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Education systems as life course policies? The example of subnational educational regimes and young adults' family transitions

Bildungssysteme als Lebenslaufpolitik? Das Beispiel subnationaler Bildungsregime und familialer Übergänge junger Erwachsener

Abstract: This study investigates the role of subnational educational opportunities for three typical transitions in young adulthood: 1) leaving the parental home, 2) starting to cohabit and 3) becoming a parent. Educational opportunities shape young adults' life courses as they facilitate the accumulation of human capital, labour market entry and financial independence. Education systems and opportunities are part of transition regimes shaped by the specific cultural, economic and policy characteristics of a (subnational) context, and are thus likely to affect moving out and family formation.

Drawing on the example of Switzerland with its large cantonal variation in educational opportunities, we use longitudinal data from the TREE panel study to follow a cohort of young adults born in the mid-1980s from ages 16 to 29. Event history models show that larger shares of young people in vocational education at a cantonal level are associated with earlier moving out and parenthood, but later partnership formation. The influence of vocational opportunities is moderated by the presence of a university in the canton.

Keywords: Education system, welfare policy, young adulthood, leaving the parental home, partnership, parenthood

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Zusammenfassung: Diese Studie untersucht die Rolle subnationaler regionaler Bildungsangebote für drei zentrale Familienübergänge im jungen Erwachsenenalter, nämlich 1) den Auszug aus dem Elternhaus, 2) das Eingehen einer ersten festen Partnerschaft, und 3) den Übergang in die Elternschaft. Bildungsangebote formen Lebensverläufe, da sie die Akkumulation von Humankapitel ermöglichen, den Einstieg in den Arbeitsmarkt erleichtern und die finanzielle Unabhängigkeit junger Menschen von ihren Eltern fördern. Zudem sind sie in Lebensverlaufsregimes eingebettet, welche mit ihren spezifischen kulturellen, ökonomischen und politischen Eigenschaften auch familiäre Übergänge im jungen Erwachsenenalter beeinflussen dürften.

Basierend auf dem Beispiel der Schweiz, die durch eine große regionale Heterogenität in der Bildungslandschaft und der Orientierung in Bildungssystemen gekennzeichnet ist, untersuchen wir den Zusammenhang zwischen kantonalen Bildungsangeboten und den drei genannten Übergängen. Dabei nutzen wir Daten der TREE-Panelstudie, welche die Bildungs-, Arbeitsmarkt- und Lebensverläufe einer Kohorte von jungen Erwachsenen von 16 bis 29 Jahren verfolgt. Event History-Modelle zeigen, dass ein höherer Anteil von jungen Menschen in beruflicher Ausbildung in einem Kanton mit früheren Auszügen und Elternschaft, aber späterer Partnerschaft assoziiert ist. Der Zusammenhang zwischen Übergängen und dem Berufsbildungsangebot wird jedoch von der Verfügbarkeit einer Universität im Kanton moderiert.

Schlüsselwörter: Bildungssysteme, Wohlfahrtsstaat, junges Erwachsenenalter, Auszug aus dem Elternhaus, Partnerschaft, Elternschaft

1 Introduction

Since the early 2000s, the lifespan of young adulthood has expanded into the third, perhaps even the fourth decade of life. This development implies a delay in several typical life course transitions associated with becoming adult, for instance economic independence, leaving the parental home and the transition to parenthood (Buchmann and Kriesi 2011). Life course destandardisation postulates that the nature of how life course transitions are embedded into life course trajectories has changed. Certain transitions – such as moving out or marrying – have become reversible, and others have become less contingent on each other, for instance partnership and parenthood (Konietzka 2010). Moreover, cultural change has weakened normative prescriptions and restrictions regarding life courses, including the timing of transitions. Such change has enabled young adults to "experiment" and "explore" different opportunities in the process of becoming adults (Perelli-Harris/Bernardi 2015).

One of the major drivers behind these phenomena is educational expansion (Shanahan 2000). With the increasing availability and accessibility of *higher education*, including higher vocational education, education systems today provide opportunities for occupational skills development and specialisation beyond the post-secondary educational phase, promoting lifelong learning. It has been observed that young adults remain longer in the education system (Buchmann/Kriesi 2011) and delay other life course transitions, which in part depend upon completion of (higher) education and labour market entry. While the link between education systems and school-to-work transitions has been well studied from a country-comparative perspective (Bol/van de Werfhorst 2013), the further-reaching life course consequences of education systems are less well understood. In particular, little is known about how subnational variation in educational opportunities at the post-secondary and higher education level may shape family life courses. Subnational regional variation in family transitions has been observed in a number of European countries (Holdsworth 1998; Hank/Huinink 2015), but rarely explained with quantifiable indicators pertaining to subnational variation in educational opportunities.

The aim of this article is to study the longer-term life course consequences of post-secondary and higher education systems by focusing on three typical family transitions: leaving the parental home (housing transition), first cohabitation or marriage and the transition to parenthood (domestic transitions: for a conceptional definition see Coles 2004). In the following, we refer to these three transitions as "housing and domestic transitions" or, in short, "family transitions". "Education systems" are defined as the structure of the schooling system in general, which comprises the regulations regarding tracks, the requirements for transitions between stages and tracks, and the financing of different stages of education (e.g., higher education). More specifically, we ask: How are educational opportunities at a subnational/regional level associated with housing and domestic transitions in young adulthood? Do educational opportunities at post-secondary and higher levels of education operate independently or in interaction?

To answer these questions, we draw on the example of Switzerland, which has been characterised as a hybrid welfare state (Esping-Andersen 1990). Despite featuring typical characteristics of a liberal market economy, the education system borrows from conservative corporatist welfare regimes such as Germany and Austria, with a strong reliance on company-based vocational education and training. Switzerland exhibits large variation across its 26 cantons in many aspects of policymaking, including education systems (Armingeon et al. 2004; Fischer 2008). Drawing on Walther's (2006) concept of transition regimes, we argue that cantonal education systems are interwoven with cultural, political and economic characteristics, creating educational opportunities and potentially shaping life courses beyond educational attainment and labour market entry.

This study contributes to the literature by investigating the "long arm" of education systems, particularly how they affect family transitions. It extends previous country-comparative research on the influence of education systems on economic trajectories and on regional disparities in family behaviour by focusing on subnational regional variation in educational opportunities. Theoretically, we link educational opportunities to family life courses using the life course cube as our overarching theoretical framework, moving beyond compositional effects, which presume that differences in family life courses across education systems are mainly a consequence of different individual educational decisions.

2 Background

2.1 Education system(s) in Switzerland: general trends and subnational regional specificities

Post-secondary education in Switzerland is structured in at least two tracks: a general academic track resembling grammar school (called *Gymnasium*,[1] *lycée* or *liceo*), and vocational and educational training (VET) (Leemann et al. 2022). Switzerland, together with Germany, is home to one of the most favourable labour markets for young people in Europe with only a small minority being affected by unemployment (Andersson et al. 2016). Due to its prominent company-based dual VET system, labour market integration occurs early. Dual VET apprentices visit school for up to two days per week and spend the rest of the week working in a company licensed to offer training contracts which typically have a duration of 3–4 years. Dual VET is the most frequently chosen path in post-compulsory upper secondary education (BfS 2022), though with considerable cantonal variation (Scharenberg et al. 2016; Niedermann 2023). Moreover, dual VET can be combined with a Federal Vocational Baccalaureate, an access certificate for Universities of Applied Sciences (UAS). From 2004 to 2019, the share of young adults holding a higher education access certificate rose from 30 % to 41 %. In 2019, more than one-third of these certificates were obtained via dual VET. Since the late 1990s, several UAS (including Universities of teacher education) have been established at a regional level, some of them being financed and managed in cooperation between cantons (SBFI 2023).

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1 Different names for this track apply in the different language regions. In the following, it is referred to as the "general track" or "gymnasium".

The main responsibility for public schooling at pre-primary, primary and lower secondary levels lies with the cantons. Cantons also vary with regard to the presence of a university for whose funding they are primarily responsible (BfS 2021). Upper secondary and post-secondary education are also partly managed by cantons. Even though VET certificates are nationally standardised, the processes that select young people into VET or general education differ considerably between cantons (Leemann et al. 2022). At the end of primary school, around age 12 (the tracking age varies between cantons), pupils enrol in stratified lower secondary programmes (ISCED 2), which include a pre-gymnasium track. Selection may occur based on performance level (grades; SPLASH-db.eu 2014) or standardised tests (for the pre-gymnasium track only) or there may not be any access requirement (see Eberle/Brüggenbrock 2013). Such access regimes vary considerably across and within language regions.

After completing lower secondary school, most pupils transfer to the upper secondary level (ISCED 3), and only a few leave the education system to enter the labour market. Students transit either into (mostly) dual-tracked VET, into general upper secondary school (grammar school) or into specialised middle school. Those in the pre-gymnasium track mostly continue on the gymnasium (general) track. Selection regimes at this later stage likewise depend on the canton (Eberle/Brüggenbrock 2013). While the timing of this second selection is universal, the enrolment rates in VET vs. general or specialised middle school differ widely between cantons (Niedermann 2023). In 2014, the rural German-speaking cantons of St. Gallen or Glarus had enrolment rates into VET of over 80 % and less than 20 % transitioned into the general track, whereas in the canton of Geneva, only 36 % of youth transitioned into VET (BfS 2022) and 63 % enrolled in the general track (Leemann et al. 2022).

2.2 Trends in leaving home, cohabitation and family formation

Leaving the parental home occurs relatively early in Switzerland, often simultaneously with labour market entry or unmarried cohabitation (Rossignon et al. 2018; Ender/Helbling 2019). In the same vein, leaving home at later ages may delay marriage and childbearing (Rossignon et al. 2018). In the mid-2010s, a majority of 19-year-olds lived with their parents (males more often than females) or in a mixed arrangement with parents and relatives. Only 3 % at that age lived alone, with a partner or in a shared apartment (Ender/Helbling 2019). At 21, however, half of young people had moved out of their parents' home. A majority of young people lived in a shared flat or with a partner; only few lived on their own. Youth in the

French-speaking part of the country moved out earlier, whereas youth in the Italian-speaking canton of Ticino moved out later compared to their peers in the German-speaking part of the country.

Cohabiting with a partner has become more common in Switzerland since the early 1970s. It has long served as a type of pre-marital union. In the early 1990s, 80 % of unions began as non-marital unions (Ryser/Le Goff 2018). Since then, it has become an alternative to marriage with similar legal rights, for instance regarding child custody after separation. Research shows that individuals who decide to get married share more traditional views on family practices. Whereas moving out happens comparatively early in Switzerland, coupling and especially getting married takes time. In 2015, couples were five years older at the time of their first marriage compared to the 1970s (BfS 2016). In 2017, the average age at first marriage for women was 29.9, for men 32.0 (BfS 2019).

Switzerland is affected by the general decline in *fertility* in Europe and can be considered a low-fertility country (Bonoli 2008). While in 1960 the number of new-born children per woman was 2.4, the number steadily declined to approximately 1.5 children per woman by the mid-2010s (Hanappi et al. 2017). Over the same period, the age at first maternity increased to 31.8 years in 2015 (BfS 2016). These two trends can be linked to the increasing participation of women in (higher) education and the labour market, but also to delayed marriage and the increase in unmarried cohabitation as an alternative to marriage.

2.3 Transitions in national and subnational regional contexts

Youth transitions have been shown to vary considerably between welfare contexts. Successful school-to-work transitions are promoted by employment-centred education systems (Bol/van de Werfhorst 2013) and favourable labour markets (de Lange et al. 2013; Luppi et al. 2021), whereas housing and domestic transitions vary with degrees of social stratification and gender inequality, as well as social norms (Tosi 2017; Chabé-Ferret 2019).

The political, economic and cultural characteristics for school-to-work and family transitions vary at different geographical levels. Yet, while there is ample comparative research indicating that country contexts influence young adults' transitions in various ways (Corijn 2001; Iacovou 2002), little systematic research has evaluated the subnational opportunities for transitions in young adulthood. Exceptions are the studies by Holdsworth (1998) on leaving the parental home in Spain, Hillmert (2008) on young adults' spatial mobility, and Hank and Huinink (2015) on fertility in Germany. For Switzerland, the influence of subnational contextual factors has been documented in young adults' relationships with

their parents (Bertogg, 2019) and the gendered choice of occupation (Imdorf et al. 2014).

3 Theoretical perspectives: education systems as life course policies?

Theoretical models in educational (Breen/Goldthorpe 1997; Abbiati/Barone 2017) and spatial mobility (Mowjee 2013; Netz/Jaksztat 2017) research often rely on the idea of push-and-pull factors, measured by characteristics of origin and destination locations (Garasky 2002; Leopold et al. 2012). Subnational educational opportunities constitute such push-and-pull factors for moving out, but their role for domestic transitions remains underexplored. To understand and empirically investigate such an association, we need to integrate the theoretical ideas of transition regimes with the broader conceptual approach of the life course framework.

3.1 Embedding life course transitions across domains in educational contexts using a life course perspective

The life course cube (Bernardi et al. 2019) is a useful conceptual tool for integrating the central dimensions of life course scholarship: life domains, context-dependency, and time. For our research question, the first two are particularly interesting which is why we focus on them.

First, life courses play out in multiple domains, and transitions interlink domains. The literature suggests that a successful school-to-work transition is crucial for leaving the parental home (Mulder et al. 2002; Luppi et al. 2020) as well as for partnership and family formation (Wolbers 2007). The link between education and fertility is well established (Kreyenfeld/Konietzka 2008; Merz/Liefbroer 2017) and economic independence facilitates marriage (Hanappi et al. 2017).

Second, *life courses are context dependent*: At higher levels of aggregation, regional or country characteristics enable or constrain individual transitions and trajectories. For instance, regional availability of work plays a role in leaving the parental home (Mulder et al. 2002). Contextual characteristics may also moderate the linkages between domains. Aassve et al. (2002: 272) find that the way in which educational attainment and labour market entry are associated with leaving the parental home differs between European welfare regimes – a finding they attribute to the particularities of the respective education systems. Moreover, educational decisions have consequences for relocation (Sá et al. 2004), but the strength of this

linkage depends on the subnational regional context. Life course models suggest *micro-macro linkages* in that contextual characteristics may impact individual life course transitions differently for members of different social groups. For instance, regional educational opportunities may promote family transitions differently for men and women, or for young people who chose different educational paths.

We treat life courses as context dependent, assuming that opportunities and constraints for transitions are shaped by the (temporal and spatial) macrosocial context. Regional educational opportunities *represent such macrosocial contexts.* Although mainly targeted at educational attainment and labour market entry, their consequences likely extend beyond these transitions due to interlinkages across life course domains. Regional educational opportunities at post-secondary or higher education level may also affect those who do not enrol in this specific path. This is likely due to education systems being interlinked with other macrosocial characteristics, as we will outline in the next section.

3.2 Regional educational opportunities as elements of transition regimes

Education systems have repeatedly been discussed in welfare state terminology, e.g., as "lifelong learning regimes" (Verdier 2013) or "educational regimes" (West/ Nikolai 2013). According to Walther (2006), education systems and their contingencies on economic, demographic, cultural and political factors create "transition regimes" that may facilitate or hinder young adults' educational attainment, labour market entry and financial independence. Walther argues that a close interlinkage between education systems and the structure of the economy improves school-to-work transitions by providing plannability and security.[2] Economies which rely on vocationally trained workers promote the stability of school-to-work transitions and facilitate skills conversion, enabling earlier financial and residential independence – important preconditions for family formation.

While Walther particularly focuses on economic transitions, we argue that the influence of transition regimes can be extended to family transitions, but the various dimensions involved in transition regimes and their linkage to family formation need clarification. Salient welfare state characteristics associated with edu-

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2 The main traits of different transition regime types proposed by Walther (2006: 126) are the degrees of school selectivity and standardisation of training, state-based vs. family-based social security, employment regulations, level of female employment, focus of transition policies (education, training, activation or work) and the concepts of youth, youth unemployment and disadvantage.

cation systems are social security systems vs. social investment regime states (West/ Nikolai 2013). VET-promoting educational regimes are often found in Bismarckian social security systems, whereas higher education enrolment is more widespread in welfares regimes that are (more) redistributive and promote equal opportunities. The latter are better able to buffer life course risks, e.g., by subsidising formal child-care and offering income support for non-working young adults, enabling inde-pendent housing and earlier family formation. These political features are linked to cultural ideas regarding "appropriate" life courses and the "right" timing for young people's moving out, partnership and family formation (Tosi 2017; Hanappi et al. 2017) – namely, to age or transition norms, providing a normative basis for multidimensional transition regimes (Aassve et al. 2013).

These characteristics, varying within many countries, jointly shape young adults' opportunities and incentives for leaving the parental home, starting to cohabit and becoming a parent. Regarding educational opportunities, we have already seen that post-secondary VET and higher education (i.e., the presence of a university) vary substantially across Switzerland's 26 cantons. Because these educational opportunities are linked to economic, political and cultural factors embedded in transition regimes, we assume that subnational educational oppor-tunities influence family life courses irrespective of individual educational and labour market transitions. For instance, in regions with a large industrial sector, labour market demands for skilled labour may promote VET, whereas a university city with a large service sector may offer more precarious jobs and less plannable careers. Housing prices are higher in more metropolitan areas where universities are typically located, reducing opportunities for moving out or starting to cohabit with a partner in a shared apartment (Bayrakdar et al. 2019). Liberal norms and life-styles in urban cities are more accepting of unmarried cohabitation, shared housing (Fulda 2016), unmarried childbirth or formal childcare usage. Importantly, partner markets in university cities are larger and more diverse. In such environments, it may take more time to find the right partner, particularly if educational homogamy in partner selection is deemed important (Skopek et al. 2011), whereas in regions with a large share of young people with VET education, educational homogamy in marital selection is easier to achieve.

To sum up, we hypothesise the following. Regarding post-secondary educa-tional opportunities, *we assume that the larger the share of young people in VET in a canton, the earlier we observe young women and men moving out, starting to cohabit and becoming parents (H1).* Regarding higher education, *we assume that in cantons with a university, young adults move out, start to cohabit and become parents later than in cantons without a university (H2).*

3.3 Vocational and higher education opportunities: interplay of associations?

Turning to the question how educational opportunities at post-secondary and higher education levels interact in shaping young adults' family transitions, there is to the best of our knowledge no evidence. Nevertheless, it can be expected that subnational educational opportunities arising from VET (enabling early transitions: see H1) and universities (promoting late transitions: see H2) may counter each other. Educational opportunities at post-secondary and higher level are not mutually exclusive in the sense that no universities are present in cantons with a high share of VET learners, or that cantons with low shares of young people in VET training all feature a university.

Given the mixed learning and training opportunities at a cantonal level, early family transitions promoted by VET (H1) may partly offset the expected delaying influence of universities (H2). The presence of a university in a transition regime promoting vocational education implies that young adults may encounter opportunities for early transitions, but also factors promoting experimentation and delaying transitions. The rationale for our final hypothesis is therefore that VET-oriented transition regimes are stricter and offer less freedom for experimentation; however, a university city with a metropolitan and liberal appeal may weaken stricter transition regimes, enabling those who wish to experiment or delay transitions to do so – irrespective of whether they attend higher education. Hence, *we assume that earlier transitions of young women and men in cantons with larger shares of VET learners should be less pronounced if a university is present in the canton (H3).*

4 Data and methods

4.1 Data and sample

The empirical analyses draw on data from the Swiss panel study *Transitions from Education to Employment* (TREE); a two-cohort longitudinal study aiming to capture young people's educational and occupational pathways. We use data from the first TREE cohort, which sampled pupils in their last compulsory year of schooling as they took part in the PISA 2000 study. TREE was designed as a follow-up to PISA 2000: one year after taking the PISA assessments, the participants were asked to join the panel. Of 11,710 Swiss PISA respondents aged on average 15.5 in 2000, 6,343 joined the panel (54 %) (TREE 2016).

For this first TREE cohort, nine waves of data are currently available, collected annually between 2001 and 2007, in 2010 (wave 8) and 2014 (wave 9). Wave 8 was fielded in 2010, when respondents were about 25, and Wave 9 in 2014, when respondents were about 29. These wave gaps and the age span have implications for our analyses. While the majority had moved out of their parental home by the end of the observed study period (97 %), fewer respondents had become parents (25 %). Moreover, due to the gaps between survey waves, data on transitions are partly collected ex-post.

Our analytical sample consists of young men and women whose first observation was either in 2001 or 2002 (Waves 1 or 2), and who participated in at least three panel waves. This leaves us with 5,179 persons observed in 38,320 person-years. We exclude all respondents who, at the time of the PISA study, did not live either with their mother or father (n = 76), had moved out before the age of 16 (n = 30) or (to ensure a homogenous age group) were more than one year above or below the average age of the sampling cohort (n = 666). Overall, we observe 4,466 persons in 37,029 person-years, on average 8.3 times.

4.2 Dependent variables and analytical strategy

We estimate linear probability event history models predicting the likelihood of the first transition occurring in the next year. Our analyses are based on at-risk populations who 1) still live with at least one parent (for the housing transition of moving out), 2) do not live with a spouse or partner (for the domestic transition of starting to cohabit) and 3) do not have children of their own (for the domestic transition to parenthood). All three dependent variables are dichotomous, indicating for each person-year observation whether the person made the respective transition for the first time (1 = yes) or not (0 = remaining at risk). Variables were truncated after the occurrence of the event: person-year observations are dropped from the analytical sample after that person has made the transition for the first time.

We apply mixed effects models in Stata (version 16) with person-year observations nested in persons. Rather than wave dummies, we include a time trend which we let vary individually by including a random slope parameter. Separate models are estimated for each transition. Our models are built in a stepwise manner to contrast between bivariate, compositional and context effects (Tables A.4a and A.4b in the Supplementary Files[3]). The final model includes an interaction term for the two

educational opportunities to test the third hypothesis. All models are estimated first jointly, then separately by gender to explore whether educational contexts matter equally for women and men.

4.3 Covariates

Cantonal differences in family transitions may in part be due to compositional effects. We include information on respondents' educational trajectories, which were computed by Zimmermann and Seiler (2019) on the basis of a balanced panel of TREE respondents for all nine available waves (see p. 84 for more details on the computation method). The authors found five typical educational trajectories. The largest, "vocational", consists of young adults who followed VET, with a subsequent labour market entry, and has a prevalence of 50–60 % (depending on gender). The second largest trajectory ("academic", 18–22 %) consists of young adults who followed general education, then transitioned to higher education at university. Young men (15 %) were more likely to follow a trajectory with secondary level VET followed by vocational higher education ("vocational and tertiary") at a UAS than young women (6 %). Young women (12 %) were more likely than young men (1 %) to engage in a trajectory of "specialised secondary and tertiary" education, e.g., teacher training, healthcare or social work professions (Hafner 2019; Esposito et al. 2019). Young women (10 %) were more likely than young men (6 %) to complete general secondary education followed by UAS (including teacher education) (called "academic mixed"[4]). Since Zimmerman and Seiler only used respondents who answered all nine waves (for full panel balance), we have added a residual category comprising all respondents without fully balanced panel participation.

For every person-year observation, we include time-varying information on whether the individual works (1 = yes), the household income (sum of respondent's market income, partner's market income, financial contributions from parents and stipends) and physical health. In the models analysing the transition to first cohabitation, we include the variable capturing the transition out of the parental home. In the models analysing the transition to parenthood, we further control for whether the respondent has left the parental home and whether they already cohabit with a partner or spouse.

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4 Whereas UAS (including teacher education) can be accessed via both the general and the vocational upper secondary track, access to university is reserved for general track graduates. In contrast to Germany, transitions from VET to university or from general track to VET are negligible in Switzerland.

Respondents' socioeconomic background is measured with information refer-ring to parental or family characteristics from the 2000 PISA survey, and thus before respondents were selected into post-secondary tracks. We use parents' highest ISEI (mother's or father's), a generated scale of standardized weighted maximum like-lihood estimates according to Warm (1985) for parental wealth computed from respondent information about the size of the apartment/house and household items (see OECD 2002, 224, for details), and a dichotomous variable indicating whether at least one of the two parents has a higher education degree (1 = yes). We control for sociodemographic variables such as gender (1 = female) and age at baseline inter-view and include a dummy variable indicating whether the respondent themselves or both of their parents were born abroad (1 = yes). For geographic factors, we created a categorical variable amalgamating two dichotomous variables containing information on the urbanity of the municipality in which the respondents lived at age 16 (urban, rural) and the size of the canton (large, small).

In all three models, we include a *time trend* to account for the unequal spacing of observations. The time trend variable indicates the number of years that have passed since the first observation, which is set to 0. For example, if a person first participated in 2001 and again in 2003, their first observation will have a value of 0 on the time variable and their second will have a value of 2, as two years have passed between these two observations. To allow for non-linear trends, we include a square term of the time variable. Full sample descriptives are shown in Table A.1 in the Supplementary Files.

4.4 Regional educational opportunities

We concentrate on *two main indicators* representing subnational educational oppor-tunities at the post-secondary and higher education levels in Switzerland. First, the *percentage of learners in post-secondary VET* among all young adults in this age group is measured at a cantonal level for the time period from 2007 to 2013. Data come from the Swiss Federal Statistical Office (BfS 2022). VET is conceived broadly here, including programmes with the opportunity of gaining a Federal Vocational Baccalaureate. Second, we indicate *whether the canton has at least one[5] university*, measured with a dichotomous variable. We match such context-level information with individual respondents *based on the canton* in which they were sampled in PISA 2000, which was the year prior to selection into the post-secondary tracks*.*

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5 Two cantons (Zurich, Vaud) have two universities: a cantonal university and a federal technical university (ETH/EPFL).

5 Findings

5.1 Explaining family transitions with cantonal educational opportunities

Figure 1 presents the association between cantonal educational opportunities and the three family transitions. The first set of models consists of bivariate associations (the solid shapes). Full models adjust for socio-economic and socio-demographic characteristics as well as for potentially mediating life course factors or compositional effects (the hollow shapes). All coefficients are presented as Average Marginal Effects (AME). The x-axis in Figure 1 represents the increase in the likelihood of experiencing a transition with each 10 % more VET learners in a canton (left panel, Figure 1), or in a canton with a university as compared to a canton without a university (right panel, Figure 1).

The full models in Figure 1 suggest, in line with H1, that larger shares of VET learners are associated with a higher likelihood of moving out (bivariate: 0.011***, full: 0.010***) and becoming a parent (bivariate: 0.000, full: 0.002*), but a lower likelihood of starting to cohabit with a partner (bivariate: 0.001, full: −0.005**) – which surprisingly runs counter to our assumption formulated in H1. Interestingly, the associations between the share of young people in VET and the two domestic transitions (starting to cohabit and becoming a parent) are strengthened when controlling for life course mediators such as individual educational attainment, current employment, income and health. Living in a canton with a university, on the other hand, delays moving out (bivariate: −0.020**, full: −0.016*) but is not associated with cohabitation or childbirth. Hence, both hypotheses – H1 and especially H2 – only receive partial support.

The magnitude of the AME in Figure 1 may seem small, particularly in the case of the VET quota. However, the cantonal share of young people in VET varies substantially, from 39 % (Geneva) to 83 % (St. Gallen) – a difference of 44 percentage points. VET quota is measured in 10 % steps. Multiplying coefficients for VET by a factor of 4.4 yields the difference between the two extremes. In the case of moving out, the AME is 0.01 or 1 %, resulting in a difference of 4.4 %. This is substantial, and more than half of the baseline transition rate for moving out (8.6 %).

Figure 2 shows separate models for men and women (analogous to Figure 1). The association between the cantonal VET quota and moving out is similar in magnitude and p-levels for both genders (men: 0.011**; women: 0.010**). The two domestic transitions of partnering (men: −0.004; women: −0.006**) and becoming a parent (men: 0.000; women: 0.003**) are only significantly associated with VET for women. Regarding the availability of higher education, we find that women are less likely to
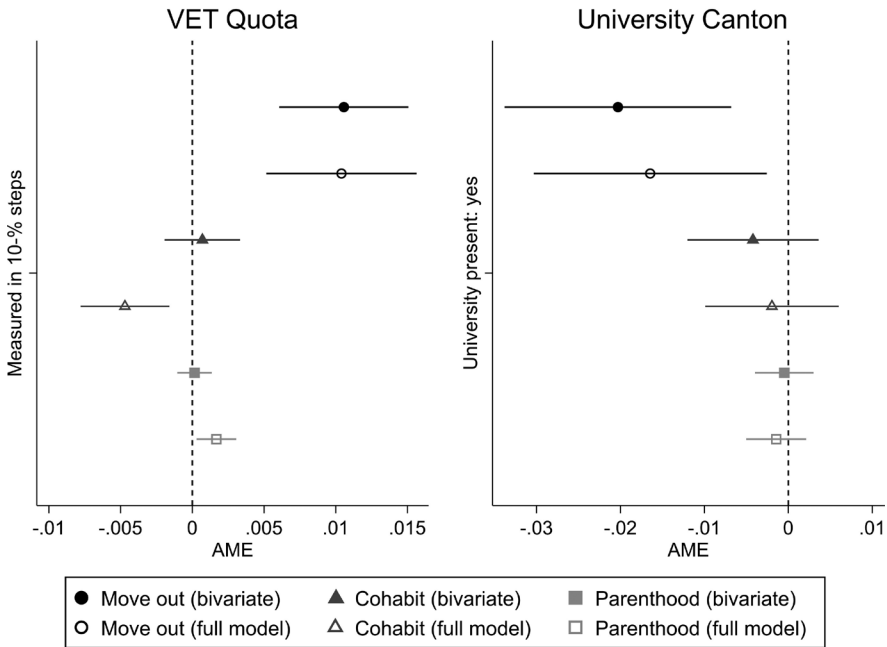
Figure 1: Associations between subnational educational opportunities and family transitions
Source: TREE Cohort 1, Waves 1–9, PISA.
Notes: Multivariate associations between cantonal educational opportunities and family transitions. AME computed from event history linear probability models. Dependent variables truncated after first transition, coefficient estimates with 95 % confidence intervals. Full set of coefficients in Table A.4a in the Supplementary Files.

move out if there is a university in the canton (−0.022*), whereas no such association was found for men (−0.008).

5.2 Interaction patterns between post-secondary and higher education opportunities

Finally, we test the third hypothesis (H3), according to which we expected the interaction between the VET quota in the canton and (earlier) transitions to be stronger in cantons without a university, and weaker in cantons with a university. Figure 3 shows the predicted probabilities of moving out (left panel), starting to cohabit (middle panel), and becoming a parent (right panel) on the y-axis. The x-axis denotes the share of learners in VET as a percentage of all young adults in the respective age group. Since the VET quota is centred at the grand mean, negative
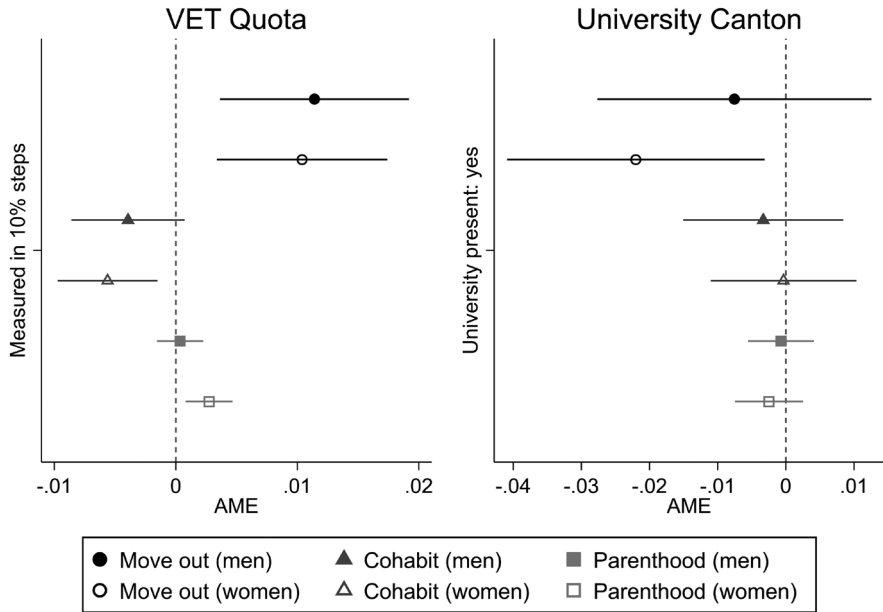
Figure 2: Associations between cantonal educational opportunities and family transitions, by gender
Source: TREE Cohort 1, Waves 1–9, PISA.
Notes: Multivariate associations between cantonal educational opportunities and family transitions.
AME computed from event history linear probability models, dependent variables truncated after
first transition, coefficient estimates with 95 % confidence intervals. All covariates included. Full set of
coefficients in Table A.6 in the Supplementary Files.

values are possible. The two slopes represent the association for university cantons
and cantons without a university.

All interaction terms in Table 1 carry the opposite sign to the main effect of VET
quota, indicating that the general association between VET and the three transitions
is weakened in university cantons. However, this difference is only significant at
the 5 % level for starting to cohabit (the coefficient in bold). Only in non-university
cantons are larger shares of young people in VET negatively associated with the
likelihood of starting to cohabit (−0.021**), while the share of VET learners does not
seem to play a role for the timing of first cohabitation in university cantons, as the
opposite sign interaction coefficient indicates. (0.016*). The presence of a university
in a canton is generally associated with later cohabitation (−0.20*). The surprising
result from Figure 1 that higher shares of VET learners in a canton were negatively
associated with the transition to first cohabitation seems to hold only for cantons
without a university. In substantive terms, this means that – assuming similar soci-
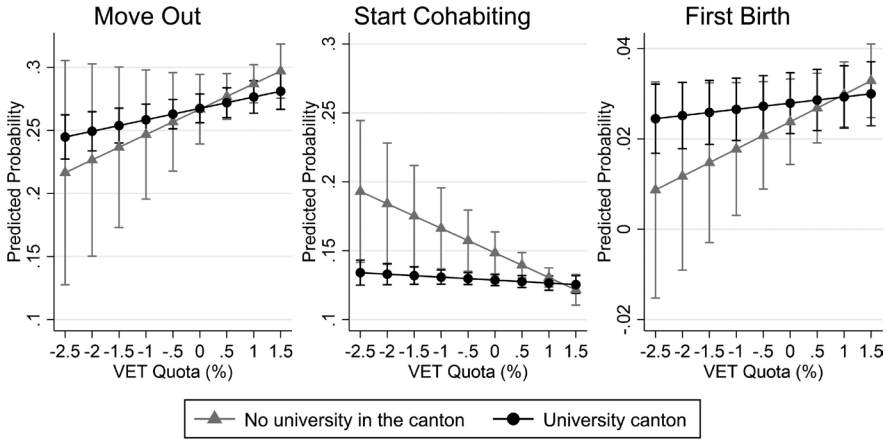oeconomic, sociodemographic and life course characteristics – young adults in

Figure 3: Interaction between university in canton and VET quota
Source: TREE Cohort 1, Waves 1–9, PISA.
Notes: Predicted probabilities (annual) for all three family transitions (y-axis) for individuals in university cantons and non-university cantons with varying degrees of VET enrolment among young adults (x-axis). Computed from event history linear probability models, dependent variables censored after first transition, estimates with 95 % confidence intervals.

non-university cantons with lower shares of VET (which applies to the cantons of Zug, Valais and Jura) exhibit a particularly early transition to first cohabitation compared to young adults in cantons with similar shares of VET, but with a university (the cantons of Basel-Country and Lucerne), but also compared with young adults from university and non-university cantons with a higher share of VET.[6]

To further probe the surprising result and test alternative explanations (Skopek et al. 2011), we computed three-way interaction terms for individual educational trajectories and both educational opportunities. For the most part, associations did not vary across educational pathways. However, the VET quota delayed partnership formation more strongly for VET learners in cantons without a university, strengthening the assumption that larger cities might entail more diverse partner markets and more liberal norms, leading to higher diversity in partnership formation (Perelli-Harris/Bernardi 2015).

A number of additional analyses were performed to test the robustness of our results, among others, associations between cantons/educational opportunities and educational trajectories (Figures A.3 and A.4), three-way interaction terms with

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[6] This applies to the university cantons of Zurich, Berne and St. Gallen (all German-speaking), as well as to the German-speaking cantons of Schwyz, Obwalden, Glarus, Solothurn, Schaffhausen, Appenzell Outer Rhodes, Argovia and Thurgovia and the multilingual canton of Grisons.

individual trajectories (Figure A.2, Table A.7), and controls for other geographical and economic characteristics of the cantons (Table A.5).

Table 1: VET quota and university in canton (interaction terms)

	Move Out	**Cohabit**	**First Birth**
VET quota (%)	0.022	−0.021**	0.008*
University canton: yes	0.002	−0.020*	0.005
VET quota * University canton	−0.013	**0.016***	−0.006
Control variables?	Yes	Yes	Yes
n (person-years)	15356	20210	23532

Source: TREE Cohort 1, Waves 1–9, PISA.
Notes: Interaction terms for VET quota and university canton. Event history linear probability models including all covariates. Dependent variables truncated after first transition. Full set of coefficients in Table A.3 in the Supplementary Files.

6 Discussion

The aim of this study was to investigate whether education systems might act as life course policies. Drawing on the example of Switzerland, we investigated the associations between subnational educational opportunities and young adults' family transitions between the ages of 16 and 29. We found that family transitions are associated with the share of young students in vocational post-secondary education and – to a lesser degree – with the presence of a university in the canton. Confirming our first hypothesis, we found that larger shares of VET learners in a canton are associated with earlier moving out and childbirth beyond compositional effects. In line with our second hypothesis, we found that young adults, especially women, move out later in cantons with a university, pointing to the "pull" function of higher education. Yet, counter to H1, we found larger shares of VET learners to be associated with later cohabitation, but this association seemed to be driven by young adults from non-university cantons, as our robustness analyses suggest. More research is needed to disentangle these associations. Gender-sensitive analyses suggest that the associations between VET opportunities and moving out are very similar for young men and women, but that young women's domestic transitions (i.e., partnership and family formation) depend more strongly on subnational regional opportunities than young men's.

Finally, we asked if early transitions in regions where VET plays a major role and delayed transitions in university environments interact. Partly in line with our

third hypothesis, the presence of a university in the canton moderated the association between the share of VET learners and first cohabitation. While the moderation points in the expected direction (namely, the presence of a university weakens the association), the association was counter to our expectation. In substantive terms, a larger share of VET learners in the canton seems to delay first cohabitation of young adults with a vocational education trajectory, and this appears to be a contextual effect which is primarily given in non-university cantons. This implies a presumed mechanism that university cantons provide larger and more diverse partner markets and more opportunities for meeting potential partners, but contradicts the assumption of discrimination against young adults without higher education due to educational homophily preferences.

Our study comes with some limitations. First, while we observe a high transition prevalence out of the parental home and into first cohabitation (97 % and 99 % respectively), our sample was still too young (aged 29 during the last survey wave) to observe the majority of expectable childbirths. Currently, mean age at first childbirth among women in Switzerland is 32, hence observed transitions are likely selective regarding other unobservable characteristics at the individual or local level. Second, while we know in which canton our respondents were living when entering the sample at the time point when they made the crucial track decision regarding post-secondary education (aged 16, in the last year of compulsory schooling), we do not know about subsequent spatial mobility between cantons. Third, educational cultures, or how people think about and evaluate education (Zimmermann/Becker 2023), might be a driving force behind our observed associations.[7] Cultural preferences are part of transition regimes, and we acknowledge that our study is not able to measure this aspect of transition regimes separately.

Despite these limitations, we are confident that our study makes a valuable contribution to the research on longer-term life course consequences of education systems in general and the important within-country regional variability therein. We study young adulthood as a dynamic, interlinked and context-sensitive stage in the life cycle, in which previous exposure to policy and cultural environments shapes later life course transitions. Thanks to robustness analyses, we are confident that the associations are generalisable to most young adults – men, women, individuals with different educational trajectories – as well as beyond the special case of Switzerland. Our findings may also apply to other Western democracies with which Switzerland shares both liberal and conservative policy elements (Armingeon et al. 2004).

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7 No direct measures of individual perceptions of and attitudes towards education were available until Zimmermann and Becker (2023) collected data on the social structure of educational attitudes in German-speaking Switzerland in 2019. Their study does not, however, account for the respondents' cantonal place of residence.

The findings presented in this study have implications for future research and policymaking. Future research on life course transitions in young adulthood could consider scaling down to subnational contexts to fully grasp the multidimensional and interlinked nature of transition regimes. Second, educational policies that incentivise general education and disincentivise VET as a response to increasing digitalisation may consider (unintended) consequences for residential independence and family formation. Our study shows the "long arm" of education policy reaches beyond its immediate effects on educational decision-making. Third, delays in young adults' financial independence and family transitions as a consequence of educational expansion have implications on many levels. Financial dependence may increase the need for intergenerational co-residence or financial support from parents, posing risks to parents' own private pension savings. Delayed family formation implies a fertility squeeze, for both young women and young men, overlapping with an important career stage for professional advancement. We have argued and shown that educational policies – as parts of education systems – are an essential part of transition regimes with long-term implications for individuals' life courses, but also for society and public policy. We thus suggest education systems should be considered as life course policies in research, political and societal debates.

Acknowledgements

Data availability statement

Data for the TREE Study Cohort 1 are available for scientific use from Swissubase: https://www.swissubase.ch/en/catalogue/studies/12476/17009/overview

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