

Article

# Skill Endowment Through Vocational Education and Training Programmes and Early Career Mobility

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## Abstract

This article addresses inequalities in short- and medium-term career outcomes of workers with different vocational education and training (VET) programmes during the early career. In particular, we examine how the degree of vocational specificity of VET programmes affects occupational status mobility throughout individuals' early careers, a topic that has hitherto received little attention. We adopt a life course perspective and combine an individual-level theoretical approach (human capital and signalling theory) with an institutional approach. The former focuses on individuals' skill acquisition during VET and across the early career. The latter emphasises that individuals' allocation to a training programme influences the amount and types of skills they acquire. The multinomial logistic regression analyses are based on a combination of detailed curricula-based occupation-level data on the specificity of training programmes and individual-level data from the Transitions From Education to Employment (TREE) longitudinal dataset. The results show, firstly, that labour market allocation at the beginning of a career has consequences for later labour market outcomes. Second, practical occupation-specific education and training facilitate status stability at labour market entry, while general skills and knowledge are decisive for long-term upward mobility.

## Keywords

dual training; general knowledge; occupation-specific skills; returns to education; vertical mobility; vocational education and training

## Issue

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## 1. Introduction

Education is one of the main institutions that shape life courses (Breen & Buchmann, 2002). Within educational institutions, individuals acquire life course-relevant resources, such as skills, knowledge, and certificates, that influence their hierarchical position in the labour market (DiPrete & Eirich, 2006; Levy & Bühlmann, 2016). Research within the life course tradition has long acknowledged that labour market trajectories are cumulative processes (Dannefer, 2018; Elder et al., 2003). An individual's hierarchical position at one point depends on their previous positions and attainments and is path-

dependent (Levy & Bühlmann, 2016). Education plays an important role in this process, and several studies have found that workers with general education have steeper earning trajectories and higher employment rates in their later careers than those with vocational education and training (VET; see Hanushek et al., 2017; Korber & Oesch, 2019; Lavrijsen & Nicaise, 2017; for contrary results see Malamud & Pop-Eleches, 2010).

However, little is known regarding variations among workers with VET and the impact of VET on long-term labour market outcomes. Swiss VET is well suited to examine this topic, as it is the dominant type of upper-secondary education in Switzerland. Around two-thirds

of all Swiss compulsory school-leavers enter one of the 230 VET programmes at the upper-secondary level. The programmes teach occupation-specific skills and knowledge, along with some general ones (i.e., language, communication, economics, politics, culture, etc.), but the programmes vary highly in terms of the proportion of the taught skills and the manner of their acquisition (i.e., firm versus vocational school; see Eggenberger et al., 2018; Grønning et al., 2020a).

Previous research has shown that this variation of skills and knowledge among workers with VET matters for the match between education and the first job at labour market entry. Workers from highly occupation-specific education and training programmes, especially those with a lot of practical firm-based training that focuses on labour market-relevant and ready-to-use vocational skills, have a better chance of finding a job that corresponds to both their education level and their training occupation compared to workers from more general or school-based programmes that teach higher proportions of theoretical skills (Damelang et al., 2015; Geel & Backes-Gellner, 2011; Menze, 2017; Muja et al., 2019a, 2019b; Müller & Schweri, 2009; Verhaest et al., 2018). This literature stresses that training programmes with high vocational specificity, which provide students with specific vocational skills rather than general skills and knowledge (Bol & van de Werfhorst, 2016, p. 74), can protect workers from entering unskilled work and, consequently, working in a job with lower occupational status than the one they trained for at labour market entry. However, a systematic investigation of how the vocational specificity of training programmes impacts career outcomes and occupational mobility (upward or downward), both from short- and medium-term perspectives, is lacking. Thus, this article contributes to the existing research by investigating inequalities in career outcomes between workers from different VET programmes during their early careers. In particular, we ask how the degree of vocational specificity of VET programmes affects occupational status mobility both immediately after labour market entry and in the medium term.

## 2. Theory and Hypotheses

### 2.1. Status Mobility and VET in Occupationally Segmented Labour Markets

Status mobility describes upward or downward changes in an individual's occupational position throughout their working life (Kalleberg & Mouw, 2018, p. 284). It is embedded in the institutional regulations of the labour market (Maurice et al., 1979). One such regulation is the linkage between educational qualifications and labour market allocation (Allmendinger, 1989; Konietzka, 1999; Müller & Shavit, 1998). In countries where the linkage is strong, the labour market is characterised by occupational subsegments. Access to these occupational subsegments is contingent on an individual's education cer-

tificate. Status mobility in this context most often occurs along institutionalised career lines or "mobility chains" within the occupational subsegment (Sacchi et al., 2016; Spilerman, 1977). Downward mobility can occur either when diploma holders enter a job within the unskilled or semi-skilled labour market segment, such as positions as barkeepers or childminders, or when they enter a job with a lower status than their training occupation within their occupational subsegment (e.g., a car mechanic who works as a truck driver). Upward mobility occurs when a diploma holder finds a job in a related occupation with higher status or gains access to positions with more responsibility (e.g., bricklayers who are employed as foremen). In Switzerland, upward mobility is often contingent on further (tertiary-level) education within the occupational subsegment. For example, trained healthcare assistants can study nursing and become registered nurses. Less frequent in the Swiss context are "jumps" between occupational subsegments, i.e., between a skilled position in one subsegment and a skilled position in another subsegment, because they usually require retraining.

Given our research question of how the degree of vocational specificity of VET programmes affects occupational status mobility at labour market entry and in the medium-term career, we adopt a life course perspective and combine an individual-level theoretical approach, focussing on individuals' skill acquisition during education and across the early career with an institutional approach, emphasising that individuals' allocation to a training programme influences the amount and types of skills they acquire (e.g., Eggenberger et al., 2018; Muja et al., 2019b). In other words, individuals' acquired skills and knowledge reflect the type of skills taught and how these skills are taught. Arguments from human capital theory and signalling theory can in turn explain how individuals' initial skill endowment impacts their further skill development and their short- and medium-term labour market outcomes (Becker, 1964; Spence, 1973). In the following sections, we first theorise how the vocational specificity of training programmes is related to initial allocation in the labour market. Second, we formulate hypotheses on how initial allocation and the different skills acquired during VET may affect medium-term outcomes.

### 2.2. The Relationship Between Training Characteristics and Status Mobility at Labour Market Entry

We argue that the concept of specificity of training programmes has two dimensions: types of skills and manner of skill acquisition. The first dimension pertains to the type of skills taught (general or occupation-specific), while the second concerns how these skills are taught (practically in the training firm or theoretically in vocational school). Training programmes differ in both dimensions. Some, for example, combine a comparatively large proportion of theoretical general education in vocational school with large proportions of

practical occupation-specific training in the firm (e.g., programmes for retail professionals and dental assistants). Others teach comparatively little theoretical general education but a fairly large proportion of theoretical occupation-specific education (e.g., social care workers and healthcare assistants). Many provide mainly practical occupation-specific training and minimal theoretical (general and occupation-specific) education (e.g., automotive technicians and veterinary assistants; see Table A2 in the Supplementary File). An important assumption in this article is that both dimensions of skill specificity, type of skills, and manner of skill acquisition, affect how transferable the acquired skills and knowledge are, how fast they depreciate, and how strongly they facilitate further learning (Estévez-Abe, 2012; Forster & Bol, 2018; Hanushek et al., 2017; Müller & Shavit, 1998).

### 2.2.1. Type of Skills

General knowledge, such as basic academic subjects (e.g., language, economics, ethics) and analytical and problem-solving knowledge, is transferable between firms and occupations and can be used in diverse contexts (Becker, 1964). In contrast, occupation-specific skills are highly relevant for—but limited to—the occupation in which they were acquired (Shaw, 1987). Human capital theory argues that this difference is likely to influence status mobility at labour market entry because the types of acquired skills are relevant to the training costs associated with hiring VET diploma holders. Highly specific, less transferable skills increase diploma holders' immediate productivity and reduce training costs for new job incumbents within the occupation (Hanushek et al., 2017; Müller & Shavit, 1998). Labour market entrants who receive highly occupation-specific training are strongly incentivised to enter employment within their trained occupation, where they can apply most of their skills and where their skills will be fully remunerated (Vicari & Unger, 2020). Those with more general education need more on-the-job training to acquire the same level of occupation-specific skills and productivity (Breen, 2005; Müller & Shavit, 1998; Wolbers, 2003). Employers could react to this by preferring more experienced workers over labour market entrants who are trained in occupations with a high proportion of general education. Labour market entrants with more general education could therefore be at a greater disadvantage against experienced workers than labour market entrants with more specific education and training (Vogtenhuber, 2014). Furthermore, employers might compensate for the higher training costs associated with hiring labour market entrants whose vocational training programmes taught more general knowledge by placing them in positions with lower pay and status. Thus, we hypothesise:

H1a: Labour market entrants who trained in occupations with a high proportion of general education

are *more likely to experience downward mobility* at labour market entry than those who trained in occupations with lower proportions of general education.

H1b: Labour market entrants who trained in occupations with a high proportion of general education are *less likely to enter a first job with the same status as the training occupation* at labour market entry than those who trained in occupations with lower proportions of general education.

H1c: Labour market entrants who trained in occupations with a high proportion of general education are *equally likely to experience upward mobility* at labour market entry than those who trained in occupations with lower proportions of general education.

### 2.2.2. Manner of Skill Acquisition

Comparative research on education system effects implies that the degree of how readily occupation-specific skills can be used after labour market entry and how transferable they are depends on how these skills are taught (for an overview see Blommaert et al., 2020). Occupation-specific skills that are taught in the training firm are closely tied to actual labour market needs and practices, while occupation-specific education that is taught theoretically in vocational schools is more abstract and independent of the state of the art in the firms (Müller & Shavit, 1998; Neyt et al., 2020). Thus, practical training in firms imparts more relevant and ready-to-use specific skills that are crucial for productivity at labour market entry compared to theoretical occupation-specific education (Bol & van de Werfhorst, 2016; Breen, 2005). Those who trained in VET programmes that included a high proportion of practical training should thus be sought after by employers and should easily find jobs that match their training. Thus, we hypothesise:

H2a: Labour market entrants who trained in occupations with a high proportion of practical occupation-specific training are *less likely to experience downward mobility* at labour market entry than those who trained in occupations with lower proportions of practical training.

H2b: Labour market entrants who trained in occupations with a high proportion of practical occupation-specific training are *more likely to enter a job with the same status position* at labour market entry than those who trained in occupations with lower proportions of practical training.

H2c: Labour market entrants who trained in occupations with a high proportion of practical occupation-specific training are *equally likely to experience upward mobility* at labour market entry than those

who trained in occupations with lower proportions of practical training.

### 2.3. The Relationship Between Training Characteristics, Early Labour Market Allocation, and Status Mobility During Early Career

The vocational specificity of a training programme may have both indirect and direct impacts on long-term mobility chances. The indirect impact is mediated by early labour market allocation and the characteristics of the first job. Indirect effects are likely if the concept of cumulative (dis)advantages across the life course is taken into account (Dannefer, 2018; DiPrete & Eirich, 2006). Previous research shows that initial disadvantages associated with status-inadequate jobs or income disadvantages have been found to accumulate across the career (Brunner & Kuhn, 2014; Bukodi & Dex, 2009; Scherer, 2004). In contrast, upward mobility at the beginning of the career may signal high motivation, productivity, and trainability to employers, thus increasing the likelihood of further upward moves. Concerning our research questions, this could mean that occupation-specific and practical skills and knowledge have positive long-term consequences because they facilitate status-adequate labour market entry.

Regarding the direct long-term effects of training characteristics, the vocational specificity of a training programme may affect how likely it is for diploma holders to acquire new skills and knowledge through further learning. Vocational specificity may also affect the probability of losing skills and knowledge as a result of depreciation due to technological changes or times out of the labour market (Hanushek et al., 2017; Lavrijsen & Nicaise, 2017). This assumption can explain why general and theoretical knowledge, which should initially hamper labour market entry, can open up new job opportunities over time and thus compensate for the initial disadvantage.

#### 2.3.1. Type of Skills

Because general education focuses on basic academic subjects and analytical tools that help reflect on individual learning processes (State Secretariat for Education Research and Innovation, 2006; Wettstein et al., 2017), a high proportion of general education and training provides a good foundation for further learning, whether informal or formal, through higher vocational education (Lavrijsen & Nicaise, 2017; Sander & Kriesi, 2021). This can in turn enhance diploma holders' productivity and signal high motivation and trainability (Hanushek et al., 2017; Li et al., 2000). Furthermore, general knowledge hardly depreciates and is highly transferable, because it can be used in various occupations across the labour market and thus also throughout one's career (Estévez-Abe, 2012; Grønning et al., 2020b). More general education may therefore give individuals access to equal- or higher-status positions, even after a period out of the

workforce or in occupational subsegments other than their training occupation. Accordingly, we hypothesise:

H3a: Individuals who trained in training occupations with a high proportion of general education are *less likely to experience downward mobility* during their early careers than those who trained in occupations with lower proportions of general education.

H3b: Individuals who trained in training occupations with a high proportion of general education are *less likely to experience status stability* during their early careers than those who trained in occupations with lower proportions of general education.

H3c: Individuals who trained in training occupations with a high proportion of general education are *more likely to experience upward mobility* during their early careers than those who trained in occupations with lower proportions of general education.

#### 2.3.2. Manner of Skill Acquisition

Theoretical occupation-specific education fosters analytical thinking and provides basic occupation-specific academic knowledge, which is favourable for further learning within the occupational field (Wettstein et al., 2017). In contrast, diploma holders from training programmes with a high proportion of practical occupation-specific training could face high costs of entering higher education because their training programmes have equipped them with ready-to-use practical skills rather than the logic of academic learning. Therefore, these diploma holders might be less inclined to enter further education, which would possibly give them access to higher-status positions than those with more theoretical occupation-specific knowledge. Furthermore, because skills acquired through practical occupation-specific training are related to the tasks and technology of the training firm to a higher degree, practical training could hamper individuals' flexibility, especially in industries with rapid technological change (Hanushek et al., 2017). Thus, we hypothesize:

H4a: Individuals who trained in training occupations with a high proportion of practical occupation-specific training are *more likely to experience downward mobility* during their early careers than those with lower proportions of practical occupation-specific training.

H4b: Individuals who trained in training occupations with a high proportion of practical occupation-specific training are *more likely to work in a job with the same status* during their early careers than those with lower proportions of practical occupation-specific training.

H4c: Individuals who trained in training occupations with a high proportion of practical occupation-specific training are *less likely to experience upward mobility* during their early careers than those with lower proportions of practical occupation-specific training.

#### 2.4. Other Occupation-Specific Determinants of Status Mobility

The occupation-specific labour market situation and the individual characteristics of diploma holders are likely to matter for status mobility. At the occupational level, labour market entry conditions are very important for later career development (Brunner & Kuhn, 2014). In occupationally segmented labour markets, demand and supply within the occupational field are substantially more important for career development than the overall economic situation (Buchs et al., 2015; Sacchi et al., 2016). Thus, the highly aggregated measures of labour market supply or demand (e.g., year or region dummy variables or local unemployment rates) used to control for opportunities in previous research are insufficient (Menze, 2017; Muja et al., 2019b; Vogtenhuber, 2014; Wolbers, 2008). Further, Sacchi et al. (2016) show that individual opportunities are highly contingent on the status distribution of the positions available. Vacant positions with higher status within individuals' mobility chains are a prerequisite for upward mobility. Downward mobility is more likely when more of the vacant positions are of lower status.

### 3. Empirical Method

#### 3.1. Data

We use the first cohort of the Transitions From Education to Employment (TREE) panel study of the Swiss compulsory school-leaver cohort in 2000, who were aged 15–16 years old. The data comprises nine waves carried out between 2001 and 2014. From 2003 onwards, monthly employment spells with information on the job title and characteristics were recorded (Gomensoro & Meyer, 2017). The analyses are based on respondents who finished a dual upper-secondary VET degree with a training duration of three or four years. To test the effect of specificity on status mobility directly after labour market entry we used all VET diploma holders for whom a first employment episode was observed within two years after training ( $N = 1391$ ). The average age at labour market entry was 21 ( $SD = 1.6$ ). The analysis of status mobility during the early career was based on all VET diploma holders who were employed and not in education or military/civil service 10 or 14 years after compulsory school (waves 8 or 9;  $N = 1180$ ). On average, they were 28 ( $SD = 1.9$ ) years old (for details see additional notes and Table A1 in the Supplementary File). Individuals with missing covariate information were excluded from the analyses (81 and 75 individuals, respectively).

#### 3.2. Measures

##### 3.2.1. Dependent Variables

The first dependent variable captures status mobility at labour market entry between the training occupation and the first job. The second variable captures status mobility between the training occupation and the job around the age of 30 (medium-term job). Status mobility distinguishes between three categories: (a) upward mobility, (b) downward mobility, and (c) no status mobility (status stability). The “stability” category consists of individuals who continued working in the training occupation and individuals who changed into an occupation with a status similar to that of their training occupation. The status of an occupation is measured by the International Socio-Economic Index of Occupational Status (ISEI; see Ganzeboom et al., 1992). Upward mobility is defined as an increase in ISEI score of at least 10%, and downward mobility is defined as a decrease in ISEI score of 10% or more, which is in line with the cut-off points set by previous research (Sacchi et al., 2016; Wolbers, 2008). Status stability applies to ISEI increases or decreases of less than 10%. The relative definition of status mobility ensures comparability between respondents' mobility patterns regardless of the status position of the diploma holders' training occupation (Sacchi et al., 2016).

##### 3.2.2. Occupational-Level Explanatory Variables

Previous research measuring specificity focused on either the type of skills or the manner of skill acquisition (e.g., Damelang et al., 2015; Geel & Backes-Gellner, 2011; Menze, 2017; Neyt et al., 2020). Measures of type of skills are either based on self-reported skills or mismatch (Geel & Backes-Gellner, 2011; Menze, 2017), skill catalogues for the occupations (Damelang et al., 2015; Eggenberger et al., 2018; Vicari & Unger, 2020) or expert ratings (Muja et al., 2019b). Measures of the manner of skill acquisition distinguish between school-based and firm-based training (Müller & Schweri, 2009; Neyt et al., 2020). A few recent contributions incorporate both dimensions in a single analysis but use crude dichotomous and static variables only, that do not capture changes over time (Muja et al., 2019a, 2019b; Verhaest et al., 2018).

We aim to exceed previous research by constructing time-dependent specificity indicators that capture both the type of skills and the manner of skill acquisition based on the occupation-specific training content in force at the time the respondents underwent training. This was achieved by using a database of the institutional characteristics of the training occupations, covering around 550 nationally standardised and legally binding occupation-specific VET ordinances and curricula in force between 2000 and 2015 (Grønning et al., 2018). The VET ordinances and curricula include information

on the time apprentices spend in the training firm, intercompany courses and vocational school learning occupation-specific and general lessons. General education is mainly taught in vocational schools and includes lessons in language, communication, economics, business management, administration, politics, ethics, and culture. Occupation-specific skills and knowledge are provided through both practical training and experience in the training firm and through occupation-specific lessons in vocational school and intercompany courses. Intercompany courses provide occupation-specific education and training that is not part of the training in the firms due to safety reasons or firm specialisation. The first dimension of specificity, the type of skills, is measured with a continuous variable that captures the proportion of general versus occupation-specific education. This was calculated by dividing the time the apprentices spent in general education in vocational school by the total training time at all three locations (mean = 9.7, SD = 4.0; see Table 2). The second dimension, the manner of skill acquisition, is based on the proportion of practical versus theoretical occupation-specific training. This was calculated by dividing the time apprentices spent in the training firm by the time they spent in occupation-specific training at all three training locations (mean = 85.5, SD = 2.8; see Table 2). These two indicators were linked to the individual-level data based on the training occupation title (TREE, 2016, p. 8) and the year of graduation.

We controlled for (potentially confounding) labour demand by using the Swiss Job Market Monitor data, providing a representative sample of all vacant positions from 1950 onwards on a yearly basis (Sacchi, 2014). Three indicators capture the annual number of occupation-specific vacant positions that were accessible to diploma holders from specific training programmes: number of job vacancies with 10% higher ISEI scores; number of job vacancies with 10% lower ISEI scores; and number of job vacancies with equal (+/- 10%) ISEI scores compared to the training occupation of the diploma holders. We only included vacancies that (a) requested a VET diploma, (b) did not require any further education, labour market experience, or supervisory experience, and (c) were not aimed at older age groups (Buchs et al., 2015). The number of advertised positions was then weighted by the probability that a “worker with occupation x [was] able to access jobs in other occupations” (Sacchi et al., 2016, p. 14). Thereby, we account for the fact that access to open positions depends on diploma holders’ occupations. Thus, the indicators measure diploma holders’ opportunities for upward, lateral and downward mobility within the occupational subsegment to which their diploma grants access. To account for the supply side, we included the number of unemployed individuals with a vocational degree within the diploma holder’s training occupation based on register data on monthly unemployment counts. These data were provided by the Swiss job

placement and labour market statistics information system. All controls for the occupation-specific labour market situation were z-standardised.

### 3.2.3. Individual-Level Explanatory Variables

To account for the sorting of young men and women into different occupations according to their social backgrounds and abilities, we include several controls. Abilities and school performance were measured using respondents’ PISA reading score (z-standardised) and lower secondary education track (0 = basic requirements, 1 = pre-gymnasia track, 2 = extended requirements, and 3 = no formal tracking). Sex (0 = female, 1 = male), country of birth (0 = Switzerland, 1 = other), region of residence during VET (7 categories), age of the respondents at the time of completion of the apprenticeship, and the presence of children (medium-term models only) were included in the multivariate analysis. The mean parental ISEI when the VET diploma holders left compulsory school (z-standardised) captures family background. Furthermore, we controlled for training firm retention (0 = no, 1 = yes, 2 = missing) and the months between graduation and the first job.

### 3.3. Analytical Strategy

To assess the impact of the proportion of general education and practical training on status mobility, we ran multinomial logistic regressions (Long & Freese, 2014). To compare nested models, we present the average marginal effects (Best & Wolf, 2012), which can be interpreted as the population-averaged marginal effect of the independent variables on the probability of experiencing upward mobility, downward mobility, and status stability. To compute correct standard errors for the occupation-specific variables, we estimated cluster-robust standard errors for the training occupations (Long & Freese, 2014, p. 104). The results are reported using survey weights that correct for the disproportionality of the sample as well as for panel attrition (Sacchi, 2011). Models 1 and 2 in Table 3 pertain to the first job after labour market entry (see also Supplementary File, Table A3). Models 3, 4, 5, and 6 in Table 4 present the results pertaining to status mobility during the early career (see also Supplementary File, Table A4). The predicted probabilities based on Models 2 and 5 are depicted in Figure 1. For additional notes on the variables and analytical strategy, including robustness checks, see the supplementary material.

## 4. Results

### 4.1. Descriptive Results

Table 1 shows the proportion of VET diploma holders who experienced downward and upward mobility in their initial and medium-term jobs. At labour market

**Table 1.** Status mobility between training occupation and first and medium-term job.

	First job	Medium-term job
	Percent	Percent
Downward mobility	10.2	10.1
Status stability	74.0	40.8
Upward mobility	15.9	49.2
Total	100	100
N	1391	1180

Note: Weighted results. Source: Own calculations based on TREE (first cohort).

entry, the majority (74%) of diploma holders found jobs with the same status score as their training occupations. A considerable fraction also experienced upward mobility; 16% found jobs with higher status scores than their training occupations. During the early career, the proportion of individuals who experienced upward mobility rose to 49%. Overall, these results show a favourable labour market situation for young Swiss VET diploma holders. Nevertheless, around one-tenth of diploma holders enter their first jobs with lower statuses than their training occupation. In the medium term, this proportion does not change. Given that two-thirds of Swiss school-leavers enter VET, downward mobility affects a sizeable group.

To provide a first impression of the relationship between status mobility and the specificity of the training occupation, the mean shares of general education and practical training for each mobility group are presented in Table 2. VET diploma holders spent between 6% and 21% of their training time in general education in vocational schools. Thus, most of their training was occupation-specific. On average, those who experienced upward mobility trained in occupations with a significantly higher proportion of general education than those who did not (one-sided *t*-test,  $p < 0.01$ ). This is the case both at labour market entry and around the age of 30. Diploma holders' occupation-specific training is largely practical. Between 69% and 92% of occupation-specific training took place in the training firm. Those who experience upward mobility have a slightly but significantly lower proportion of practical occupation-specific training

than those who did not in a short-term perspective (one-sided *t*-test,  $p < 0.01$ ).

#### 4.2. Multivariate Results

The results in Model 1 (Table 3) show that the proportion of general education is negatively associated with the probability of experiencing status stability and positively associated with the probability of experiencing upward mobility in the first job. However, when the occupation-specific labour market opportunities are added in Model 2, the effects of general education diminish and are no longer significant. The favourable labour market opportunities in training occupations with a high proportion of general education seem to be the reason why the diploma holders in these occupations are more upwardly mobile at labour market entry than diploma holders with more occupation-specific education and training. In summary, these findings confirm hypotheses H1c but not H1a and H1b. We find no evidence that, net of other factors such as job opportunities, the type of skills matters for diploma holders' status mobility between training occupation and first job after the apprenticeship.

The results in Model 1 further show that VET diploma holders who trained in occupations with a high proportion of practical occupation-specific training have a significantly lower probability of experiencing downward mobility and a significantly higher probability of entering a job with a similar status score to their training occupation than those who trained in occupations

**Table 2.** Distribution of the proportion of general education and practical training by status mobility (in percent).

	Downward Mobility		Status Stability		Upward Mobility		Total		Min	Max	N
	Mean	SD	Mean	SD	Mean	SD	Mean	SD			
First job											
General education	10.1	4.1	9.1	3.7	12.4	4.3	9.7	4.0	5.8	21.0	1391
Practical training	84.5	3.1	85.9	2.7	84.4	2.4	85.5	2.8	68.6	91.5	1391
Medium-term job											
General education	9.7	4.2	8.9	3.7	10.7	4.3	9.9	4.1	5.8	21.0	1180
Practical training	84.9	2.8	85.9	2.7	84.8	3.0	85.3	2.9	68.6	91.5	1180

Note: Weighted results. Source: Own calculations based on TREE (first cohort).

**Table 3.** Multivariate results for first job.

	Model 1			Model 2		
	Downward mobility	Status stability	Upward mobility	Downward mobility	Status stability	Upward mobility
Proportion of general education	-0.003 (0.003)	-0.018*** (0.004)	0.022*** (0.003)	-0.005 (0.006)	-0.008 (0.010)	0.013 (0.009)
Proportion of practical training	-0.016*** (0.004)	0.014* (0.007)	0.002 (0.008)	-0.015** (0.006)	0.017* (0.008)	-0.003 (0.007)
Occupation-specific labour market opportunities				X	X	X
Individual level control variables	X	X	X	X	X	X
N		1391			1391	
Pseudo R <sup>2</sup>		0.149			0.158	

Notes: Average marginal effects from multinomial logistic regressions; cluster-robust standard errors in parentheses; weighted results; +  $p < 0.10$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ ; for the full models with control variables see Table A3 in the Supplementary File. Source: Own calculations based on TREE (first cohort).

with high proportions of theoretical occupation-specific training. These effects hardly change when we control for occupation-specific labour market opportunities in Model 2. This result confirms hypotheses H2a, H2b, and H2c. With increasing proportions of practical occupation-specific training, the probability of experiencing downward mobility decreases substantially and significantly (H2a) and the probability of experiencing status stability increases substantially and significantly (H2b), whereas the probability for upward mobility is not related to the proportion of occupation-specific training (H2c; also see lower left quadrant in Figure 1). At labour market entry, practical occupation-specific skills seem to offer better protection against status loss by facilitating entry into matching jobs to a higher degree than theoretical occupation-specific skills. These results complement research that shows that those with dual training programmes face fewer problems with labour market entry, such as finding employment (Neyt et al., 2020) and being undereducated or inadequately skilled (Verhaest et al., 2018) than those with more school-based education.

The results pertaining to medium-term status mobility (Table 4, Models 3–6) show that the proportion of general education becomes more important for status mobility over time. Around the age of 30, diploma holders who trained in occupations with a large proportion of general education had a significantly lower probability of being in a job with the same status compared to diploma holders who trained in occupations with a low proportion of general education (Table 4, Model 3). Furthermore, they have a significantly higher probability of being in a job with a higher status than their training occupation. This effect becomes larger when job opportunities at labour market entry are also controlled for (Table 4, Model 4). This suggests that the effect of general education is underestimated because those with a greater proportion of general education faced

less advantageous labour market conditions when entering the labour market than those with more occupation-specific training and education. In Model 5, mobility at labour market entry is added, which somewhat reduces the effect size of general education. However, the average marginal effects remained significant and substantial. As Figure 1 shows (upper right quadrant), those with the most general education have a 34 percentage points higher probability of being upwardly mobile and a 26 percentage points lower probability of experiencing status stability than those with the least general education. When accounting for further education after earning the VET diploma, the effects remain stable (Table 4, Model 6). These findings confirm hypotheses H3b and H3c but not hypothesis H3a, which assumed that high proportions of general education are related to a lower propensity for downward mobility. Taken together and despite the lack of effect of general education on downward mobility, the results support the assumption that skills and knowledge taught during VET can have long-term effects beyond the initial allocation in the labour market. General knowledge could help compensate for a disadvantageous start because this knowledge depreciates slowly and facilitates further learning. Individuals who trained in occupations with a high proportion of general education could have a more positive attitude towards learning and more frequently attend higher or further education. This can enhance diploma holders' productivity throughout their early career, send positive signals to employers, and therefore make diploma holders with general education better equipped to improve their status position in the medium term.

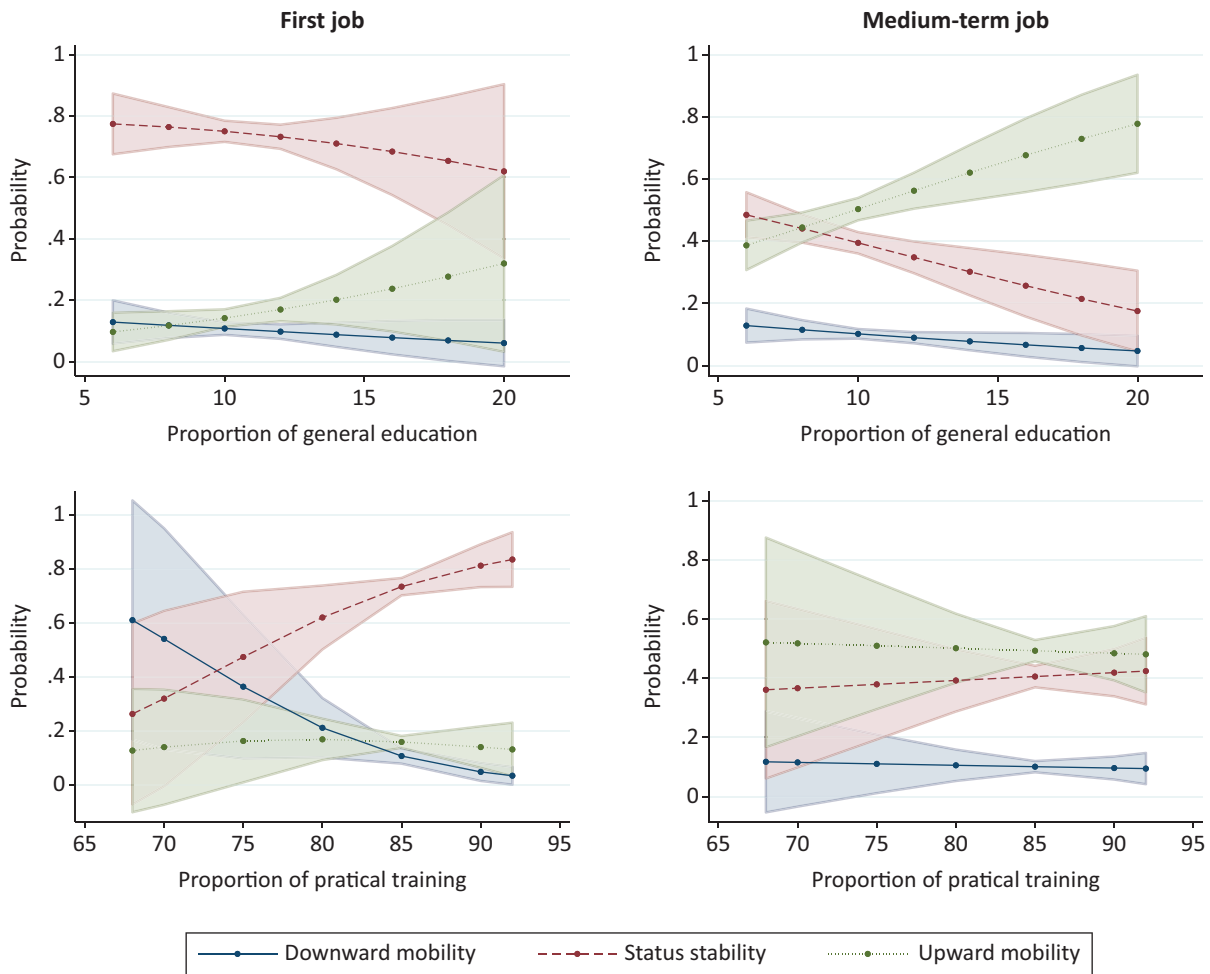
Higher proportions of occupation-specific practical training are associated with a higher probability of remaining in a job with the same ISEI score as the training occupation, net of individual level controls and initial job opportunities (Table 4, Model 4). However, this



**Table 4.** Multivariate results for medium-term job.

	Model 3			Model 4			Model 5			Model 6		
	Downward Mobility	Status Stability	Upward Mobility	Downward Mobility	Status Stability	Upward Mobility	Downward Mobility	Status Stability	Upward Mobility	Downward Mobility	Status Stability	Upward Mobility
Proportion of general education	-0.001 (0.004)	-0.025*** (0.007)	0.026** (0.009)	-0.009 (0.007)	-0.025* (0.010)	0.034** (0.013)	-0.006 (0.005)	-0.021** (0.008)	0.027** (0.010)	-0.006 (0.005)	-0.022** (0.008)	0.029** (0.010)
Proportion of practical training	-0.006 (0.006)	0.011 (0.012)	-0.005 (0.016)	-0.005 (0.006)	0.020* (0.009)	-0.015 (0.013)	0.000 (0.004)	0.008 (0.009)	-0.008 (0.010)	-0.001 (0.004)	0.003 (0.009)	-0.002 (0.010)
Mobility at labour market entry (ref: status stability)												
Downward mobility							0.427*** (0.052)	-0.241** (0.083)	-0.186* (0.075)	0.412*** (0.053)	-0.248** (0.077)	-0.164* (0.076)
Upward mobility							0.028 (0.033)	-0.410*** (0.049)	0.382*** (0.062)	0.032 (0.033)	-0.400*** (0.050)	0.368*** (0.064)
Individual level control variables	X	X	X	X	X	X	X	X	X	X	X	X
Occupation-specific labour market opportunities				X	X	X	X	X	X	X	X	X
Further Education										X	X	X
N		1180			1180			1180			1180	
Pseudo-R <sup>2</sup>		0.161			0.206			0.342			0.361	

Notes: Average marginal effects from multinomial logistic regressions; cluster-robust standard errors in parentheses; weighted results; +  $p < 0.10$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ ; for the full models with control variables see Table A3 in the Supplementary File. Source: Own calculations based on TREE (first cohort).



**Figure 1.** Predicted mobility based on the proportion of general education and practical occupation-specific training at labour market entry and during the early career. Note: Predicted margins with 95% confidence intervals based on Model 2 in Table 3 and Model 5 in Table 4. Source: Own calculations based on TREE (first cohort).

positive effect diminishes and is no longer significant when mobility at labour market entry is controlled for (Table 4, Model 5). Thus, practical occupation-specific education mainly seems to impact medium-term status stability, because it facilitates status-adequate labour market entry. Thus, we found no support for hypotheses H4a, H4b, and H4c. The assumption that more practical occupation-specific training, compared to theoretical occupation-specific education, becomes a burden that leads to status loss or prevents status gain does not hold. The effects of initial mobility on medium-term status mobility are in line with the research finding that initial disadvantages in the labour market accumulate throughout one’s career (Dannefer, 2018; DiPrete & Eirich, 2006). VET diploma holders who enter the labour market in a job with a lower status than their training occupation are more likely to be in a job of lower status around the age of 30 as well, and they are less likely to enter a job of similar or higher status than their training occupation compared to their counterparts who enter the labour market in status-adequate jobs (Table 4, Model 5). Those who experience upward mobility at labour market entry seem

to be able to maintain favourable status positions or even experience further upward mobility.

### 5. Discussion and Conclusion

This article sheds light on inequalities in labour market outcomes throughout the early career among individuals who trained in different VET programmes. It examined how variations in the taught general and specific skills of different VET programmes influence occupational status mobility. This contribution goes beyond current research by systematically differentiating between upward mobility, downward mobility, and status stability at labour market entry and in the medium term. We show that labour market allocation at the beginning of a career has long-lasting consequences. Initial downward mobility is associated with medium-term disadvantages, while initial upward mobility fosters higher-status positions throughout the early career. Furthermore, variations of skills and knowledge acquired through VET matter for individuals’ long-term labour market allocation beyond its effect on the initial occupational position.

The results show that having trained in a programme with a high proportion of practical occupation-specific training prevents individuals from experiencing downward mobility at labour market entry. This suggests that those with highly specific practical skills are likely to become employed in a job in their training occupation, where their skills can be used immediately and are fully remunerated. Our finding is in line with previous research showing that practical occupation-specific training is beneficial for a range of labour market outcomes at labour market entry (Grønning et al., 2020a; Neyt et al., 2020; Polidano & Tabasso, 2014; Verhaest et al., 2018). Because status stability at labour market entry facilitates medium-term status stability and prevents medium-term downward mobility, a high share of practical training can function as a safety net during the first 10 years of a career, securing status-adequate and stable employment trajectories (Shavit & Müller, 2000). This is advantageous for school-leavers who are less academically oriented or weary of school.

For upward mobility in the early career, a large proportion of general education within VET is beneficial compared to a large proportion of occupation-specific education and training. This result suggests that general education fosters further learning activities and a positive attitude towards learning (see also Lavrijzen & Nicaise, 2017), which gives VET diploma holders access to higher status positions throughout their early careers. If this interpretation holds, general education taught in VET is able to compensate for early disadvantages at labour market entry.

On a theoretical basis, our results confirm that labour market careers are cumulative processes, with education as a crucial life-course relevant institution that shapes not only individuals' school-to-work transition but also their long-term career outcomes. Even within education levels, as illustrated in this article by upper secondary VET, allocation to training or education programmes has an impact on individual skill and knowledge attainment, as well as skill development, throughout the early career. Future theoretical considerations should focus more on these differences in the types of skill acquisition and skill development within levels of education, as they have implications for life-course inequality, especially given the fact that access to different training and education programmes is driven by social origin to a high degree (Meyer & Sacchi, 2020). Moreover, the important interplay between skill endowment, initial labour market allocation, further skill development and long-term mobility is still scarcely studied, both theoretically and empirically.

Our results contribute to the current debate on how VET can keep up with increasing skill requirements due to rapidly developing technology and the shift to non-routine tasks with high skill requirements (Oesch, 2013). The debate centres on the trade-off between meeting the increasing demand for tertiary-educated workers and continuing to provide enough

vocationally trained workers with sound occupation-specific skills and knowledge (Euler & Severing, 2017; Kriesi & Leemann, 2020). Along with other recent empirical research (Forster & Bol, 2018; Hanushek et al., 2017; Korber & Oesch, 2019; Sander & Kriesi, 2021), the results of this study suggest that general education during VET can attenuate this trade-off. It can play a role in meeting the demand for a skilled and flexible workforce through various means, such as facilitating transitions into higher education without compromising the vocational orientation of the VET system.

However, the results of this article are limited to the Swiss context, which exhibits highly standardised curricula and narrow education programmes. The findings of Verhaest et al. (2018) suggest that practical training is particularly effective when combined with a narrow and occupation-specific focus, as can be found in Switzerland. Future research should examine in more detail the conditions under which practical workplace-based training is beneficial for labour market entry. Such research is especially relevant in light of current intentions to strengthen the apprenticeship system throughout Europe despite differences in the underlying education systems and labour market structures (Šćepanović & Martín Artiles, 2020). Furthermore, the results pertain only to the first ten years after labour market entry. The effect of the dimensions of skill acquisition on mobility through the later phases of the life course remains unknown and should be investigated in the future.

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### Conflict of Interests

The authors declare no conflict of interests.

### Supplementary Material

Supplementary material for this article is available online in the format provided by the author (unedited).

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