirements – estimation of probabilities of response categories



Note: 1 = first job; 2 = current job

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the fact that accounting is one of the school's core subjects, and thus these graduates are more likely to find jobs for which the requirements tend to be lower than the competencies their education has equipped them with. Graduates of other areas are more apt to be confronted with tasks that are new, relative to what they have learned and thus may be more likely to find the job requirements demanding. This interpretation is, perhaps, supported by the fact that this is a "first job" phenomenon: the differences disappear completely after work experience begins to accumulate, and the probability of having an appropriate requirement level normally increases greatly. After two to three years more than 80 percent of the graduates say that the requirements of their jobs are commensurate with their qualifications, and the percentage of those holding jobs with "low" or "rather low" requirements drops to just under 10 percent.

As is the case with opportunities to exert influence, the number of explanatory variables decreases as the period of employment lengthens. After two to three years, only three variables still explain significant differences in the job requirement level. Significantly higher requirements are reported by graduates in jobs for which a traditional academic university education would normally be required, those in middle or senior management positions, and those who have already changed jobs once since entering the labour market.

Conclusions

The analyses presented here of the determinants of salaries paid to graduates of a university of applied science allow us to draw some conclusions concerning the education they receive. On the one hand, their behaviour as students (their grades, major field of study, etc.) were not found to have any notable influence on their entry salaries or on the salaries they earned after gaining some work experience. The university degree as such appears to be critical for the labour market, but the market does not seem to recognize other factors as signals of vital differences. At the same time, however, we see that the labour market judges those who studied full-time and part-time in a substantially and quantitatively different manner, with a clear preference for the latter. Finally, it was also seen that economic effects themselves have a decisive influence on terms and conditions when a graduate enters the job market, but that these effects are primarily of a transitory nature. Once the graduate has accumulated some work experience, salaries are increasingly determined by individual factors relating to the person's behaviour in the labour market. Graduates who do not stay too long in their first job, who continue their education or training, or who, for example, are able to advance into positions for which a still higher degree is wanted, can decisively improve their earnings situation.

The analyses of the appropriateness of the graduates' jobs for the most part support the results of our salary analyses. Put somewhat differently, no true contradiction can be created between a monetary evaluation and a more qualitative assessment of the success of the transition from study to work. The two approaches do not coincide, of course, but the qualitative results supplement the picture provided by the monetary approach. For example, entry into a small company tends to be disadvantageous with regard to salary, but this is partially offset by the graduate having more opportunities to exert an influence. The only important difference between the two approaches may be that full-time students do not fare significantly worse than those who studied part-time as regards their decision-making powers and job requirement levels even though they do suffer a substantial disadvantage with their salaries.

All in all, however, the analysis of the appropriateness of the graduates' jobs paints a positive picture of the suitability of the education offered by the Berne School of Business and Administration[6]. A large majority of the graduates report appropriate to high opportunities to exert influence and appropriate to high job requirements, with these values rising further as the period of employment lengthens. The high percentage of respondents declaring themselves as being "overqualified" that is found in the international literature[7] is not confirmed, at least not by this study.

The OECD's *Thematic Review of the Transition from Initial Education to Working Life* (2000) determined that we can often say whether a transition will succeed, but that in light of the rather sparse research done on this question, the factors determining success and

failure too often remain the subject of speculation. The study design presented here shows clearly that when investigating such factors, both the time prior to entry into the labour market and a period of at least several years thereafter should be included in the assessment. This is necessary if we want to make statements concerning the causal relationships between educational careers and the transition to the labour market, and break down the success of the transition itself into its permanent and transitory components. Although more extensive research would, of course, require a larger number of observations, the example presented here still shows that with a relatively homogeneous group of graduates, meaningful and statistically valid statements can still be made even if the number of graduation year cohorts is small. For this reason, the study described herein could well serve as a model for a general investigation of the transition experiences of graduates of universities of applied science.

Notes

1 On the Swiss educational system on the secondary II level in comparison to the UK see e.g. Bierhoff and Prais (1997).
2 The authors want to thank Ms Eva Grossrieder-Hürzeler for providing the IQ test data.
3 This has only been available as a major field of study from 1999 on.
4 Salaries of part-time employees were standardized to 100 percent.
5 Business administration can be studied at both types of universities, the more academic and the ones of applied science. The duration of study at the academic universities is on average more than one year longer than at the universities of applied science. Despite that, some respondents managed to get into a job for which normally an academic university degree was required.
6 Comparing our results with descriptive results from large graduates surveys (e.g. Martinez, 1999) we are confident that the results can be generalised at least for the Schools of Business and Administration in the Swiss universities of applied science.
7 E.g. Oosterbeek and Webbink (1996); Daly *et al.* (2000); Dolton and Vignoles (2000); Hartog (2000).

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