



Gendered Education and Labor Market Trajectories in Switzerland

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Abstract

Like many post-industrial, knowledge-based societies and economies, Switzerland has experienced a reversal of the gender gap with respect to educational attainment: Within less than two decades, the share of young women attaining a tertiary level degree has exceeded that of young men – by 10% points in the Swiss case. However, this development is far from translating into women’s situation in the labor market. They are markedly underrepresented in managerial positions, overrepresented in low-paying jobs, and experience persistent “unexplained” wage gaps. Both the Swiss education system and the labor market remain deeply affected by gender segregation. As a country with a VET-dominated education system, Switzerland is characterized by a strong education-occupation linkage, which tends to reinforce gender segregation. Gendered labor market trajectories are further accentuated by a social, legislative, fiscal, and economic context hampering reconciliation of family and work, which tends to marginalize or exclude women with children from the labor market.

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The detailed, richly contextualized trajectory data of the Swiss school leavers' panel survey TREE (Transitions from Education to Employment) allow us to observe and analyze the progressive gendering of life courses, as it were, "in its making." The present contribution provides a synopsis of salient findings drawing on TREE data across the various stages of educational, labor market, and family formation pathways after young people in Switzerland leave compulsory schooling at the age of 15–16. The findings particularly contribute to disentangling the complex, yet powerful mechanisms at work during the transition to post-compulsory education and to the labor market.

Keywords

Gendered life courses · School-to-work transition · Switzerland · TREE panel study · Gender (wage) gaps

Introduction

The single, most conspicuous finding [...] is the strong and persistent gendering of the two major trajectories, occupational and familial [...] for individuals who form heterosexual couples, have children and pass through the various phases of family life. (Levy & Widmer, 2013)

Some 50 years after Swiss men finally deemed to grant women the right to vote at federal level (1971, as the third last state of the western sphere), gender equality is far from being reached in Switzerland. As the authors of the cited work already suggest in the title of their seminal book, "Gendered Life Courses" remain an indisputable fact in Swiss society. At first glance, this stands in stark contrast with the "*profound changes regarding educational attainment*" observed by Kriesi and Imdorf (2019) not only for Switzerland, but for many post-industrial, knowledge-based societies. As to the Swiss case in point: While around 1980, only about two thirds of all young women completed an educational degree beyond compulsory school level (age 14–15 years), by the beginning of the current decade, 40% completed a college degree – 10% points higher than their male counterparts (Swiss Federal Statistical Office, n.d.). However, and despite this gender-specific turn of tides with respect to educational attainment, the Swiss education system remains deeply affected by gender segregation, which, to quote Kriesi and Imdorf again, "affects young people's further educational and occupational careers and occupational attainment. The phenomenon is thus closely linked with gender segregation in the labour market and social inequality" (2019).

In an international perspective and with respect to the mentioned education-occupation linkage, the Swiss case is particularly informative: Around two thirds of Swiss adolescents embark on this transition 1–2 years before the end of lower secondary school (at age 14–15), looking out and applying for VET training places in public or private companies. In their early adolescence, at an early stage of their developmental search for gender identity, they are confronted with occupational

choices in a world of work where many of the occupations at stake are strongly gendered.

Outside the Anglo-Saxon and especially in the German-speaking countries, there are still very few studies that track educational and labor market trajectories of young people longitudinally and over an extended period of time (Life, see Fend et al., 2009, ZLSE, see Schmaeh et al., 2015; more recently also NEPS, see www.neps-data.de). In Switzerland, the multi-cohort TREE panel study (Transitions from Education to Employment) is one of the first to close this gap (www.tree.unibe.ch). The study's scope does not limit itself to follow up these trajectories at close intervals and in great detail. As one of its essential objectives, it also seeks to investigate these trajectories' long-term conditions of success, whether they are of an individual, social, or institutional nature. Hence, TREE's trajectory data are complemented by a rich set of contextual information on respondents' family, health and financial situation, subjective assessments of their education and employment activities, etc., allowing for cross-domain or intersectional life course analyses that carefully contextualize the observed trajectories. With regard to gendered life courses, TREE's study design and data thus provide a unique opportunity to analyze gendering as a complex, multidimensional process, as it were, "in the making."

It is probably not by coincidence that in the course of the years, analyses on gender issues have turned out to become one of the focal points of research conducted on the basis of TREE data. This contribution provides a synoptic review of the respective findings, focusing on results that aim at revealing the complex processes and mechanisms underlying the gendering of life courses over time.

Gender (In)equality in Switzerland

General Context

By international standards, gender equality policy in Switzerland has started rather late (Liebig et al., 2016). Apart from Portugal and Liechtenstein, Switzerland has been the last country in the Western world to introduce general suffrage at federal level (in 1971). Policies and institutions favoring work–family balance and egalitarian arrangements have long been lacking and are developing at a hesitant pace (Bornatici et al., 2020). Paid maternity (with a minimum of 14 weeks) was legislated at federal level in 2004 whereas paid paternity leave (minimum of 2 weeks) was legislated as recently as 2021. Despite federal subsidies available since 2003, only about two thirds of all children under age 13 have access to childcare facilities, which remain among the most expensive internationally (Gromada & Richardson, 2021). Switzerland ranks last among the 21 high-income OECD countries with respect to the support of equal parenting (Liebig et al., 2016). Women remain markedly underrepresented in political bodies (both legislative and executive; see Bundesamt für Statistik, 2021).

Education and School-to-Work Transition

The Swiss education system is characterized by a federal, small-knit structure, a pronounced horizontal and vertical stratification from lower secondary level onward, the dominance of dual, market-based VET, and a relatively low participation rate at tertiary level, especially in the vocational education and training (VET) sector (for a general outline regarding VET and higher education, see Nikolai & Ebner, 2011).

A first important setting of the course takes place at around 12 years of age, when students enter lower secondary school after primary school: In most cantons, students are divided into two to four different tracks of lower secondary school, which differ according to their level of academic requirements. The extent and form of tracking varies greatly from canton to canton. Approximately 30% of all students are assigned to tracks of the so-called “basic requirements” type, with inter-cantonal variation ranging from 10% to 40% (Swiss Federal Statistical Office, n.d.). Even though educational policy postulates permeability between tracks, the initial allocation to a given track remains largely irreversible (Bayard, 2018; Oesch, 2017). The tracking not only influences further skills development (Angelone & Ramseier, 2012; Baumert et al., 2006; Tomasik et al., 2018) but also further education trajectories (Gomensoro & Meyer, 2021; OECD, 2002; Scharenberg et al., 2016; Scharenberg et al., 2017). Although track allocation claims to be achievement-based, allocation criteria strongly vary within and between cantons, are lacking valid discriminatory power, and most of all are highly socially selective even while controlling for academic achievement (Felouzis et al., 2011; Kronig, 2007; Neuenschwander et al., 2012).

In Switzerland, compulsory schooling ends after lower secondary level (that is, after 11 years including 2 years of kindergarten). With the exception of two among the 26 Swiss cantons (Geneva and Ticino), students are neither legally entitled nor obliged to pursue their education at upper secondary level (and further; for more detail see www.edk.ch/en/education-system).

A second important setting of the course occurs at the end of compulsory schooling: Upper secondary level education in Switzerland includes, on the one hand, general education programs geared toward later attendance of university studies (approx. 30% of a school leavers' cohort). However, the large majority of Swiss compulsory school leavers (over 60%) attends vocational education and training (VET). There are VET programs in over 200 training professions with varying academic requirements, their duration ranging between 2 and 4 years. It is assumed that in training systems with a strong dual VET system, gender-specific choices are more accentuated due to the high degree of differentiation of training occupations (Buchmann & Charles, 1995). Most programs are provided in a “dual” form, that is, learners attend a (usually larger) part of their training “on the job” in a training company, while the remaining time is spent in (vocational) school. VET trainees in this type of program sign an apprenticeship contract with the training firm and receive a (modest) salary. Upon completion of their training, VET trainees obtain a VET diploma, which provides access to the labor market and/or further

training at post-secondary and tertiary levels (for more detail see www.edk.ch/en/education-system).

In this context, it should be noted that the Swiss labor market is strongly segmented by the occupation-specific formal credentials obtained through VET. The occupation-specific segment of the labor market, by far the largest in Switzerland, is subdivided into one hundred occupation-specific subsegments, each of which is based on an occupation-specific VET diploma. Access to jobs in these subsegments is generally limited to people holding the respective diploma (Sacchi et al., 2016). While this mechanism is known to smooth transitions from VET to the labor market, it is also known to substantially hamper labor market mobility between occupations (Buchs et al., 2015; Mueller & Schweri, 2015). We should furthermore keep in mind that, with regard to gender(ing), opting for a specific VET program is a strong predictor not only for the occupation one will later work in, but also whether it will be in a “male” or “female” occupation.

Furthermore, it should be noted that career choices in dual VET systems such as Switzerland’s start as early as at age 14. It is widely acknowledged that career choices at such an early age, combined with the close VET-labor market linkage mentioned above, tend to reinforce gendering of both educational and labor market trajectories (Buchmann & Kriesi, 2012; Kriesi & Imdorf, 2019; Leemann & Keck, 2005). In early adolescence, career choice and gender identity formation overlap, which hampers the choice of gender-atypical VET training occupations (Charles & Buchmann, 1994; Leemann & Keck, 2005). Due to the close VET-labor market linkage, this choice can only be corrected at relatively high cost, which in turn leads directly to a high level of occupational gender segregation in the labor market (Buchmann & Kriesi, 2009, see also Heiniger & Imdorf, 2018, Imdorf et al., 2015, Solga & Konietzka, 2000, Trappe, 2006).

At tertiary level, Swiss students enroll in either universities, universities of applied sciences (UAS), universities of teacher training, or programs for professional education and training (PET; for more detail, see www.edk.ch/en/education-system/diagram). While tertiary completion rates are fairly high among general education graduates from upper secondary level (over three quarters), they are, by international standards, low among VET graduates (at approximately one third only; see Meyer 2016 for more detail).

With regard to overall educational attainment, Switzerland has known a reversal of gender-specific completion rates in recent decades. At upper secondary level, women have reached parity with men (at 90% for both sexes (Swiss Federal Statistical Office, n.d.). At tertiary level, women’s completion rate had risen to 40% by the beginning of the 2020s, compared to 30% among men (Swiss Federal Statistical Office, n.d.). However, strong gender effects persist. At upper secondary level, more than one third of young women enroll in academic tracks, while this share is at one fourth among young men. Contrariwise, almost two thirds of young men are to be found in VET programs, compared to only half of all young women. Furthermore, VET training professions are markedly gendered with only about one in four VET trainees enrolling in a training profession where both sexes are more or less evenly represented (that is, with a share of at least 40% for either sex). Among

the 20 most frequently chosen training professions, more than half are extremely male- or female-dominated (with a share of more than 90% of one sex; see Swiss Federal Statistical Office, [n.d.](#) for more detail).

Labor Market

Out of a population of roughly seven million residents aged 15 or over, approximately 4.7 million were gainfully active (according to ILO definitions), which is equivalent to a labor participation rate of over 67% – one of the highest in the EU/EFTA states (Swiss Federal Statistical Office, [2022](#)). Despite a considerable increase of female labor force participation since 2000, women's participation rate is still over 10% points lower than men's. The rate of part-time employment is at 37%, with sharp gender disparities: While less than 20% of men work part-time, the respective share among women is at almost 60%. At roughly 5%, unemployment rate is among the lowest in Europe, while the standard of living is one of the highest: The median per capita equivalized disposable income is at 26,000 PPS (purchase power standards), the third highest value of the continent behind Luxemburg and Norway (Bundesamt für Statistik, [2022](#)). Despite the fact that the gender wage gap decreased during the past decade, women still earn, on average, 12% less than men (Bornatici et al., [2020](#)). Somewhat under half of this gap (45%) remains “unexplained,” that is, cannot be accounted for by objective measures. In 2018, the Swiss gender overall earnings gap (that is, lifetime) was estimated at 43%, which results in a gender pension gap of about the same extent (Bundesrat, [2019](#)). Women are also markedly underrepresented in the higher echelons (management) of both public and private enterprises (Swiss Federal Statistical Office, [2019](#)).

Beyond the transition to the (markedly gendered) VET programs at upper secondary level education, it is the transition to parenthood that further accentuates the gendering of occupational careers. Around 20% of all couples with children below age 13 adopt the sole breadwinner model, while approximately 30% adopt the main breadwinner model with women working at a level of employment below 50% (Bundesamt für Statistik, [2020](#)). In other words: only about half of all couples with children under 13 have found a more or less balanced distribution of gainful employment. Along with a few countries in eastern Europe, Switzerland is to be found among the EU28/EFTA states with the highest share of women exiting the labor market altogether for more than 5 years (Bundesamt für Statistik, [2020](#)). Contrariwise and on average, women perform 50% more unpaid work than men (Swiss Federal Statistical Office, [2019](#)).

The TREE Study

In an international perspective, TREE is one of the very few panel studies that (a) comprise more than one cohort; (b) are interdisciplinary in their design; (c) draw on large, both nationally and regionally representative samples; and (d) cover a long

observation period. The first TREE cohort (TREE1) was launched in 2000, when a large national (compulsory) school leavers' sample ($N = 6343$) was tested on the occasion of Switzerland's then first-time participation in PISA. Since then, the sample has been followed up by means of ten panel waves, the most recent one conducted in 2019/20. Further panel waves are planned at 5-years intervals. To date, TREE1 respondents have reached an average age of approximately 35 and been surveyed over a period of 20 years, spanning from early adolescence up to early middle-age (Gomensoro & Meyer, 2017; TREE, 2016). The second TREE cohort (TREE2) covers a comparable population of school leavers who left compulsory education in 2016. As its baseline survey, it draws on AES 2016, a national large-scale assessment of mathematics skills (Assessment of the Attainment of Educational Standards, AES). Since then, the TREE2 sample ($N = 8429$) has been re-surveyed six times at yearly intervals, up to average age 21. Further panel waves at 2–5 years intervals are planned (Fig. 1).

The baseline surveys of both TREE cohorts provide elaborate measurements of cognitive skills that are at the respondents' command at the end of their compulsory schooling (ninth grade). While the first cohort was mainly tested in reading literacy, the second cohort was tested in mathematics. Furthermore, detailed information on student background characteristics as well as future plans and aspirations have been collected at baseline (Bundesamt für Statistik, Schweizerische Konferenz der kantonalen Erziehungsdirektoren, 2002; Konsortium ÜGK, 2019).

The subsequent TREE panel waves collect detailed data on education and labor market pathways, which are contextualized by a rich set of complementary information on various life domains that have been identified, in previous research, as

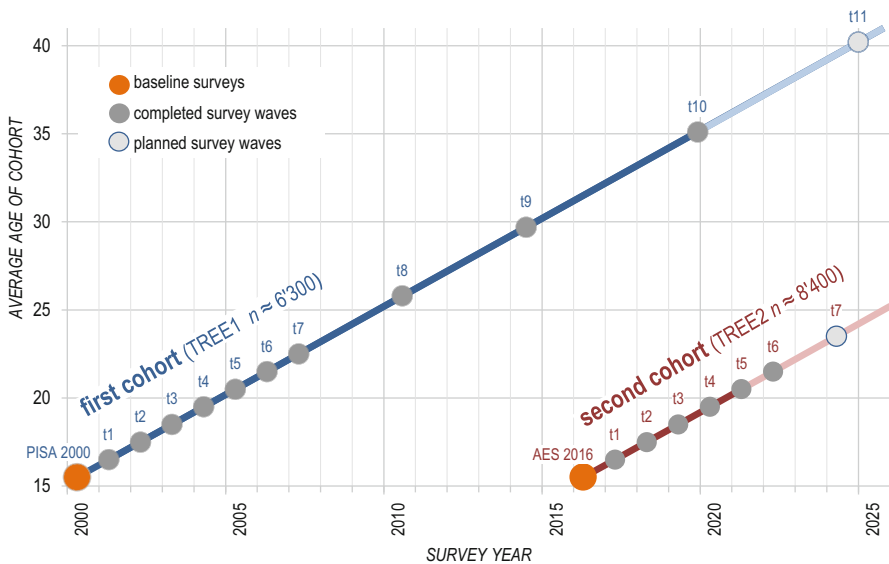


Fig. 1 TREE multi-cohort design

relevant predictors or outcomes with regard to respondents' later transitions from education into working and adult life. This allows researchers not only to analyze respondents' pathways in great detail, but also to examine how these context factors shape the observed pathways (Gomensoro & Meyer, 2017; Hupka-Brunner et al., 2021).

TREE is funded as a national social science data infrastructure. Scientific use files are available to scholars free of charge at the central data archive SWISSUbase (TREE, 2016, 2021). The TREE data belong to Switzerland's most widely used panel data sets. Hundreds of scholars both domestic and from abroad have conducted analyses drawing on the data.

Gendered Learning, Growing up and Working in Switzerland

Gender and gendered life courses are one of the most salient research focuses for which scholars draw on TREE data. With regard to gender issues, TREE's longitudinal design and rich, multidimensional contextualization of the observed trajectories unfolds their full potential. TREE allows, as it were, to observe and analyze the gendering of life courses in Switzerland "in its making." In the following, we will provide an overview of relevant recent studies on gender(ing) that draw on the TREE data.

As outlined in section "[Gender \(In\)equality in Switzerland](#)," both horizontal and vertical gender segregation is known to be marked in the Swiss labor market (see, e.g., Charles & Bradley, 2009) and the linkage between the VET system and the labor market is tight. Therefore, gendering of occupational choices at the end of compulsory school translates in gendered careers. In two seminal mixed-methods studies drawing on TREE data, Schwiter et al. (2014) hold that, when leaving compulsory school at average age 15–16, almost two thirds of the respondents aspired to a future profession "typical" for their gender. Seven years later, at average age 23–24, this share had grown to over three quarters among those who were then gainfully employed. One of the most striking findings of these studies is to what extent anticipated gender roles affect professional aspirations early on – and hence gendered education and training choices at the transition from lower to upper secondary education.

The (anticipated) gender roles mostly pertain to issues of reconciliation of family and work. It is particularly striking that notions of a future family are a key mechanism for both young women and young men when it comes to explain why both sexes mostly choose gender-typical professions. While young women with work experience in gender-atypical occupations anticipate incompatibility with their potential future motherhood, their male counterparts anticipate the problem of not being able to conform to the male breadwinner model in their occupational field. On the other hand, many young men seem to want to be actively involved in childcare, which is often associated with a reduction of the level of employment (Baumgarten et al., 2016, see also Buchmann & Kriesi, 2009).

The authors emphasize that occupational choices with regard to dual VET have to be made very early on, at an age and biographical phase during which adolescents' gender identity has yet to emerge and consolidate. This fosters conformity with traditional gender roles and hence gender-typical occupational choices (Heiniger & Imdorf, 2018; Imdorf et al., 2014; Schwiter et al., 2014).

However, gendered perceptions are not limited to the choice of VET training occupations. They also relate to general academic self-concepts. Drawing on mathematics test data from TREE's second cohort, Jann and Hupka-Brunner (2020) analyzed the relation between mathematics self-concepts, math test results, and preferences for fields of study in the STEM domain. The analysis shows that preferences are related to their mathematical self-concept, especially for women. Women's lower preference for STEM fields is strongly related to their lower confidence in their mathematical skills, not in the skills themselves. In a similar vein, Combet (2023) examines the relation between preferences for fields of study and (gendered) characteristics attributed to the respective fields. Combet concludes that women are discouraged from studying male-dominated fields of study because they are associated with characteristics that gender stereotypes do not attribute to women (for example, abstract vs. creative reasoning style or technical vs. social work tasks).

Overall, the labor market situation of the observed Swiss school leavers' cohort at an average age of approximately 30 years can be described as extraordinarily favorable – particularly in international comparison. Employment rate is high, unemployment low, and at age 30, the cohort achieves a median income that has already reached the level equal to the average of the total of the Swiss labor force (Gomensoro et al., 2017). This is not least due to the fact that since the turn of the millennium, the Swiss labor market has been marked by a relatively constant favorable economic situation, which is accompanied by high labor demand at all levels of education, but especially at the tertiary level (see also Lalive & Lehmann, 2020).

With regard to labor market outcomes, gender is by far the most significant single factor influencing the employment situation at age 30 – strongly coupled with the family situation. The TREE findings clearly demonstrate the extent to which and the persistence with which men's and women's labor market careers are still disparate in Switzerland. First and foremost, they show that women earn significantly less than men. The "wage gap" is at around one eighth of the average income for the TREE cohort at age 30 (Gomensoro et al., 2017).

Previous TREE analyses had furthermore established that women are already affected by significant wage gaps at the very beginning of their labor market career, that is, usually long before a later family phase (Bertschy, 2016; Combet & Oesch, 2019). This is the case even when controlling for family resources, skills, and educational credentials ("unexplained" share of gender wage gap). Looking at the first job after completion of formal education, Bertschy (2016) identifies an overall gender pay gap of roughly 8% to the disadvantage of women (measured on the basis of full-time equivalent salaries), of which about three quarters remain unexplained. In gender-mixed professions, the unexplained part of the gender wage gap is

significantly higher than in gender-typical professions (that is, professions in which men or women represent less than 30% of the workforce). Furthermore, Bertschy shows that men earn more even in female-typical professions. She explains this by the fact that even in these professions, men take over better (paid) positions than women.

Combet and Oesch (2019) largely confirm Bertschy's findings. They estimate the unexplained gender wage gap at the beginning of the labor market career at 3–6% in favor of men. They conclude that young women earn lower wages than young men with the same productive characteristics long before they have children. Translated into annual wages, they estimate that, compared to young men and all else being equal, young women lose out approximately half a monthly wage each year.

In summary and compared to young men, young women in Switzerland thus seem to be less able to “cash in” on their educational attainment, which, as in many other post-industrial, knowledge-based economies, is on average higher than men's (Swiss Federal Statistical Office *n.d.*). This can be explained, at least in part, by the horizontal gender segregation (that is, women “choosing” other training professions or fields of study than men) in the Swiss education system, which also translates into vertical segregation on the labor market (Schwiter et al., 2014).

In line with the results drawing on cross-sectional data sources, the findings based on TREE panel data confirm that the transition to parenthood strongly accentuates the gendering of occupational careers. While, at average age 30, men with children are or remain employed full-time almost without exception, around one fifth of all women with children drop out of the labor market altogether (at least temporarily). Three quarters of working mothers work part-time, at a level of employment of less than 50% in almost half of the cases, regardless of their level of education attained (Gomensoro et al., 2017). As to the gender wage gap at age 30, it amounts to 9% of a full-time equivalent salary for women without children, and to twice as much (18%) for women with children (Gomensoro et al., 2017.)

Conclusion

In this contribution, we have shed some light on the deeply gendered educational and labor market trajectories in Switzerland. In an international perspective, the Swiss case is particularly informative with regard to the gendering of life courses. Switzerland belongs to the countries with a strongly developed (dual) VET system. On the one hand, these systems are known (and widely praised) for their smooth transitions from education to employment. On the other hand, VET-dominated education systems are generally characterized by a marked education-occupation linkage, which tends to reinforce horizontal and vertical gender segregation in the labor market.

Drawing on data of the TREE (Transitions from Education to Employment) multi-cohort school leavers' panel survey, we are able to investigate these gendering processes and their underlying mechanism, as it were, “in their making.” TREE allows us to analyze how individuals' agency unfolds within institutional structures

of the education and transition system, the labor market, and society at large. Early tracking and early career choices (particularly in VET tracks) reinforce gendered career orientation, which in turn, owing to the marked path-dependencies of the Swiss education and transition system, has long-term consequences for labor market careers: The horizontal segregation of the education system thus reinforces vertical segregation in the labor market.

One of the most striking findings of TREE analyses on gender(ing) is to what extent anticipated gender roles affect professional aspirations early on – and hence gendered education and training choices at the transition from lower to upper secondary education – especially in the VET tracks. With regard to labor market outcomes, gender is shown to be by far the most significant single factor influencing the employment situation at age 30 – strongly coupled with the family situation. Among other things, TREE analyses show unexplained wage gaps at the very beginning of women’s labor market careers, marked horizontal and vertical occupational gender segregation and a persistent gender gap in terms of level of employment among young mothers.

In terms of policy implications, these findings underline the urgency of de-gendering educational and labor market trajectories. Gendered career choices do not just reflect individual preferences, but tend to exacerbate social inequalities between men and women in the labor market and in society at large. Consequently, the exceptionally early (that is, as early as age 14) career choices typical for the Swiss VET system needs to be addressed, for example, by increasing their corrigibility in later phases of the educational trajectory by means of improving track and/or occupational permeability. Furthermore, the normative dimension of gender roles with regard to career choices should be taken into more careful account than seems to be the case in presently practiced career guidance. Finally, it should be noted that de-gendering education and labor market trajectories also inevitably involves measures in the wider area of social, family, and labor market policy, such as promoting equal pay, equal career opportunities, and reconciliation of family and career.

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