GOETHE UNIVERSITÄT FRANKFURT AM MAIN

VERSION: 02 MARCH 2018

Parental Unemployment and the Transition into Tertiary Education: Can Institutions Moderate the Adverse Effects?

European Research Council

Established by the European Commission

CORRODE WORKING PAPER #4

KRISTINA LINDEMANN AND MARKUS GANGL

GOETHE UNIVERSITY FRANKFURT AM MAIN

DISCLAIMER:

This work represents original research by the authors. The authors gratefully acknowledge funding from the European Research Council under the European Union's Seventh Framework Programme (FP7/2007-2013, ERC grant agreement n° ERC-2013-CoG-615246-CORRODE). Neither the European Research Council nor the primary data collectors and the providers of the data used in this research bear any responsibility for the analysis and the conclusions of this paper.

We welcome comments and suggestions on this research, please contact the authors at:

lindemann@soz.uni-frankfurt.de or mgangl@soz.uni-frankfurt.de

SUGGESTED CITATION:
Kristina Lindemann and Markus Gangl. 2018. Parental Unemployment and the Transition into Tertiary Education: Can Institutions Moderate the Adverse Effects? CORRODE Working Paper #4. Frankfurt: Goethe University. Retrieved from www.corrode-project.org, version dated 02 March 2018.

www.corrode-project.org

Parental Unemployment and the Transition into Tertiary Education: Can Institutions Moderate the Adverse Effects?

Kristina Lindemann and Markus Gangl

CORRODE Working Paper #4

Abstract

This paper examines how parental unemployment affects the transition to postsecondary education in different institutional contexts. Drawing on theoretical perspectives in intergenerational mobility research and sociology of higher education, we estimate the extent to which these intergenerational effects depend on social and education policies. We use data from five longitudinal surveys to analyze effects of parental unemployment on entry to postsecondary education in 21 countries. The results of multilevel regression analysis show that contexts providing better insurance against unemployment in terms of generous earnings replacement alleviate the adverse effect of parental unemployment. Moreover, entry gaps between youth from unemployed and employed households are smaller in tertiary education systems with more opportunity-equalizing education policies that provide higher financial support to students and reduce the role of private expenditure. We also find that these education policies are more relevant for children of less-educated unemployed parents.

Keywords

cross-country comparison, education policy, parental unemployment, social policy, transition to postsecondary education, intergenerational effects

Acknowledgements

The EU-SILC, SIPP, BHPS, UKHLS and SOEP data used in this research have kindly been made available by Eurostat, United States Census Bureau, Institute for Social and Economic Research (ISER) at the University of Essex and German Institute for Economic Research (DIW). Of course, data providers are not responsible for any aspect of our analysis or for our interpretation of results. For helpful comments and suggestions, we are grateful to Jan Brülle, Dimitrios Efthymiou, Rona Geffen, Carlotta Giustozzi, Pilar Goñalons, Anne Kronberg, Timo Lepper, Fabian Ochsenfeld as well as participants at *European Consortium of Sociological Research Conference 2016* in Oxford and ISA *RC28 Summer Meeting* 2016 in Bern. We also gratefully acknowledge funding from the European Research Council under the European Union's Seventh Framework Programme (FP7/2007-2013, ERC grant agreement n° ERC-2013-CoG-615246-CORRODE) for this research.

The recent economic recession has revived the interest in intergenerational consequences of unemployment. One key question is how unemployment experiences of parents affect educational inequalities among the next generation. Several studies have documented the adverse consequences of parental unemployment on their children's school performance and educational attainment (e.g. Brand and Thomas 2014; Coelli 2011; Kalil and Wightman 2011; Lehti, Erola, and Karhula 2017; Müller, Riphahn, and Schwientek 2017; Rege, Telle, and Votruba 2011; Stevens and Schaller 2011). Although previous research has provided valuable insights on individual level mechanisms in single countries, it has largely neglected the comparative dimension of the phenomenon. Because the adversity of unemployment experience for workers varies across contexts (Gangl 2006), the comparative perspective helps to discover the reasons behind intergenerational effects of unemployment. Thus, the present paper explores how the effects of parental unemployment on transition to postsecondary education depend on the generosity of social and education policies in 20 European countries and the United States.

A large body of comparative research on intergenerational mobility has studied how parents' transmission of advantages and disadvantages to their children varies across countries and time, depending on the degree of equality of condition and equality of opportunity policies (e.g. Breen and Jonsson 2005; Breen et al 2009; Esping-Andersen and Wagner 2012). First, social policies that promote redistribution through the welfare state can be seen as an insurance mechanism against adverse events (DiPrete 2002), often aiming to obtain greater equality of condition across families. Second, educational policies that effectively increase equality of opportunity can be seen as an opportunity mechanism. Equal-opportunity policies aim to secure that achievement of well-being would not be a function of circumstances but of effort (Roemer 2004). Thus, they aim to reduce the dependence of the educational chances on socioeconomic background. Although it is often empirically not pos-

sible to draw a clear-cut distinction between the consequences of educational and social policies, as greater equality of condition also typically promotes equality of opportunity, focusing only on one of them can limit the understanding of the relationship between educational outcomes and social inequality (Downey and Condron 2016).

In consequence, the present paper examines the extent to which either the insurance mechanism, or the opportunity mechanism or both alleviate the adverse effects of parental unemployment on the transition to postsecondary education. Whereas the insurance mechanism provides income stability and increases perceived economic security for families facing unemployment, the opportunity mechanism fosters the financial independence of students from parents by giving them an opportunity to continue in the postsecondary education at low cost. We expect both mechanisms to reduce entry gaps between young people from unemployed and employed households in principle, and also note that there is practically no evidence on the (relative) empirical magnitude of either type of policy effect available to date. Moreover, we propose that generous policies are likely to be more important for young people whose unemployed parents do not have tertiary education than for their counterparts from college-educated households affected by unemployment. This is because college-educated parents tend to have higher aspiration and be in a better objective and subjective financial situation, e.g. because they have more savings or face better prospects for finding a well-paid job. Generous social and education policies could help compensate these drawbacks for children of less-educated unemployed parents.

We focus on short-term effects of recent unemployment experiences of parents on their children's transitions in the period from 2004 to 2013. In contrast to several previous studies on paternal unemployment, we analyze the employment status of both parents in two-parent families. We chose this focus because the change in living conditions as well as the extent of insecurity related with unemployment likely depends on the status of both par-

ents (Western et al 2012). Our analysis is based on data from five longitudinal studies: the European Union Statistics on Income and Living Conditions (EU-SILC), the Survey of Income and Program Participation, the German Socio-Economic Panel, the British Household Panel Survey and the Understanding Society study. Empirically, our multilevel regression analyses indeed show that more generous earnings replacement in the unemployment insurance system and more opportunity-equalizing educational policies that provide higher financial support to students and that limit the role of private universities tend to alleviate the adverse effect of parental unemployment. As expected, we also find that these egalitarian policies are more relevant for children of less-educated unemployed parents.

Theoretical Framework

Individual Level Mechanisms

Although this paper focuses on potential contextual effects at the macro level, we recognize that decision to continue in the postsecondary education is made at the level of students and their families. They decide given their opportunities and constraints. Rational choice models (Breen and Goldthorpe 1997) assume that educational choice is based on expected costs, benefits and probabilities of success for different alternatives. Unemployment tends to significantly reduce household income, directly affecting the expected ability to manage with the costs of education. Some previous studies suggest that financial constraints have a key role in children's enrolment in postsecondary education after parental job loss (e.g. Coelli 2011 for Canada; Kalil and Wightman 2011 for the United States). Moreover, continuing studies can be considered to involve opportunity costs for families due to the loss of immediate earnings if a school-leaver would take a job instead of studying.

Besides the ability to cover the costs of education, the home environment has a crucial effect on the development of an individual's educational aspirations and school

achievement that play a decisive role in educational transitions (Erikson and Jonsson 1996). Parental unemployment can affect this environment. For example, previous research suggests that unemployment has a negative impact on psychological well-being and that it increases stress levels and conflicts in the family (e.g. Burgard and Kalousova 2015; Kalil 2013). Psychological consequences together with financial difficulties could affect the educational aspirations and the risk adversity of families. For instance, Andersen (2013) finds that parental unemployment reduces the educational ambitions of children in the United Kingdom. Lehti et al (2017) suggest, based on Finnish data, that higher risk adversity among children of unemployed parents might be one reason why parental unemployment affects entry to tertiary education. In contrast, Müller et al (2017) do not find support for the relevance of risk adversity for the tertiary education enrolment in Germany.

Effects of Institutional Contexts

Institutional contexts in which students and families make educational decisions vary greatly across countries and time. A recent comparative study by Jerrim and Macmillan (2015) shows that the association between home background and higher education attainment is rather weak in Nordic countries but stronger in both post-socialist countries and in the United States, United Kingdom, Italy, Spain and France. It is probable that parental unemployment plays a more relevant role for continuing studies in countries where social class inequalities in access to postsecondary education are larger. Hence, we discuss how the insurance mechanism and the opportunity mechanism mitigate the adverse effect of parental unemployment.

Social policies affect the extent to which households are insured against socioeconomic consequences of adverse events that could alter their living standards (DiPrete 2002). Effective unemployment insurance can generate a long-term stability of incomes and offer the unemployed an opportunity to seek for adequate reemployment (Gangl 2004, 2006;

Wulfgramm and Fervers 2015). Besides assistance in the form of unemployment benefits, unemployed households might benefit also from other measures of the welfare state (e.g. housing benefit). Overall, social policies can significantly moderate inequalities in living conditions and decrease poverty rates (Brady 2005). Some evidence points out that egalitarian welfare state measures have a pivotal role in helping to promote intergenerational mobility among families belonging to more vulnerable segments of society (Esping-Andersen and Wagner 2012). Nevertheless, the intergenerational transmission of social disadvantage is documented even in egalitarian welfare states that significantly reduce income poverty (Vauhkonen et al 2017; Wiborg and Hansen 2009).

Generosity of social policies might also affect subjective well-being of households facing unemployment. Paul and Moser (2009) conclude in meta-analysis that psychological consequences of unemployment are more severe in countries with weak unemployment protection. Similarly, Sjöberg (2010) suggests, based on cross-national analyses, that more generous unemployment protection systems lessen the negative effects of job insecurity on individuals' subjective well-being. Poorer psychological well-being in families experiencing unemployment could reduce educational ambitions or subjective probability of expected educational success. Hence, more generous social policies can provide the insurance mechanism against material and psychological consequences of unemployment. Thus, we propose that parental unemployment has a less adverse effect on entry to tertiary education in the context of more generous social policies (*hypothesis 1*).

Besides the greater equality of condition, the opportunity mechanism might mitigate the adverse effect of parental unemployment as the affordability of postsecondary education varies greatly across countries (OECD 2014). Besides low tuition costs, more extensive systems of financial support help to cover living costs of students, promoting financial independence from their family. A comparative study of Arum, Gamoran and Shavit (2007)

shows that a larger role of private funding enhances social inequalities in access to tertiary education, but only net of the overall enrollment rate in tertiary education (see also Pfeffer and Hertel 2015; Triventi 2014). Along the same lines, the analytical review by Marginson (2016) concludes that tertiary education systems with high participation rates tend to be more egalitarian if disadvantaged social groups are strongly supported or if the funding comes largely from public resources.

The Nordic countries are an example of very generous education policies that combine free tuition with government loans or grants (overview in Thomsen et al 2017). For instance, Reisel (2011) shows that while students in the United States encounter financial barriers continuously and cumulatively at different transition points in the education system, financial resources matter less in Norway where centrally regulated secondary and tertiary education is without tuition fees. On the other hand, a policy analysis of OECD (2014) concludes that many countries in Europe combine no or low tuition fees with less-developed student support systems, including Germany, France, Spain and Italy. However, some of these education systems offer parallel options to enroll in the tertiary education for a tuition fee. For instance, in Central and Eastern European countries, the market-based options to attain tertiary education became increasingly available in the 1990s (Kogan, Gebel, and Noelke 2012).

Education policy can also affect the extent to which the perceived costs of education constitute a barrier for students from less advantaged backgrounds. This is important because the expected costs can play decisive role in educational decisions (Breen and Goldthorpe 1997). A qualitative study by Thomsen et al (2013) shows that working-class students do not perceive financial constraints as limiting their choice of tertiary education in Denmark. In contrast, the question of costs is relevant in systems with a cost-sharing policy where students pay for a large share of their tertiary education, even when student grants or

loans are provided. Research in the United States and the United Kingdom has shown that socio-economic background affects the loan adversity of students (see the review in Callender and Mason 2017). This loan adversity probably reflects the experiences of less financially secure households. For instance, in the United States, young adults from middle and lower income families have higher risk for student loan debt than their more advantaged counterparts (Houle 2014). Hence, we expect that parental unemployment matters less for the entry to postsecondary studies in systems with more extensive equalization of educational opportunity, i.e. higher financial support to students and smaller importance of private resources (*hypothesis 2*).

We recognize that in many contexts the insurance and the opportunity mechanisms might work together. For instance, Breen and Jonsson (2007) suggest that political strategies to equalization in Sweden did not only reduce the inequality of condition but also reduced the dependence of educational opportunities on the economic resources of the family (e.g. by abolishing fees for postsecondary education). In addition, Jerrim and Macmillan (2015) find that the access to higher education depends more on parental background in countries with more unequal income distribution because of larger differences in the families' capacity to invest in the education of their children.

Institutional Contexts and Parental Education

The significance of policies in mitigating the intergenerational effects of unemployment might also depend on the educational level of parents. Overall, previous research has mostly indicated that the intergenerational effects of unemployment tend to be more severe in families with lower socioeconomic background (Coelli 2011; Oreopoulos, Page, and Stevens 2008; Stevens and Schaller 2011), even though some recent studies provided evidence for stronger adverse effects among children from advantaged backgrounds (Brand and Thomas

2014; Lehti et al 2017). The weaker effects among advantaged households can relate to financial constraints. It is likely that college-educated parents perceive better prospects for reemployment, which makes them less dependent on the generosity of policies. Moreover, they might have more savings and other assets that could protect them against unfavorable circumstances. For instance, Conley (2001) shows that, even a net of income, parental wealth has an effect on the enrollment in postsecondary education in the United States.

Besides the objective and subjective financial situation, an ambition for social status maintenance might motivate those parents with tertiary education. The rational choice model by Breen and Goldthorpe (1997) includes a relative risk aversion principle assuming that families seek foremost to avoid downward mobility when making educational decisions. Students aim to attain a level of education that allows them to achieve a class position at least as good as that of their parents. Based on this perspective, it is likely that young people whose parents do not have tertiary education, and who would avoid downward mobility even without entering to tertiary education, have less strong incentives to continue their studies than their counterparts from college-educated families. Thus, parental unemployment coupled with non-generous policies might particularly discourage them from enrolment. Therefore, we propose that entry to postsecondary education depends less on the insurance and opportunity mechanism in case of children of college-educated unemployed parents than for the children of lower-educated unemployed parents (*hypothesis 3*).

Data, variables and method

Data on Transitions

Our analysis of 21 countries is based on combined data from five longitudinal surveys. We obtained data on 18 European countries from the EU-SILC longitudinal files (2007-2014) covering educational transitions in years 2004-2013. The data for the United States is from

the Survey of Income and Program Participation (SIPP) panels 2004 and 2008. We obtained British data from the British Household Panel Survey (BHPS) using its waves conducted in 2003-2008 and from its successor study, the Understanding Society: The UK Household Longitudinal Study (UKHLS) using waves 2009-2013.[1] German data is from the German Socio-Economic Panel (SOEP) and we use its waves from years 2002-2013. Germany and the United Kingdom are included in the EU-SILC study but because of its limitations (see below) we prefer to use established national longitudinal surveys that cover the same period as the EU-SILC. It is also important to note that all five surveys are household-based and aim to provide nationally representative samples (see also Table A1 in the appendix for more details).

Based on these surveys, we created a harmonized dataset for educational transitions that includes young people from two-parent families who completed the upper secondary education (e.g. a high school degree) in the timeframe of survey. Therefore, despite the large sample sizes in the surveys that we use, our focus on this specific event in the life course of young adults leaves us with data for 13,541 individuals in 21 countries who finished secondary education and for whom we are able to observe transition outcomes during the observation window. More than 93% of the school-leavers in the harmonized dataset are 17 to 20 years old.

Our dependent variable in the analysis is the entry to postsecondary studies compared to not continuing studying after completing secondary education. We define respondents as enrolled in postsecondary education if their main status is that of a student one year after finishing school.[2] Thus, our focus is on the full-time students compared to all other school-leavers. Across all countries and years, about 64% of young people enter postsecondary studies after completing secondary education. It is important to note that we are interested in all types of postsecondary studies, including studies in academic and applied

higher education as well as in non-tertiary postsecondary education. Thus, we analyze the overall propensity of investing in the further education for youth from households affected by unemployment. However, we recognize that unemployment of parents might affect which type of postsecondary education their children choose but unfortunately, EU-SILC longitudinal data does not contain any information that would enable us to make any further distinction between different types of postsecondary trajectories.

Another important limitation is that the EU-SILC longitudinal files do not include data about the type of secondary education that school-leavers have attained. However, the percentage of young people with upper secondary education that does not allow direct entry to any kind of tertiary education is rather low in most countries included in our analysis. In addition, several countries have developed the system of non-tertiary postsecondary education for further vocational studies to which students from vocational schools can enter.[3] We are also interested in these further study options (see above). It is important to note, however, that our sample for the United Kingdom, Germany and the United States does include only those students who were in fact eligible to enter tertiary education because the national panel data that we use for these three countries each contain the required detailed degree data to properly restrict the samples.

Household-level Variables

Our main independent variable of interest at the household level is parental unemployment. We define it based on combined information about the economic activity status of parents at the time of the survey interview in the year the student completed upper secondary education and monthly calendar data on parents' employment status prior to the student finishing upper secondary education. We code parents as unemployed if their stated main activity was unemployment at the time their child completed school or if they had been unemployed for

at least 6 months in an 18 months period prior the school completion. Because families are pooling economic resources across individual family members, so that other earners in the family may partially compensate the negative impact of a job loss of one of its members (Ehlert 2012), it is important to operationalize the incidence of parental unemployment at the household level rather than as an individual-level variable. More specifically, we compare four types of economically active dual-parent households in the following:

- Dual-earner unemployed households: one parent is unemployed and the other employed, so that unemployment affects one earner in dual-earner households, but not both earners simultaneously (9.0% of our sample);
- Main earner unemployed households: one parent is unemployed and the other also unemployed or inactive, so that unemployment affects either the single earner in the family or both earners simultaneously (5.3%);
- Single-earner households: one parent is employed and other inactive (31.0%);
- Dual-earner households: both parents are employed (54.7%).

To minimize any confounding role of family type, we deliberately do not include single parents and households without any active parent. However, we additionally test our models using sample that includes single parents and it only makes our substantive findings more robust (see results section). Our reference group is dual-earner households, as these are typically the economically most advantaged households. We are interested in the extent to which some contextual factors can equalize the educational chances of young people facing an incidence of unemployment in the parental household with the opportunities provided in dual-earner households, conditional on parental education, parental income and other household-level characteristics. An alternative option is to compare unemployed households with single-earner households. However, besides a voluntary choice to be a homemaker, the possible reasons for inactivity include retirement, long-term sickness or disability, participation

in education or training or being a homemaker who has given up active job search due to incapability to find a job. Thus, it would be difficult to argue that the difference between single-earner and main earner unemployed households is attributable to unemployment.

Our main control variables at the household level are parental education and income (see also Table A2). The *highest level of education* attained by parents evidently relates to cultural and educational resources available in the family and may also index differences in educational aspirations across families. Empirically, we distinguish four levels of education in the harmonized cross-national dataset, namely the completion of lower secondary education (or less), upper secondary education, postsecondary but non-tertiary education, and tertiary degrees. For parental income, we use *household equivalised disposable income* after tax and other deductions and take into account household composition using the modified OECD equivalence scale.[4] Due to different consumer prices in countries, we adjusted household incomes using purchasing power parities (PPPs) provided by Eurostat (2016) to make household incomes comparable between countries.

Further available control variables include gender of the school-leaver and the number of children in the household younger than 16. Moreover, some countries in our sample had compulsory military service in the period 2004-2013, so that respondents might continue their studies only after the end of their military service. To account for this possibility, we included respondents who finished compulsory military service at least one year before the end of the survey observation window in the sample of school leavers at risk of a transition to the postsecondary education system. Empirically, the control variable for respondents' military service was not significant in our models, however. Also, although obviously desirable in principle, we have no opportunity to control for school performance, as the EU-SILC data offers no information in this area.[5]

Contextual Variables

In addition, we include several macro variables that describe the national social and education policies in our analysis, an overview of the main contextual variables is provided in Table 1. Among these, *the indicator for the generosity of social transfers to unemployed households* reflects the insurance mechanism. We measure generosity with short-term and long-term earnings net replacement rates for household affected by unemployment, respectively, i.e. at the initial phase of unemployment and in the 60th month of benefit receipt. We use OECD (2016) calculations of the net replacement rates for one-earner married couple with two children after tax and including unemployment benefits, social assistance, family and housing benefits (the previous wage of unemployed spouse is set to the average). These measures vary over years within countries.

The opportunity mechanism builds on policies to enhance equality of opportunity in education. To measure the extent of equalizing educational policies, we use indicators for the level of *financial support to students* and the level of *private expenditure* in tertiary education. First, financial support to students is measured as a percentage of financial aid to students from the total public expenditure on education at the tertiary level of education (data from Eurostat 2016a). This indicator varies over time within countries. Second, the level of private expenditure is measured as a percentage of private expenditure on tertiary education institutions from the total expenditure on tertiary education. OECD (2018) provides this data for years 2005 and 2008-2014. To fill in missing data gaps we used year 2005 measure for 2004 and 2006 and year 2008 measure for 2007. Moreover, Hungary, Austria and United Kingdom had missing values for some additional years while Greece had no data available after 2005. Since OECD did not provide data for Bulgaria, we used World Bank data that refers to year 2010 (World Bank 2015). Thus, the indicator for private expenditure varies over time, except for Greece and Bulgaria.

We include the level of financial support to students and the level of private expenditure simultaneously in our models to reflect the affordability of tertiary education. We also considered other measures but did not find suitable alternatives because comparative quantitative data on the affordability of higher education is rather limited. For example, an international higher education affordability score (Usher and Medow 2010) is available only for seven countries included in our analysis. However, for these seven countries, affordability score correlates strongly with measure of private expenditure (p=-.969). Moreover, data from the Eurydice (2013) and OECD (2014) shows that most countries in our sample provide to a sizable proportion of students (at least 40% of all students) an option to study for free or for low tuition in the first cycle of tertiary education. The only exceptions are the United Kingdom and the United States, which leaves us with limited variance to directly assess the effect of tuition on access to higher education.

Finally, we take into account that the structure of the education system and the macroeconomic contexts differ across countries. Therefore, all estimated models include control variables for the *youth unemployment rate*, the *supply of study places*, the *vocational orientation* of the upper secondary education and the *age of selection* in education system.[6] More specifically, we use the unemployment rate among youth with the secondary level of education (data from Eurostat 2016b; The United States Department of Labor 2014). However, we do not additionally control for the overall unemployment rate in the labor force because it is highly correlated with youth unemployment rates and also because initial analyses showed that it has no significant effect on the likelihood to continue studies. We include the time-varying indicator for the supply of study places because educational expansion could potentially reduce inequalities in access to tertiary education, but, admittedly, a significant change is unlikely in a short timeframe of our study. This indicator is based on the percentage of young people aged 20-24 years enrolled in the tertiary education from the total youth popu-

lation (obtained from Eurostat 2016a). We define vocational orientation as a percentage of pupils enrolled in vocational studies at the level of upper secondary education in year 2006 (Eurostat 2016a). And we control for the mean age of first selection in each country's education system, using data obtained from the PISA 2012 study (OECD 2013).

TABLE 1 ABOUT HERE

Methods

We use three-level logistic regression models to test our hypothesis (Rabe-Hesketh and Skrondal 2012). We nest school-leavers (*i*) in transition years (*j*) and transition years in countries (*k*) to estimate the predicted probability for entry into tertiary education (Y_{ijk}). [7] The three-level clustering of time and country data should reduce downward biases in standard errors (see Schmidt-Catran and Fairbrother 2016). Our main interest is with the cross-level interactions between parental unemployment and context-level variables which can be located at the level of country-year or country. Our strategy is to estimate separate models with cross-level interaction between unemployment and: 1) long-term earnings replacement rate; 2) short-term earnings replacement rate; 3) financial aid to students and share of private expenditure in tertiary education.

We start with an empty model and find based on intraclass correlations that clustering accounts about 11.4% of variance at the country level and 12.6% at the country-year level. Next, we compile the individual level model as follows:

$$logit(Y_{ijk}) = \pi_{0jk} + \pi_{1jk}U_{ijk} + \pi_2 X_{ijk} + \epsilon_{ijk} \qquad \text{(I)}$$

The individual-level intercept π_{0jk} and the random slope π_{1jk} of parental unemployment U_{ijk} vary between years and countries. We also include a set of individual level control variables *X*. The year-level models for the intercept and slope are:

$$\pi_{0jk} = \beta_{00k} + \beta_{01}C_{jk} + \beta_{02}W_{jk} + r_{0jk} \quad \text{(II)}$$

$$\pi_{1jk} = \beta_{10k} + \beta_{11}C_{jk} + r_{1jk}$$

The upper equation models intercept as a function of year-level contextual variable (*C*) and the control variables (*W*), i.e. supply of study places and youth unemployment rate. These control variables serve to take into account the basic structural differences between countries. The lower equation models the coefficient describing the relationship between parental unemployment (*U*) and entry to tertiary education (*Y*) from the individual model as a function of contextual variable (*C*), i.e. generosity of social transfers or financial aid to students or private expenditure in tertiary education. Hence, the term $\beta_{11}C_{jk}$ indicates the cross-level interaction in reduced form. This tests our hypothesis about the dependence of parental unemployment on country-year level contextual variables in affecting the entry to postsecondary education. Finally, we include a country-level specification for the intercept and slope as the third level of the model:

$$\beta_{00k} = \gamma_{000} + \gamma_{001}Z_k + u_{0k} \quad \text{(III)}$$

$$\beta_{10k} = \gamma_{100} + \gamma_{101}Z_k + u_{1k}$$

This upper equation models the intercept from the year-level model as a function of the control variables (Z). In the slope equation for the coefficient β_{10k} of parental unemployment, the term $\gamma_{101}Z_k$ is the cross-level interaction between parental unemployment and age of selection in the country's secondary school system, which we treat as a contextual control variable in the present analysis to control for any potential dependence between the incidence of parental unemployment and the characteristics of the secondary school system. In addition, our final models are including varying slopes only for main earner unemployed households because the slopes for dual-earner unemployed household did not vary significantly on the year or country level (see Table A3).

Empirical Results

To emphasize the potential role of parental unemployment for educational attainment, we start our analysis with basic descriptive statistics on the difference in postsecondary education entry rates between youth from unemployed and employed households. For both readability and small sample sizes in some countries, we do not distinguish between the two types of unemployed households. Figure 1 nevertheless does show that a significant gap in students' entry rates to postsecondary education exists, depending on whether or not parents have been affected by job loss. Averaging across the 21 countries in our sample, the entry rate to postsecondary education among students from families where at least one parent is unemployed is 12.5 percentage points below the entry rate among students from families without current experiences of unemployment. At the same time, Figure 1 also shows that this gap in transition rates between youth from unemployed and employed families varies considerably across countries. The gaps in the entry rate to postsecondary education, i.e. the potential adverse effects of parental unemployment, are largest in some Eastern and Southern European countries, notably in Bulgaria, Hungary, Slovakia, Portugal and Greece. Also,

the gaps in transition rates are relatively large in the United States and France. The smallest differences appear in Sweden and Belgium, where the adverse role of unemployment seems more marginal.

FIGURE 1 ABOUT HERE

Regression Estimates for the Effect of Parental Unemployment on Transition Rates

The results of multilevel logistic regression analysis also confirm the descriptive evidence. On average across countries and transition years, children of unemployed parents have clearly lower chances to continue in postsecondary education than students from families without an unemployed parent. We first estimated the effect of parental unemployment with a baseline model that included gender and military service as control variables (Model 1 in Figure 2 and Table A3). Not surprisingly, we see large differences in the likelihood to enter tertiary education by household type that parallel and further detail the descriptive results: according to Model 1 of Figure 2, the most disadvantaged group are youths from households where the main earner is unemployed and other parent also does not work. Relative to students from dual-earner families, their likelihood to continue their studies is about 27 percentage points lower (average marginal effect, AME), and the gap in entry rates with their peers from single-earner households is about 19 percentage points. Moreover, youth from dual-earner unemployed households – i.e. with one employed and one unemployed parent – are also less successful than their counterparts from dual-earner households (a difference in transition rates of 12 percentage points), although the gap with youth from single-earner families without an unemployed parent is as small as 4 percentage points.

Naturally, these associations are likely to considerably overestimate the causal impact of parental unemployment on students' academic trajectories. Families affected by unemployment also tend to have lower levels of education and lower household income than families without experiences of unemployment (see the sample descriptive statistics in Table A2), and these factors hence need to be controlled for as potential confounders. When holding parental education constant (Model 2 in Figure 2), the predicted probability of entering postsecondary education is about 18 percentage points higher among students from dual-earner families than for students from main earner unemployed households. The corresponding difference is 8 percentage points relative to students from dual-earner unemployed households. As a result, and as to be expected, the adverse effect of unemployment is smaller when we compare parents with similar educational level. On the other hand, controlling for parental education reduces the effect sizes by about one third only. Hence, the residual impact of parental unemployment on transition rates is undoubtedly substantial.

This picture is unchanged when adding household income (and the number of children, see Model 3 in Figure 2): although households' financial resources have an evident effect on the continuation of studies in themselves (Table A3), the estimates for the impact of parental unemployment are only marginally affected. Thus, even controlling for parental income, transition rates to postsecondary education are still about 16 percentage points higher among children from dual-earners families relative to their peers from households with an unemployed main earner, and the AME relative to youths from dual-earner unemployed households where one parent remains employed is 7 percentage points. While the inclusion of parental income in our regression specification may appear debatable on theoretical grounds – the variable can be argued to be in part capturing income losses brought about by parental job loss, and could thus in part be regarded as a mediator rather than a confounding factor – but our empirical evidence reveals this to be a rather moot point. As the effect esti-

mates are consistent across the two specifications, both models (Model 2 and Model 3) point to a very similar magnitude of the causal impact of parental unemployment on students' entry rates to postsecondary education. In fact, the consistency of the estimates across specifications that either incorporate parental income or not also indicates that the source of the adverse effect of parental unemployment is not primarily financial. More promising explanations might center on either higher stress levels in the parental household, weaker academic performance in upper secondary education, or also reductions in students' educational ambitions and more pronounced risk aversion in the face of coping with the costs of tertiary education. With the quite limited household-level information at hand in the comparative dataset used here, we are unable to further explore the contribution of any of these potential mechanisms, however.

FIGURE 2 ABOUT HERE

Contextual Effects

Instead, we next turn to our central question, namely how the effect of parental unemployment depends on the institutional context and what features of welfare states and educational systems may be conducive to mitigating the adverse impacts of parental unemployment on students' entry rate to postsecondary education. We base the following analysis on the specification of Model 3 (which includes all individual-level variables), and we now enrich this specification by adding cross-level interactions between parental employment status and key macro-level variables to explore the role of institutional mechanisms. We present the empirical results for these cross-level interactions graphically as predicted probabilities in Figure 3, and we also document the corresponding coefficient estimates for the cross-level interactions in Table 2.

It was already apparent from our descriptive results in Figure 1 that the impact of parental unemployment on the next generations' educational transitions might vary across countries, but this impression can now be corroborated more formally from our regression analysis. Specifically, we find that the insurance mechanism moderates the adverse effect of parental unemployment on entry to postsecondary education. More generous social policies, measured in terms of a higher long-term net replacement rate for unemployed households, indeed improve access to education for children from families affected by unemployment (see the top left graph in Figure 3 and Model 1 in Table 2, respectively, and note that the effect size in Table 2 denotes one percentage point change in each of the tested macro level variables). The generosity of social transfers affects transition rates particularly for students from households where no parent is employed, i.e. where the main earner had lost his or her job. From the predicted (conditional) probabilities provided in Figure 2 it is apparent that the entry gap between youths from these families and dual-earner households is statistically not significant when the long-term earnings replacement rate covers more than 60% of previous earnings for the average household. Moreover, social transfers that, in the long-term, replace more than 70% of previous earnings are able to reduce the substantive magnitude of this entry gap below 10 percentage points. In addition, a similar entry gap is evident in comparison of main earner unemployed households with single-earner households. The likelihood of enrolment differs significantly between these two groups when the level of long-term earnings replacement is below 50%. In contrast, benefit generosity is much less relevant for the transition chances of young people from families with one employed and one unemployed parent.

The short-term earnings replacement rate for unemployed households also matters. In most countries and years, these initial replacement rates after the job loss are at least 50% of the previous income for the average household (Table 1). Figure 3 shows that in comparison

with young people from dual-earner families, school-leavers from families where the main earner is unemployed and other parent also not working have significantly lower chances to continue studies if the level of short-term replacement rate is less than 80%. In contrast, the chances of youth from unemployed households with one employed parent again seem not to depend on the short-term replacement rates. In sum, our empirical findings provide some support to *hypothesis 1*: the insurance mechanism that increases financial security of households and that reduces perceived economic strain seems to alleviate some of the negative effects of parental unemployment on young adults' entry to postsecondary studies. However, we also find that generous transfer policies particularly matter for families where the main earner is unemployed and other parent is also not working, whereas respective policy effects on dual-earner unemployed families where one parent remains employed are weak. [7]

FIGURE 3 ABOUT HERE

TABLE 2 ABOUT HERE

Besides the insurance mechanism, our results also indicate the relevance of the opportunity mechanism for alleviating the adverse effects of parental unemployment. We measured the affordability of postsecondary education with the extent of the financial aid to students and the share of private expenditure in tertiary education. We included these measures into one model because these two effects might cancel each other out as the generous financial aid might not be sufficient in reducing inequalities if tuition fees remain high.

Our empirical findings then indicate that education policy that provides more financial aid to students indeed reduces the adverse effect of parental employment status on the continuation in postsecondary education (Figure 3 and Model 3 in Table 2). Table 2 indi-

cates that the chances of young people from dual-earner families affected by unemployment in particular depend on the supportiveness of the system. The entry gap between them and their counterparts from dual-earner employed families is about 11 percentage points when aid is at the minimum level but diminishes with the increase in financial support. Moreover, Figure 3 shows that also the entry gap between young people from main earner unemployed families and dual-earner families reduces significantly when financial support to students is higher (although the cross-level interaction in Table 2 does not reach statistical significance). However, the disadvantage of students from main earner unemployed households still remains around 10 percentage points even when generous financial support is provided. These findings thus support *hypothesis 2* suggesting that the financial independence is especially important for students from families where at least one parent is unemployed.

In addition, we also find that a higher share of private expenditure in tertiary education widens the entry gap between youths from dual-earner households and students from households affected by unemployment. Overall, the importance of private resources tends to be larger in countries with a larger tertiary education sector. However, Table 2 shows that youth from families with unemployment experience benefit less from the market-based options in tertiary education than their counterparts from dual-earner employed families. The gap between young people from dual-earner unemployed households (with one working parent) and dual-earner employed households widens with the increasing importance of private resources. In addition, Figure 3 shows that young people from households where the single earner is unemployed lag behind others when the importance of private expenditure increases (but, again and possibly due to small sample sizes, the interaction in Table 2 does not reach statistical significance). Thus, tertiary education systems that rely more on private finances seem to enhance social inequalities, which provides further support to our arguments surrounding *hypothesis 2*.

All that said, one evident limitation of our analysis is that, not the least due to data constraints in the EU-SILC survey, we focus on the year after completing upper secondary education. Overall, the entry rates in this relatively short period are lower in more supportive systems. Eurostat (2018) data for 2014 shows that only about a fourth of youth population at age 20 were studying in tertiary education institutions in Finland and Sweden while almost a half of the 20-year-olds were studying in Spain and France. Thus, inequalities might appear in later transitions in supportive systems because financial aid can motivate children of unemployed parents to enter more quickly to tertiary education while securing financial independence might be less relevant for youth from dual-earner families. For instance, Lehti et al (2017) focus on a longer transition period in Finland and find negative effect of parental unemployment on enrolment in tertiary education. However, they attribute this effect on a risk adversity that does not support the assumption that school-leavers might seek to secure financial independence through continuation of studies. Thus, although our results provide first indications about an interaction between parental unemployment and affordability of postsecondary education, this question deserves more detailed analyses in future studies.

Finally, we also tested a model that included the effects of education policy and social policy simultaneously. Respective estimation results for Model 4 in Table 2 are entirely in line with our previous findings. The chances of young people from main earner unemployed households depend foremost on generosity of replacement rates. Hence, the insurance mechanism that reduces economic insecurity for parents seems particularly important for students from these households. In contrast, for young people from dual-earner households affected by unemployment, it is the opportunity mechanism that clearly increases equality in access to postsecondary education, whereas the insurance mechanism seems to not play a decisive role. One reason for this finding could be that the direct financial conse-

quences of unemployment are less severe for households where at least one parent remains in employment.

Extending this line of reasoning it might seem particularly unfortunate that we chose to exclude single parents and to focus on two-parent families, which in a way probably excludes the economically most vulnerable families from our analyses. To assess the sensitivity of our key findings to this restriction, we re-estimated our models on the full sample of families that includes single parents and found even stronger cross-level interactions (see Table A4 for detailed results). However, the available samples of single-parent households are unfortunately too small in most countries to allow us to investigate this point in any greater empirical detail.

The Interaction between Parental Education and Institutions

As the final step of the analysis, we evaluate whether the importance of either the insurance or the opportunity mechanism might depend on parents' level of education. Theoretically, we argued that successful educational trajectories might depend more strongly on adequate institutional support to moderate the adverse effects of parental unemployment for students from lower-educated families, whose educational aspirations or financial capacities might be less resilient to adverse events like job loss. To test our corresponding hypothesis 3, we estimated our interaction models separately for college-educated parents and for parents without tertiary education. Whereas we thus focus our attention on the three-way cross-level interaction between unemployment incidence, supportive institutional arrangements and parental education in the following, it is interesting to note that additional analyses indicated that the individual-level interaction terms between parental unemployment and parental education were not statistically significant (not presented).

In terms of the three-way cross-level interaction terms, however, our findings show that the importance of the insurance mechanism in alleviating negative effects of unemployment does not to depend significantly on the educational level of parents (see Models 1 and 2 in Table 3). In fairness, we should add that we are not able to draw fully solid conclusions here because of the small sample size for main earner unemployed families (i.e. the group most affected by this mechanism) where parents also have a tertiary degree.

In contrast, the chances that the children of unemployed and less-educated parents have for accessing postsecondary education depend strongly on generosity of education policies (see Models 3 and 4 in Table 3). First, a larger financial support to students alleviates the adverse effect of parental unemployment foremost for youth whose parents do not have tertiary education. Among these families, the entry gaps between youth from dual-earner employed households and dual-earner unemployed households (with one working parent) are larger if financial aid is at a low level. In contrast, financial aid is clearly less decisive for dual-earner unemployed households with tertiary education. Second, our results indicate that when the role of private expenditure in tertiary education is greater, then the entry gaps between dual-earner unemployed and employed households are large among children of less educated parents, while no such gaps appear among children of college-educated parents. Thus, among less-educated families, employed dual-earners are more successful in using the market-based options offered in the tertiary education than similar families affected by unemployment. However, we do not see clear differences among young people from main earner unemployed households. Therefore, based on findings for dual-earner unemployed families, we conclude that the relevance of opportunity mechanism in moderating adverse effect of parental unemployment varies depending on parental education. Thus, our results provide partial support to *hypothesis 3*.

TABLE 3 ABOUT HERE

Discussion and Conclusions

This paper offers a novel comparative view on intergenerational consequences of unemployment by relating their strength to social policy and education policy in European countries and the United States. Drawing on the literature on intergenerational mobility research and the sociology of higher education, we explored the relevance of two mechanisms for varying intergenerational effects across institutional contexts: the insurance mechanism that promotes the greater equality of circumstances across families and the opportunity mechanism that reduces the dependence of educational opportunities on socioeconomic background. Based on data from five longitudinal studies, we studied how parental unemployment that occurred when child was in the last years of secondary school affected transition to postsecondary education.

From a theoretical standpoint, we emphasize that the individual level effect of parental unemployment on educational outcomes can be strongly affected by institutions. In line with previous studies, we find that parental unemployment has an adverse effect on chances to continue in the postsecondary education. However, we also find that the strength of this adverse effect varies greatly across institutional contexts. Although the reasons for this variance are certainly multidimensional, we explored the moderating role of social transfers to households affected by unemployment, financial aid to students and the extent of private expenditure in the tertiary education.

Our results show that insufficient insurance against unemployment has adverse consequences on educational chances of children of unemployed parents. The generosity of social policy affects foremost unemployed households where no parent is working. Our finding is in line with previous research on intergenerational mobility showing that egalitarian

welfare measures matter especially for the most vulnerable families (Esping-Andersen and Wagner 2012). This is most likely because more comprehensive insurance mechanism improves household's capability to cover the costs of education. Moreover, it moderates the psychological consequences of unemployment in the family (Paul and Moser 2009) that could lead to reduction of ambitions and expected success (Andersen 2013).

Our findings also suggest that opportunity-equalizing education policy that provides more financial support to students and lessens the role of private expenditure reduces the postsecondary education entry gaps between young people from employed and unemployed households. This applies even if one parent in unemployed household still has a job. Thus, opportunity-equalizing education policies seem to have a key role in reducing inequalities in access to tertiary education for families affected by unemployment. We propose that besides actual costs, more equalizing education policy reduces also perceived costs of education which could be a barrier for children whose parents are unemployed, especially if unemployment increases their risk adversity. We recognize that the increasing importance of private expenditure is often related to expansion of tertiary education sector (Arum et al 2007), albeit with notable exceptions, e.g. Nordic countries. Because our aim was to estimate the success of different solutions of education policy in moderating inequalities due to parental unemployment, we chose to control for the participation rate by treating it as one of education system characteristics.

We also find that the opportunity mechanism is more relevant for moderating the adverse effect of parental unemployment for young people from less-educated families than for households with college-educated parents. In other words, parental unemployment experience seems especially discouraging for less-educated households in the institutional contexts which require higher investments from families. If the uncertainty introduced by unemployment is not moderated by institutional context, then individual-level mechanisms that

could reduce the enrolment of young people from less-educated unemployed households might become increasingly important, such as future earnings prospects of parents, wealth of family or motivational differences.

We believe that there are at least two additional important considerations that future research should address. Due to data limitations, we were not able to explore the role of differentiation within postsecondary education (Lucas 2001; Triventi 2013). Our general approach likely hides some disadvantage that children of unemployed parents face in accessing more prestigious tracks. Moreover, our focus was on the entry to further studies but the attainment of postsecondary education for children of unemployed parents could depend even more strongly on the institutional context. For instance, Goldrick-Rab et al (2016) suggest that financial aid to students can be effective measure to reduce drop-out rates for youth from financially less secure households. Thus, future research should investigate how parental unemployment affects young people's trajectories through tertiary education.

To conclude, our study draws attention on the importance of institutional contexts in understanding the intergenerational effects of unemployment. We conclude that both education policy and social policy have key roles in moderating the adverse consequences of parental unemployment on educational outcomes. Studying only one of them leads to a risk of missing important linkages between social inequality and educational attainment.

Notes

1. We excluded UKHLS ethnic boost sample and data for Scotland because its higher education policy differs somewhat from rest of the United Kingdom.
2. Due to EU-SILC data limitation we had to exclude from the category "students" young people who are employed already at the start of their studies. Thus, we exclude apprenticeships and other work-related education. Furthermore, we presumed that the academic year in upper secondary school is finished for July and defined the year of completing upper secondary education based on the time of interview.
3. Belgium, Greece, Spain and Poland have relatively high number of graduates from ISCED-97 3C programs but these countries provide clear options for postsecondary non-tertiary studies. However, the direct access to further studies is more limited in Czech Republic, Hungary and France where respectively 28%, 29% and 22% of graduates at age 18-20 finished studies at ISCED 3C level (Eurostat 2016a; Eurydice 2016). We conducted additional analysis excluding these three countries from our models. The coefficients for the main effects and interactions between macro variables and parental unemployment had similar size and significance levels. In addition, we tested the interaction effects between parental unemployment and vocational orientation of secondary education (not presented). These effects were not significant. Thus, the effect of recent parental unemployment on entry to postsecondary education seems to not differ systematically between countries with more or less vocationally oriented education systems.
4. We use the household income for the previous calendar year before completing the upper secondary education. We could also use income for transition year but there are two complications: 1) young people who enter the labor market instead of continuing their studies start to contribute to household income while students usually do not contribute; 2) young people continuing in tertiary education are more likely to move for

their studies and form a new household with low income (see also Groh-Samberg and Voges 2014).

5. Note that the concern here is with potential unobserved selectivity of students from families with unemployed parents in terms of pre-unemployment academic performance and controlling for other parental information, which may act as a confounder to our subsequent inferences. If, however, weaker performance is but the consequence of parental unemployment, there are no inferential biases from the unavailability of the information: in that case, unobserved performance (change) is but a mediator (a generative mechanism) of the causal impact of parental unemployment on children's transition to postsecondary education, and in this role the principal causal inferences that report are unaffected.
6. We do not grand center continuous variables at micro or macro level because we are not interested in interpreting the intercept.
7. We tested alternative models with country fixed effects and varying intercepts and slopes at the country-year level. These results were very similar to the results we present.
8. We tested models without income measures (Table A5) and found similar interaction terms between parental unemployment and replacement rates.

References

Andersen, Signe H. 2013. "Common Genes or Exogenous Shock? Disentangling the Causal Effect of Paternal Unemployment on Children's Schooling Efforts." *European Sociological Review* 29(3): 477-88.

Arum, Richard, Adam Gamoran and Yossi Shavit. 2007. "More Inclusion than Diversion: Expansion, Differentiation, and Market Structure in Higher Education." In *Stratification in higher education: A comparative study*, edited by Yossi Shavit, Richard Arum and Adam Gamoran, 1-35. Stanford, CA: Stanford University Press.

Brady, David. 2005. "The Welfare State and Relative Poverty in Rich Western Democracies, 1967–1997." *Social Forces* 83(4): 1329-64.

Brand, Jennie E. and Juli Simon Thomas. 2014. "Job Displacement among Single Mothers: Effects on Children's Outcomes in Young Adulthood." *American Journal of Sociology* 119(4): 955-1001.

Breen, Richard and John H. Goldthorpe. 1997. "Explaining Educational Differentials: Towards a Formal Rational Action Theory." *Rationality and Society* 9(3): 275-305.

Breen, Richard and Jan O. Jonsson. 2005. "Inequality of Opportunity in Comparative Perspective: Recent Research on Educational Attainment and Social Mobility." *Annual Review of Sociology* 31: 223-43.

Breen, Richard and Jan O. Jonsson. 2007. "Explaining Change in Social Fluidity: Educational Equalization and Educational Expansion in Twentieth-Century Sweden." *American Journal of Sociology* 112(6): 1775-810.

Breen, Richard, Ruud Luijkx, Walter Müller and Reinhard Pollak. 2009. "Nonpersistent Inequality in Educational Attainment: Evidence from Eight European Countries." *American Journal of Sociology* 114(5): 1475-521.

Burgard, Sarah A. and Lucie Kalousova. 2015. "Effects of the Great Recession: Health and Well-Being." *Annual Review of Sociology* 41(1): 181-201.

Callender, Claire and Geoff Mason. 2017. "Does Student Loan Debt Deter Higher Education Participation? New Evidence from England." *The ANNALS of the American Academy of Political and Social Science* 671(1): 20-48.

Coelli, Michael B. 2011. "Parental Job Loss and the Education Enrollment of Youth." *Labour Economics* 18(1): 25-35.

Conley, Dalton. 2001. "Capital for College: Parental Assets and Postsecondary Schooling." *Sociology of Education* 74(1): 59-72.

DiPrete, Thomas. 2002. "Life Course Risks, Mobility Regimes, and Mobility Consequences: A Comparison of Sweden, Germany, and the United States." *American Journal of Sociology* 108(2): 267-309.

Downey, Douglas B. and Dennis J. Condron. 2016. "Fifty Years since the Coleman Report: Rethinking the Relationship between Schools and Inequality." *Sociology of Education* 89(3): 207-20.

Ehlert, Martin. 2012. "Buffering Income Loss Due to Unemployment: Family and Welfare State Influences on Income After Job Loss in the United States and Western Germany." *Soc Sci Res* 41(4): 843-60.

Erikson, Robert and Jan O Jonsson. 1996. *Can Education Be Equalized?: The Swedish Case in Comparative Perspective*. Boulder, Colo.: Westview Press.

Esping-Andersen, Gosta and Sander Wagner. 2012. "Asymmetries in the Opportunity Structure. Intergenerational Mobility Trends in Europe." *Research in Social Stratification and Mobility* 30(4): 473-87.

Eurostat. 2016a. "Database. Education and Training." Retrieved December 15, 2016 (http://ec.europa.eu/eurostat/web/education-and-training/data/database).

---. 2016b. "Database. Employment and Unemployment (Labour Force Survey)." Retrieved September 15, 2016 (http://ec.europa.eu/eurostat/web/lfs/data/database).

---. 2018. "Students in Tertiary Education by Age Groups." Retrieved February 5, 2018 (http://ec.europa.eu/eurostat/web/products-datasets/product?code=educ_uoe_enrt07).

Eurydice. 2013. *National Student Fee and Support Systems 2012/2013*. Brussels: European Commission.

---. 2016. "Countries. Description of national education systems." European Commission. Retrieved June 6, 2016 (https://webgate.ec.europa.eu/fpfis/mwikis/eurydice/index.php/Countries).

Gangl, Markus. 2004. "Welfare States and the Scar Effects of Unemployment: A Comparative Analysis of the United States and West Germany." *American Journal of Sociology* 109(6): 1319-64.

---. 2006. "Scar Effects of Unemployment: An Assessment of Institutional Complementarities." *American Sociological Review* 71(6): 986-1013.

Goldrick-Rab, Sara, Robert Kelchen, Douglas N. Harris and James Benson. 2016. "Reducing Income Inequality in Educational Attainment: Experimental Evidence on the Impact of Financial Aid on College Completion." *American Journal of Sociology* 121(6): 1762-817.

Groh-Samberg, Olaf and Wolfgang Voges. 2014. "Precursors and consequences of youth poverty in Germany." *Longitudinal and Life Course Studies* 5(2): 151-72.

Houle, Jason N. 2014. "Disparities in Debt: Parents' Socioeconomic Resources and Young Adult Student Loan Debt." *Sociology of Education* 87(1): 53-69.

Jerrim, John and Lindsey Macmillan. 2015. "Income Inequality, Intergenerational Mobility, and the Great Gatsby Curve: Is Education the Key?" *Social Forces* 94(2): 505-33.

Kalil, Ariel. 2013. "Effects of the Great Recession on Child Development." *The ANNALS of the American Academy of Political and Social Science* 650(1): 232-50.

Kalil, Ariel and Patrick Wightman. 2011. "Parental Job Loss and Children's Educational Attainment in Black and White Middle-Class Families*." *Social Science Quarterly* 92(1): 57-78.

Kogan, Irena, Michael Gebel and Clemens Noelke. 2012. "Educational Systems and Inequalities in Educational Attainment in Central and Eastern European Countries." *Studies of Transition States and Societies* 4(1): 69-83.

Lehti, Hannu, Jani Erola and Aleksi Karhula. 2017. "Less Advantaged More Averse? Heterogeneous Effects of Parental Unemployment on Siblings' Educational Achievement." *Turku Center for Welfare Research. Working Papers on Social and Economic Issues 2/2017.*

Lucas, Samuel R. 2001. "Effectively Maintained Inequality: Education Transitions, Track Mobility, and Social Background Effects." *American Journal of Sociology* 106(6): 1642-90.

Marginson, Simon. 2016. "The Worldwide Trend to High Participation Higher Education: Dynamics of Social Stratification in Inclusive Systems." *Higher Education* 72(4): 413-34.

Müller, Steffen, Regina T. Riphahn and Caroline Schwientek. 2017. "Paternal Unemployment during Childhood: Causal Effects on Youth Worklessness and Educational Attainment." *Oxford Economic Papers* 69(1): 213-38.

OECD. 2013. *PISA 2012 Results: What Makes Schools Successful? Resources, Policies and Practices*. Paris: OECD Publishing.

---. 2014. *Education at a Glance 2014: OECD Indicators*. Paris: OECD Publishing.

---. 2016. "Tax-Benefit Models." Retrieved June 30, 2016 (http://www.oecd.org/els/soc/benefits-and-wages.htm).

---. 2018. "Spending on Tertiary Education." Retrieved January 25, 2018 (https://data.oecd.org/eduresource/spending-on-tertiary-education.htm#indicator-chart).

Oreopoulos, Philip , Marianne Page and Ann Huff Stevens. 2008. "The Intergenerational Effects of Worker Displacement." *Journal of Labor Economics* 26(3): 455-83.

Paul, Karsten I. and Klaus Moser. 2009. "Unemployment Impairs Mental Health: Meta-Analyses." *Journal of Vocational Behavior* 74(3): 264-82.

Pfeffer, Fabian T. and Florian R. Hertel. 2015. "How Has Educational Expansion Shaped Social Mobility Trends in the United States?" *Social Forces* 94(1): 143-80.

Rabe-Hesketh, Sophia and Anders Skrondal. 2012. *Multilevel and Longitudinal Modeling Using Stata*. College Station, Texas: Stata Press.

Rege, Mari, Kjetil Telle and Mark Votruba. 2011. "Parental Job Loss and Children's School Performance." *The Review of Economic Studies* 78(4): 1462-89.

Reisel, Liza. 2011. "Two Paths to Inequality in Educational Outcomes: Family Background and Educational Selection in the United States and Norway." *Sociology of Education* 84(4): 261-80.

Roemer, John E. 2004. "Equal Opportunity and Intergenerational Mobility: Going Beyond Intergenerational Income Transition Matrices." In *Generational income mobility in North America and Europe*, edited by Miles Corak, 48-57. Cambridge: Cambridge University Press.

Schmidt-Catran, Alexander W. and Malcolm Fairbrother. 2016. "The Random Effects in Multilevel Models: Getting Them Wrong and Getting Them Right." *European Sociological Review* 32(1): 23-38.

Sjöberg, Ola. 2010. "Social Insurance as a Collective Resource: Unemployment Benefits, Job Insecurity and Subjective Well-being in a Comparative Perspective." *Social Forces* 88(3): 1281-304.

Stevens, Ann Huff and Jessamyn Schaller. 2011. "Short-Run Effects of Parental Job Loss on Children's Academic Achievement." *Economics of Education Review* 30(2): 289-99.

The United States Department of Labor. 2014. "Data from the Current Population Survey (CPS)." Retrieved May 10, 2016 (https://nces.ed.gov/programs/digest/d14/tables/dt14_501.50.asp).

Thomsen, Jens-Peter, Emil Bertilsson, Tobias Dalberg, Juha Hedman and Håvard Helland. 2017. "Higher Education Participation in the Nordic Countries 1985–2010—A Comparative Perspective." *European Sociological Review* 33(1): 98-111.

Thomsen, Jens Peter, Martin D. Munk, Misja Eiberg-Madsen and Gro Inge Hansen. 2013. "The Educational Strategies of Danish University Students from Professional and Working-Class Backgrounds." *Comparative Education Review* 57(3): 457-80.

Triventi, Moris. 2013. "Stratification in Higher Education and Its Relationship with Social Inequality: A Comparative Study of 11 European Countries." *European Sociological Review* 29(3): 489-502.

---. 2014. "Higher Education Regimes: An Empirical Classification of Higher Education Systems and Its Relationship with Student Accessibility." *Quality & Quantity* 48(3): 1685-703.

Usher, Alex and Jon Medow. 2010. *Global Higher Education Rankings 2010: Affordability and Accessibility in Comparative Perspective*. Toronto: Higher Education Strategy Associates.

Vauhkonen, Teemu, Johanna Kallio, Timo M. Kauppinen and Jani Erola. 2017. "Intergenerational Accumulation of Social Disadvantages Across Generations in Young Adulthood." *Research in Social Stratification and Mobility* 48: 42-52.

Western, Bruce, Deirdre Bloome, Benjamin Sosnaud and Laura Tach. 2012. "Economic Insecurity and Social Stratification." *Annual Review of Sociology* 38(1): 341-59.

Wiborg, Øyvind Nicolay and Marianne Nordli Hansen. 2009. "Change over Time in the Intergenerational Transmission of Social Disadvantage." *European Sociological Review* 25(3): 379-94.

World Bank. 2015. "World Bank Open Data." Retrieved December 2, 2015 (http://data.worldbank.org/indicator).

Wulfgramm, Melike and Lukas Fervers. 2015. "Unemployment and Subsequent Employment Stability: Does Labour Market Policy Matter?" *Socio-Economic Review* 13(4): 791-812.

Table 1. Measures of Institutional Context.

	Level of social transfers to unemployed (mean)		Education policies (mean)	
	Long-term earnings replacement [a]	Short-term earnings replacement [a]	Financial aid to students [b]	Share of private expenditure in tertiary education [c]
Finland	76	76	15	4
Sweden	66	66	26	11
United Kingdom	69	70	30	43
United States	36	53	25	61
Germany	64	74	21	13
Belgium	57	58	14	10
Austria	68	69	13	5
France	55	68	8	17
Italy	1	69	20	30
Spain	33	74	9	22
Greece	4	39	3	3
Portugal	49	77	13	36
Bulgaria	39	69	12	46
Slovenia	73	83	21	17
Czech Republic	60	66	4	20
Slovakia	40	58	16	27
Hungary	49	65	14	35
Poland	58	51	6	27
Latvia	64	77	10	38
Lithuania	60	76	13	31
Estonia	41	60	9	24

Sources: [a] OECD (2016), [b] Eurostat (2016a), [c] OECD (2018) and World Bank (2015).
Note: Reported figures are averages over period 2004-2014.

Table 2. Interacting Effects of Parental Unemployment and Institutional Context on the Entry to Postsecondary Education.

	Model 1	Model 2	Model 3	Model 4
Household type **x** long-term earnings replacement (ref. dual-earner)				
Single-earner **x** long-term	.999			.997
	(.002)			(.002)
Dual-earner: one unemployed **x** long-term	1.003			1.001
	(.003)			(.003)
Main earner unemployed **x** long-term	1.011*			1.009+
	(.005)			(.005)
Household type **x** short-term earnings replacement (ref. dual-earner)				
Single-earner **x** short-term		1.009+		
		(.005)		
Dual-earner: one unemployed **x** short-term		1.006		
		(.006)		
Main earner unemployed **x** short-term		1.016+		
		(.010)		
Household type **x** financial aid (ref. dual-earner)				
Single-earner **x** financial aid			1.017**	1.018**
			(.006)	(.006)
Dual-earner: one unemployed **x** financial aid			1.016+	1.016*
			(.008)	(.008)
Main earner unemployed **x** financial aid			1.011	1.010
			(.013)	(.013)
Household type **x** private expenditure (ref. dual-earner)				
Single-earner **x** private expenditure			.991*	.990*
			(.004)	(.004)
Dual-earner: one unemployed **x** private expenditure			.988*	.989*
			(.005)	(.005)
Main earner unemployed **x** private expenditure			.990	.992
			(.009)	(.009)
Country level variance				
Slope: main earner unemployed	0	0	0	.0
	(0)	(0)	(0)	(.0)
Intercept	.52	.51	.45	.46
	(.18)	(.17)	(.15)	(.16)
Country-year level variance				
Slope: main earner unemployed	.04	.05	.04	.04
	(.06)	(.11)	(.07)	(.07)
Intercept	.04	.04	.03	.03
	(.01)	(.01)	(.01)	(.01)
Covariance	.04	.04	.04	.03
	(.03)	(.03)	(.03)	(.03)

Note: Odds ratios from multilevel logistic regression models. Standard errors are in parenthesis. Models control for 1) individual level: household type, gender, military service, parental education, number of children in the household, household income; 2) macro level: main effects of interacted macro-level variables, youth unemployment rate, supply of study places, vocational orientation, age of selection and its interaction with household type. Sample includes 13541 school-leavers, 179 country-years and 21 countries.

Statistical significance levels at + p<0.1, * p<0.05, ** p<0.01, *** p<0.001 based on two-tailed tests.

Table 3. Interactions between Education Policy Measures and Household Type by Parental Education.

	Social policy				Education policy			
Parental education:	Model 1: Non-tertiary		Model 2: Tertiary		Model 3: Non-tertiary		Model 4: Tertiary	
Household type **x** long-term earnings replacement (ref. dual-earner)								
Single-earner **x** long-term	1.001	(.002)	.995	(.006)				
Dual-earner: one unemployed **x** long-term	1.005	(.004)	.997	(.008)				
Main earner unemployed **x** long-term	1.009	(.005)	1.038*	(.020)				
Household type **x** financial aid (ref. dual-earner)								
Single-earner **x** aid					1.020**	(.008)	1.011	(.012)
Dual-earner: one unemployed **x** aid					1.019*	(.009)	1.003	(.019)
Main earner unemployed **x** aid					1.005	(.014)	1.098+	(.061)
Household type **x** private expenditure (ref. dual-earner)								
Single-earner **x** private					.994	(.006)	.984*	(.010)
Dual-earner: one unemployed **x** private					.983**	(.008)	1.006	(.014)
Main earner unemployed **x** private					.991	(.013)	.954	(.041)
Country level variance								
Slope: main earner unemployed	0	(0)	.0	(0)	.0	(0)	0	(0)
Intercept	.43	(.15)	.68	(.25)	.39	(.13)	.60	(.22)
Country-year level variance								
Slope: main earner unemployed	.07	(.14)	.26	(.67)	.08	(.14)	.99	(1.28)
Intercept	.04	(.02)	.03	(.03)	.03	(.02)	.03	(.03)
Covariance	.02	(.04)	.08	(.11)	.01	(.04)	.18	(.14)
N individuals	8,668		4,873		8,668		4,873	
N country-years	177		174		177		174	
N countries	21		21		21		21	

Note: Odds ratios from multilevel logistic regression models. Standard errors are in parenthesis. Models control for 1) individual level: household type, gender, military service, parental education, number of children in the household, household income; 2) macro level: main effects of interacted macro-level variables, youth unemployment rate, supply of study places, vocational orientation, age of selection and its interaction with household type. Sample did not include enough parents with lower secondary or postsecondary non-tertiary education to conduct separate analysis for these groups.

Statistical significance levels at + p<0.1, * p<0.05, ** p<0.01, *** p<0.001 based on two-tailed tests.

Figure 1. Postsecondary Education Entry Gaps between Youth from Employed and Unemployed Households.

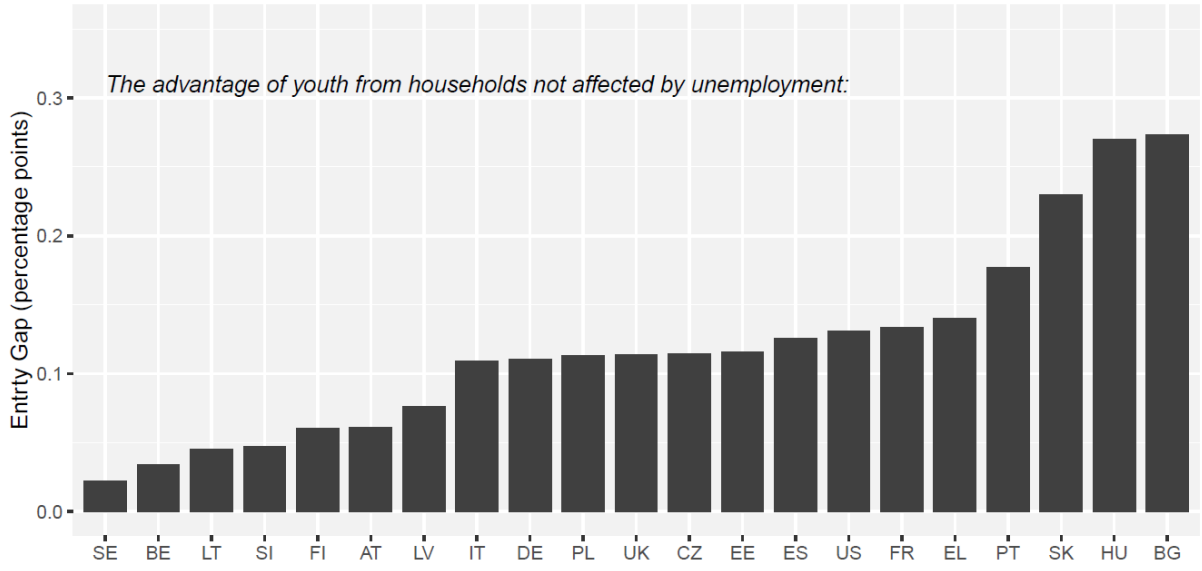
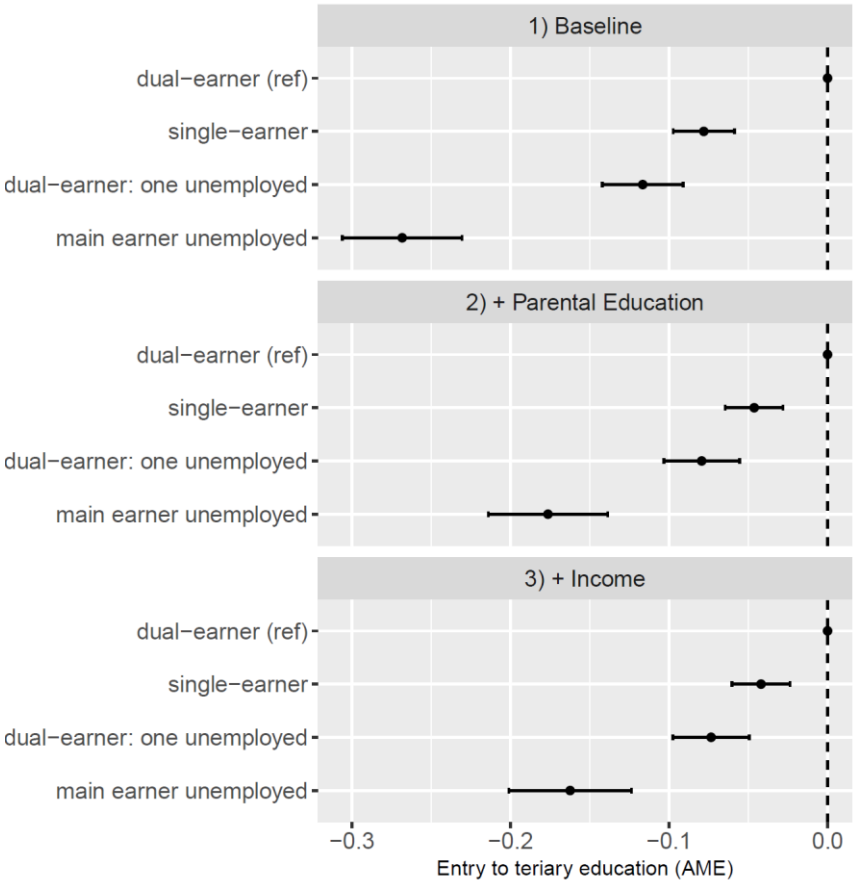
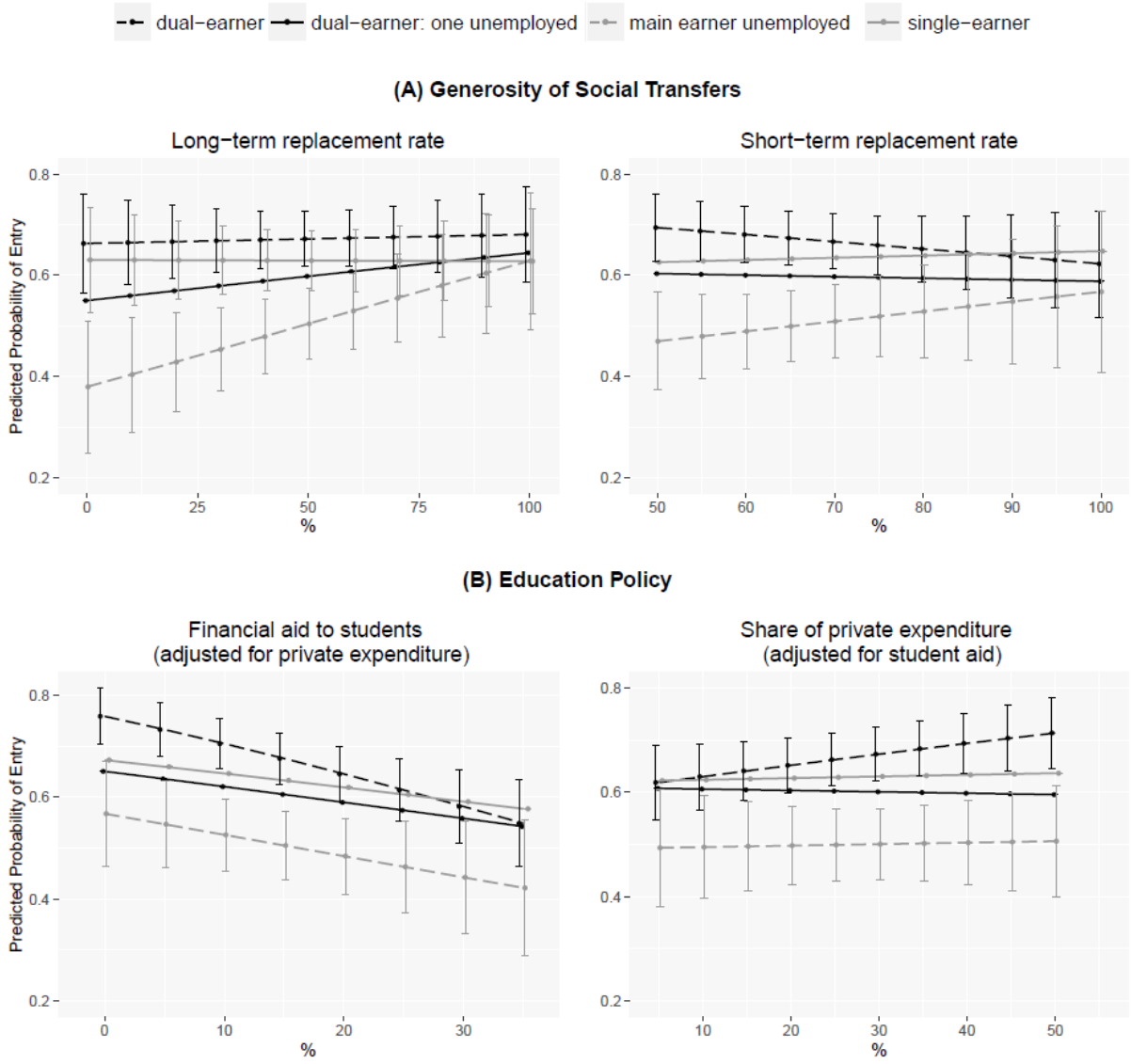


Figure 2. The Effect of Parental Unemployment on Entry to Postsecondary Education.



Notes: Average marginal effects (AME) predicted based on multilevel logistic regression models (full models are presented in Table A3). Baseline model (1) controls for gender and military service, next model (2) adds parental education and model (3) further adds the number of children and household income. The reference category is dual-earner households presented by the line crossing the horizontal axes at 0.

Figure 3. Interacting Effects of Household Type and Institutional Context on Entry to Post-secondary Education.



Note: Predicted probabilities from multilevel logistic regression models (see also Table 2) with 90% confidence intervals. Models control for 1) individual level: household type, gender, military service, parental education, number of children in the household, household income; 2) macro level: main effects of interacted macro-level variables, youth unemployment rate, supply of study places, vocational orientation, age of selection and its interaction with household type. Sample includes 13541 school-leavers, 179 country-years and 21 countries. For readability, some categories miss confidence intervals if most of the measurement points their confidence intervals did not differ from reference category.

APPENDIX

Table A1. Overview of Surveys Used in Analyses.

Survey	**Organizer**	**Data used in analyses**	**Collection of data**	**N of school-leavers in harmonized dataset prepared for this study**
European Union Statistics on Income and Living Conditions (EU-SILC)	Coordinated by Eurostat, surveys are conducted by national statistical institutes in every EU member state	Longitudinal files 2007-2014	Data is collected annually over a four-year period for each household, panels rotate and a new panel starts every year; data is mostly from interviews but some countries also use register data	10,571
Survey of Income and Program Participation (SIPP)	United States Census Bureau	Panels starting 2004 and 2008	Interviews were conducted at 4 month intervals over a four-year panel period	1367
British Household Panel Survey (BHPS) and its successor, Understanding Society: The UK Household Longitudinal Study (UKHLS)	Institute for Social and Economic Research (ISER) at the University of Essex	BHPS waves from 2003-2008 UKHLS waves from 2009-2013	Annual interviews; original sample from 1991 + samples/households entering at later time points (we excluded Scotland and UKHLS ethnic boost sample)	844
German Socio-Economic Panel (SOEP)	German Institute for Economic Research (DIW)	Waves from 2002-2013	Annual interviews; original sample from 1984 + samples/households entering at later time points	759

Table A2. Distribution of Individual Level Variables by Household Type.

	Dual-earner	Single-earner	Dual-earner unemployed	Main earner unemployed
Entry to postsecondary (%)	68.3	61.6	60.8	46.6
Male (%)	50.3	49.6	50.8	51.6
Military (%)	2.6	1.8	1.4	0.9
Parental education (%)				
Lower secondary or less	5.3	15.2	12.7	29.5
Upper secondary	44.7	46.4	55.9	52.6
Postsecondary non-tertiary	8.3	9.4	7.9	7.3
Tertiary	41.8	28.9	23.5	10.5
Number of children aged<16 in the household (%)				
0	56.3	56.3	58.0	52.1
1	30.6	26.8	30.6	29.5
2	9.8	10.8	9.1	12.2
3 or more	3.2	5.9	2.3	6.2
Income (mean, logged measure)	9.49	9.25	8.99	8.51
SD	(0.70)	(0.86)	(0.72)	(1.02)
N	8833	2716	1460	532

Table A3. Multilevel Logistic Regression Models of Entry to Postsecondary Education.

	M1: Baseline		M2: + Parental education		M3: + Income and household composition		M4: + random slopes	
Household type (ref. dual-earner)								
Single-earner	.71***	(.03)	.80***	(.04)	.82***	(.04)	.82***	(.04)
Dual-earner: one unemployed	.60***	(.04)	.69***	(.04)	.71***	(.05)	.71***	(.05)
Main earner unemployed	.32***	(.03)	.45***	(.04)	.48***	(.05)	.47***	(.07)
Parental education (ref. lower secondary)								
Upper secondary			1.81***	(.14)	1.78***	(.14)	1.77***	(.14)
Postsecondary non-tertiary			2.43***	(.24)	2.38***	(.24)	2.36***	(.24)
Tertiary education			4.98***	(.41)	4.77***	(.41)	4.74***	(.40)
Number of children (<16)					.99	(.02)	.99	(.02)
Household income (log)					1.09**	(.04)	1.09**	(.04)
Country level variance								
Intercept	.50	(.16)	.64	(.20)	.65	(.21)	.65	(.21)
Slopes								
main earner unemployed							.18	(.14)
dual-earner: one unemployed							.00	(.00)
Country-year level variance								
Intercept	.05	(.01)	.06	(.02)	.05	(.02)	.05	(.02)
Slopes								
main earner unemployed							.06	(.12)
dual-earner: one unemployed							.01	(.03)
N individuals	13,541		13,541		13,541		13,541	
N country-years	179		179		179		179	
N countries	21		21		21		21	

Note: Odds ratios from multilevel logistic regression models. Standard errors are in parenthesis. Models control for gender and military service. Sample includes 13541 school-leavers, 179 country-years and 21 countries. Country-year level variance is estimated with unstructured covariance matrix (covariance estimates are not presented).

Statistical significance levels at + p<0.1, * p<0.05, ** p<0.01, *** p<0.001 based on two-tailed tests.

Table A4. Models Including Single Parents and Two-Parent Families: Interacting Effects of Parental Unemployment and Institutional Context on the Entry to Postsecondary Education.

	Model 1	Model 2	Model 3	Model 4
Household type **x** long-term earnings replacement (ref. dual-earner)				
Single-earner **x** long-term	1.001			.998
	(.002)			(.002)
Dual-earner: one unemployed **x** long-term	1.004			1.001
	(.003)			(.003)
Main earner unemployed **x** long-term	1.015**			1.012*
	(.006)			(.006)
Household type **x** short-term earnings replacement (ref. dual-earner)				
Single-earner **x** short-term		1.009*		
		(.005)		
Dual-earner: one unemployed **x** short-term		1.006		
		(.006)		
Main earner unemployed **x** short-term		1.029*		
		(.010)		
Household type **x** financial aid (ref. dual-earner)				
Single-earner **x** financial aid			1.017**	1.018***
			(.005)	(.005)
Dual-earner: one unemployed **x** financial aid			1.014+	1.015+
			(.008)	(.008)
Main earner unemployed **x** financial aid			1.033*	1.030*
			(.016)	(.01)
Household type **x** private expenditure (ref. dual-earner)				
Single-earner **x** private expenditure			.987***	.986***
			(.003)	(.003)
Dual-earner: one unemployed **x** private expenditure			.988*	.989*
			(.005)	(.005)
Main earner unemployed **x** private expenditure			.985	.985
			(.010)	(.009)
Country level variance				
Slope: main earner unemployed	.13	.20	.19	.09
	(.10)	(.13)	(.13)	(.09)
Intercept	.52	.50	.45	.46
	(.18)	(.17)	(.15)	(.16)
Country-year level variance				
Slope: main earner unemployed	.06	.04	.05	.06
	(.09)	(.08)	(.08)	(.09)
Intercept	.04	.04	.04	.04
	(.01)	(.01)	(.01)	(.01)
Covariance	.03	.03	.04	.03
	(.03)	(.03)	(.03)	(.03)

Note: Models include single-parent families that can belong in the household type categories "single-earner" or "main earner unemployed". Odds ratios from multilevel logistic regression models. Standard errors are in parenthesis. Models control for 1) individual level: household type, gender, military service, parental education, number of children in the household, household income; 2) macro level: main effects of interacted macro-level variables, youth unemployment rate, supply of study places, vocational orientation, age of selection and its interaction with household type. Sample includes 16300 school-leavers, 182 country-years and 21 countries.

Statistical significance levels at + p<0.1, * p<0.05, ** p<0.01, *** p<0.001 based on two-tailed tests.

Table A5. Interacting Effects of Household Type and Institutional Context, Excluding Household Income.

	Model 1	Model 2	Model 3	Model 4
Household type **x** long-term earnings replacement (ref. dual-earner)				
Single-earner **x** long-term	.999			.997
	(.002)			(.002)
Dual-earner: one unemployed **x** long-term	1.003			1.001
	(.003)			(.003)
Main earner unemployed **x** long-term	1.011*			1.009+
	(.005)			(.005)
Household type **x** short-term earnings replacement (ref. dual-earner)				
Single-earner **x** short-term		1.009*		
		(.005)		
Dual-earner: one unemployed **x** short-term		1.005		
		(.006)		
Main earner unemployed **x** short-term		1.016+		
		(.010)		
Household type **x** financial aid (ref. dual-earner)				
Single-earner **x** financial aid			1.017**	1.018**
			(.006)	(.006)
Dual-earner: one unemployed **x** financial aid			1.015+	1.015+
			(.008)	(.008)
Main earner unemployed **x** financial aid			1.011	1.010
			(.013)	(.013)
Household type **x** private expenditure (ref. dual-earner)				
Single-earner **x** private expenditure			.991*	.990*
			(.004)	(.004)
Dual-earner: one unemployed **x** private expenditure			.988*	.989*
			(.005)	(.005)
Main earner unemployed **x** private expenditure			.990	.992
			(.009)	(.009)
Country level variance				
Slope: main earner unemployed	0	0	0	0
	(0)	(0)	(0)	(0)
Intercept	.51	.49	.4	.47
	(.18)	(.17)	(.18)	(.16)
Country-year level variance				
Slope: main earner unemployed	.04	.05	.04	.04
	(.06)	(.11)	(.07)	(.07)
Intercept	.04	.04	.03	.03
	(.01)	(.01)	(.01)	(.01)
Covariance	.04	.04	.04	.03
	(.03)	(.03)	(.03)	(.03)

Note: Odds ratios from multilevel logistic regression models. Standard errors are in parenthesis. Models control for 1) individual level: household type, gender, military service, parental education, number of children in the household; 2) macro level: main effects of interacted macro-level variables, youth unemployment rate, supply of study places, vocational orientation, age of selection and its interaction with household type. Sample includes 13541 school-leavers, 179 country-years and 21 countries.

Statistical significance levels at + p<0.1, * p<0.05, ** p<0.01, *** p<0.001 based on two-tailed tests.