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Arbeitspapiere/ Working Papers

Aniela Wirz and Erdal Atukeren

Overeducation in the Swiss Labour
Market: Does Anything Go Wrong?

OVEREDUCATION IN THE SWISS LABOR MARKET:

Does anything go wrong? *

Aniela Wirz^(a) and Erdal Atukeren^(b)

Abstract

We examine the determinants of overeducation in Switzerland - an economy generally characterised by excess qualified labor demand. We define those who are overeducated more precisely, and include in our sample only those who work in occupations relating to their educational background. Failing to make this adjustment might have blurred the results of earlier studies. Our analyses show that overeducation in Switzerland cannot be explained by rigidities limiting the adjustments of supply and demand in the labor market. Hence, the Swiss labor market must in general be considered as efficient. Unobserved heterogeneity should indeed account for the phenomenon of overeducation.

JEL Classification: J16, J24, J61

Keywords: Overeducation, Swiss labor market, Education policy.

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I. INTRODUCTION

The phenomenon of overeducation occurs when a person's educational qualifications are superior to his/her job. Following Duncan and Hoffman's (1981) seminal work, the literature on overeducation generally reports the incidence of overeducation to cover between 10 to 35 percent of the workforce.¹ In this paper, we examine the determinants of overeducation in Switzerland, where about 15 percent of the workforce report that they are overeducated. The data used in this paper are taken from the Swiss Household Panel (SHP, www.swisspanel.ch).

Taking Switzerland as a case study allows us to analyse the phenomenon of overeducation in a macroeconomic context where unemployment rates and the share of supplied qualified persons being temporarily in excess are low.² In addition, the supply of highly educated individuals in Switzerland, measured by the enrolment rates of students in tertiary education, is amongst the lowest within the OECD. Hence, excess demand for labor in general, and for qualified labor in particular, is rather the norm in the Swiss labor market.³ Our study is further motivated by the fact that the incidence of overeducation in Switzerland has not been analysed earlier.

Research on overeducation so far analysed the determinants of overeducation irrespective of whether the job performed relates to one's educational qualifications or not. People may work in unrelated occupational fields rather than in fields of their educational background for various reasons. This is, however, a different phenomenon to explain than those who are overeducated and working in a field which corresponds to their educational backgrounds. Our study addresses this problem. We estimate the determinants of overeducation only for those who are working in fields that are in line with their educational background.

II. THEORIES OF OVEREDUCATION

Two main competing approaches attempt to explain the overeducation phenomenon. First, it is argued that overeducation represents market inefficiencies due to rigidities and consequent adjustment problems of qualifications supplied and demanded in the labor market. These rigidities, which limit the optimal job - educational qualifications match of workers, could result due to informational problems, restrictions on supplied working hours, geographical immobility, or discriminatory behaviour of the employer.⁴ In addition, a rather limited responsiveness of the job structure to changes in the relative supplies of educated labor might also limit an optimal functioning of the labor market. As a result, an increasing supply of highly educated individuals does not find the jobs corresponding to their educational qualifications. Signalling or sheepskin effects might also lead to increased supply of overeducated workers. Hence, they end up accepting jobs for which they are *genuinely overqualified*. This creates a bumping-down process of highly qualified workers into lower qualified jobs, eventually crowding out lower educated workers into unemployment. Lower flexibility of wages at the low-end might further contribute to this crowding-out process.

A different line of literature [e.g., Bauer (2002) and Chevalier (2003)] argues that overeducation mainly reflects unobserved differences in personal characteristics like ability and motivation or other unmeasured skills or differences in the quality of education. According to this view, overeducation is said to be *apparent*, and labor markets are considered as efficient. Hence, there is no underutilisation of human capital and the need for policy measures seems rather limited. In addition, in a macroeconomic context with historically low unemployment rates, such as in Switzerland, the shortage of qualified labor should increase the pressure in the labor market to match educational qualifications of employees and high-skill-requiring jobs. In particular, employers should be investing more in searching for qualified labor; hence, resulting in lower information costs for employees. Even more importantly, employees should be less willing to accept a job mismatch if only little job

search costs are needed to find a job with no educational mismatch. If they still accept a suboptimal job-education match, this should more often be a temporary situation with high excess demand for human capital than in a situation of low excess demand or typically a high excess supply of human capital.

To complicate the matters further, one may work in an unrelated field to his/her educational background and the person may indeed be overqualified / overeducated for the that job. This phenomenon could occur due to a deterioration in the job-education-match and / or as a consequence of an occupational reorientation due to personal preferences [e.g., Sicherman (1991)]. In addition, occupational changes might reflect structural changes of labor demand due to technological change. For instance, an increase in demand for IT-supporters and a lower demand for accounting experts might lead some accounting experts to work temporarily or permanently in an IT-supporter job, for which they might (arguably) be overqualified. Even in an efficient education and labour market, adjustments of the supply of educational qualities to changing demand conditions take time. In this context, overeducation is indeed "genuine", but it has a rather "frictional" nature and does not represent market failure. Analysing the determinants of overeducation exclusively for persons whose educational qualifications relate to their jobs gives a much stronger test for market inefficiencies in the employee-job-match process.

III. EXPLAINING OVEREDUCATION IN SWITZERLAND

If one follows the traditional explanation of overeducation, the employee-job-match process should be mostly limited by rigidities of the labour market linked to information problems at the beginning of a working career, restrictions limiting the mobility of the supplied labor linked to working time or the geographical factors or possibly discriminating factors linked to the nationality of individuals. Then, we would expect *a priori* that new comers into the labor

market, foreigners, part-time workers, or geographically less mobile persons, such as married women with children, to be more likely to work in a job for which they are overeducated. To the contrary, if overeducation can neither be related to excess supply of qualifications nor to observed rigidities of supply of or demand for labour which could limit an optimal job-education-match, then unobserved heterogeneity linked to personal characteristics like ability and motivation or the lack of other unmeasured skills should explain this phenomenon. As we will discuss below, our empirical model is specified to take these considerations into account.

In this paper, we estimate the determinants of overeducation in Switzerland by utilising the self-assessment data obtained from the Swiss Household Panel (SHP) data set for 1999. The sample for which we have data on all the explanatory variables contains 2223 entries. The estimable sample sizes for male and female respondents are 1182 and 1033, respectively. We use the standard probit estimation method with the right-hand-side variables as shown in Table 1. We estimate the model for a) the overall sample b) males only, and c) females only.

The theoretical justification for the model's right- hand-side variables is as follows. The variables which provide information of personal characteristics other than the education level, namely, "male", "part-time job", and "non-Swiss" allow us to test whether there is a differing likelihood of overeducation for men, part-time workers, and for foreigners. If these variables are found to be significant, then, once may conclude that there are rigidities and biases in the functioning of the job-education matching process in Swiss labor market. The negative relationship between experience or tenure and the incidence of overeducation, arising from a search theory framework, is well established in the literature [e.g., Hartog (2000)]. Young people, for example, might need more time at the beginning of their careers to settle in an appropriate job corresponding to their education levels. That is, overeducation is a phase of adaptation in the early stages of working life. Thus, we include such variables as

"age", "experience", and "tenure" in our model to test whether search and/or signalling effects play a role in explaining the phenomenon of overeducation.⁵

Next, we control for a number of variables capturing the respondents' education level. These variables are included to test whether the incidence of overeducation depends on the level of education. Some university graduates, for example, may find it more difficult to find a job corresponding to their education level than those who have a lower level of education but are specialised in technical professions.

An examination of the determinants of overeducation for women is especially interesting in the case of Switzerland. This is because the labor force participation (mostly in part-time jobs) of married women with children is rather low compared to married women in countries with a similar employment environment. This fact is mainly explained by rather unfavourable institutional arrangements concerning child care and maternity leave in Switzerland. Family preferences may constrain married women in their job search, first of all geographically. For example, according to the theory of differential overqualification (Frank, 1978), the location of the household is chosen to optimise the job-education match of the full-time worker of the household. Thus, women may end up accepting full-time or part-time jobs for which they are overqualified, which is in line with the theory of differential overqualification. Second, the high costs and the scarcity of external childcare in Switzerland reduce the average working time of mothers. Overeducation of mothers may then be even more pronounced in the case of part-time employment decisions, as more demanding jobs are frequently restricted to full-time workers. Furthermore, women with children have usually interrupted career spells due to giving births and shorter experience spells (number of years at the same job).

The importance of looking at the determinants of women's overeducation is highlighted also by the fact that women's enrolment in tertiary education in Switzerland is amongst the lowest within Europe, increasing only slowly. If overeducation among female

university graduates is frequent, especially for the married, it might deter graduates of the upper secondary level to go to university. Hence, knowing more about the profile of those who are overeducated might provide new insights for education and gender policy.

Given this background, the next block of variables contain information on one's family and marital status with an emphasis on testing whether women with children are more likely to be overeducated. In order to elaborate more on this point, we also take the age of the children into account.

Last but not least, we examine the impact of personal / emotional aspects of life on the likelihood of being overeducated by including variables, such as, "satisfaction with health status", "difficulties in professional or private life", and "social skills". Compared to other studies in the literature, these variables, especially the last one, can be thought as a proxy for capturing individual heterogeneity more explicitly.

Table 1 shows the results of our estimations, with striking implications. First of all, looking at the overall sample results (Column 1), we find that only “tenure”, “university education”, and “satisfaction with health status” variables are found to be statistically significant at 5 % level. Considering also the signs on the respective coefficients, one can then conclude that the incidence of overeducation in the Swiss labor market is lessened as tenure increases but university graduates have a higher likelihood of getting jobs for which they are overqualified. These findings, coupled with the empirical fact that the control variables for women, women with children, part-time workers, and foreigners are not statistically significant, point to a rather efficient functioning of the job-education matching process in the Swiss labor market. Nevertheless, some search or signalling still takes place at higher education levels, and the incidence of overeducation decreases with increasing tenure.

< Table 1 >

Column 2 of Table 1 shows the results obtained by restricting the sample only to male respondents. Here, we also see a similar picture to the above discussion: age, experience, part-time work, or being a foreigner are not statistically significant, while tenure and university level education are. In addition, we find that married men and those who have higher "social skills / emotional support from close friends" have lower marginal likelihood of overeducation.

Column 3 of Table 1 displays our findings when the sample is restricted only to female respondents. Again, we find that age, experience, part-time work, or being a foreigner are not statistically significant. The statistically significant variables and their estimated signs in parentheses are: tenure (-), technical and vocational school (+), vocational tertiary school (+), university (+), child/children below 6 years of age living in the same household (+), and satisfaction with health status (-). These results imply that women are not discriminated in the education level / job matching process according to whether they are Swiss or not, or whether they prefer to work part-time or full-time. Nevertheless, the incidence of overeducation could be higher for women with higher or technical / university education and especially if they have children under 6 years of age. Tenure is also significant, hinting at the impact of job interruptions. Similar to the findings for the overall sample, the incidence of overeducation decreases as one's health situation improves. Perhaps, if the health situation is not so good, the most important thing is not whether one has the best job for himself/herself.

IV. CONCLUSIONS

In this paper, we analysed the determinants of overeducation in the Swiss labor market for a sample of individuals who work in a occupational field relating to their educational background. Our empirical results show that the overeducation is not hinting at inefficiencies of the functioning of the labor market in Switzerland. We do not find evidence for labor market rigidities which limit the allocative efficiency of the human capital supplied for

persons who work in a job related to their educational qualifications. In particular, looking at the overall market for the supply of and demand for educational qualifications, women (married or single), foreigners, and part-time workers are shown to have as equal access to jobs that are in line with their education level as full-time working males with Swiss citizenship. This finding stands in clear contradiction to the results found for Germany, where the educational systems and industrial structure is most comparable with Switzerland. Nevertheless, one must keep in mind that most studies of overeducation do not restrict the sample only to those workers who have jobs relating to their educational qualifications.

Despite the fact that there is still some room for improving the situation of women with higher education and women with small children, the overall phenomenon of overeducation in Switzerland seems to reflect mostly unmeasured heterogeneity of individuals: such as, ability, motivation, or possibly unmeasured differences in education quality. Furthermore, we find that married men have a higher likelihood of an optimal job-education match, which suggests that unmeasured heterogeneity might as well be linked to time-varying factors as motivation and effort supplied as innate ability differences. However, this finding does not stand in opposition to the theory that excess supply of qualified labor might have an impact on the level of overeducation overall, explaining higher levels of overeducation in other countries than in Switzerland.

From a policy point of view the results are interesting as they show that overeducation does not in general reflect a inefficient use of public funds invested in education. Nevertheless, job-educational qualities match of women with higher education and women with small children might still be improved. For Swiss economic policy, in particular, it is worthwhile noting that utilisation of supplied human capital is not limited by part-time work *per se*. Economic growth in Switzerland is potentially constrained by the growth rate of labor supply. This can be eased by recruiting un- or under-skilled human capital and women with

higher education by motivating them to continue working in occupations relating to their educational qualifications, even if it is part-time work.

ENDNOTES

1. On average the incidence of overeducation is around 25%. There appears to be less overeducation in European countries than in the United States, albeit the difference (21.5% vs. 26.3% on average) turns out to be statistically insignificant in the meta-analysis.
2. In a meta-analysis covering 20 studies over 20 years, Groot and Maasen van den Brink (2000) find evidence in favour of a significant and substantial positive influence of the labor force growth rate on the incidence of overeducation.
3. The average unemployment rate in Switzerland between 1980 and 2003 was 2.1%.
4. Sloane (2002) provides an overview of the literature. For studies about the impact of geographical factors and marital status, see Büchel (2000), Büchel and Battu (2002) and Dolton and Silles (2001). The relationship between ethnic minority status and overeducation was investigated by Battu and Sloane (2002).
5. Alternatively, formal education may also be a substitute for other forms of human capital investment, such as, experience and on-the-job training, explaining thus also a higher incidence of overeducation in the early days of one's working career. See, Sloane (2002) for further discussion.

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Table 1. The determinants of overeducation in Switzerland (SHP 1999 data, probit estimation, reporting marginal effects)

	(1) All	(2) Men	(3) Women
Male	0.003 (0.14)	-	-
Age	-0.001 (0.73)	0.001 (0.41)	-0.001 (0.69)
Experience	0.000 (0.16)	-0.001 (0.78)	0.001 (0.83)
Part-time job	0.010 (0.49)	-0.000 (0.01)	-0.011 (0.36)
Tenure	-0.005 (3.71) **	-0.005 (3.13) **	-0.006 (2.32) *
Compulsory schooling	-0.055 (1.71)	-0.077 (1.70)	-0.031 (0.70)
General training school	0.025 (0.35)	0.104 (1.00)	-0.072 (0.80)
Full-time vocational school	0.038 (1.08)	0.056 (0.98)	0.017 (0.39)
Upper secondary education (A-level)	0.010 (0.38)	0.012 (0.29)	0.008 (0.23)
Vocational high education (certified)	0.041 (1.28)	0.040 (1.07)	0.033 (0.54)
Technical or vocational school	0.072 (1.77)	0.041 (0.90)	0.213 (2.18) *
Vocational tertiary education	0.070 (1.85)	0.033 (0.80)	0.164 (2.05) *
University	0.122 (4.54) **	0.126 (3.42) **	0.086 (2.19) *
Non-Swiss identity	0.002 (0.09)	0.024 (0.76)	-0.042 (1.23)
Married or living in consensual partnership	-0.049 (1.73)	-0.095 (2.29) *	0.004 (0.10)
Separated, divorced or widowed	-0.057 (1.73)	-0.043 (0.84)	-0.066 (1.57)
Number of children in household (HH), <18 years	-0.011 (0.79)	0.008 (0.49)	-0.038 (1.59)
Number of children not living in HH	-0.002 (0.15)	0.005 (0.30)	-0.009 (0.53)
Child/children in HH, <=6 years	0.023 (0.68)	-0.031 (0.76)	0.141 (2.20) *
Child/children in HH, 7-13 years	0.017 (0.43)	0.001 (0.01)	0.053 (0.81)
Child/children in HH, 14-17 years	0.046 (1.18)	0.022 (0.44)	0.085 (1.41)
Number of adult children in HH, 18-30 years	-0.013 (1.01)	-0.022 (1.23)	0.003 (0.15)
Number of adult children in HH, >30 years	-0.079 (1.22)	(--)	0.002 (0.04)
Satisfaction with health status, min:0, max:10	-0.010 (2.13) *	-0.007 (1.11)	-0.014 (2.10) *
Difficulties in professional or private life, min:0, max:10	0.039 (1.90)	0.059 (2.10) *	0.000 (0.01)
Social skills / Emotional support from close friends, min:0, max:10	-0.006 (1.92)	-0.008 (1.94)	-0.003 (0.56)
No. of Observations	2223	1183	1033

Notes to Table 1:

Robust z-statistics in parentheses, (*) significant at 5%; (**) significant at 1%.

(--) observations dropped due to collinearity problems.

The dependent variable is dichotomous taking value 1 when a person is overeducated and 0 otherwise.

The sample includes employees aged between 18 and 65 years, who are Swiss or foreigners with an annual or a permanent residential permit, and have at least obtained compulsory schooling. The reference person is Swiss, single, who has obtained a vocational education degree and has no children.

Survey weights are used and marginal effects are reported.

Source: Swiss Household Panel (SHP, 1999).