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Parental Educational Homogamy and Children's Tertiary Education in Europe*

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Abstract: In this paper, we examine (1) whether parental educational homogamy is associated with children's tertiary educational attainment in different European countries and (2) whether this association is moderated by families' educational backgrounds. Using data from the European Social Survey and multilevel logistic regression models, we find that parental homogamy is important for children's tertiary educational attainment. In particular, children of more highly educated homogamous parents are more likely to obtain a tertiary degree themselves. This parental homogamy association varies across countries. While the association is below the European average in Czechia, Austria, Hungary, Italy, Switzerland, and Germany, it is equal or close to average in Slovenia, Estonia, France, Poland, Ireland, Sweden, and Lithuania, and above average in Spain, Finland, the Netherlands, Portugal, the United Kingdom, Norway, and Belgium. Our findings suggest that parental educational constellations should be examined more closely in further education inequality research.

Keywords: Parental homogamy · Intergenerational transmission · Educational inequality · European Social Survey · Family background

1 Introduction

In the course of educational expansion, all European societies have experienced a dramatic increase in educational attainment in recent decades (*Blossfeld et al.* 2016; *Breen et al.* 2009; *Shavit/Blossfeld* 1993). Women in particular have benefited from this development. They have been able to catch up with men in terms of educational attainment and have even overtaken them in recent years, leading to a gender gap reversal (*Blossfeld* 2023; *De Hauw et al.* 2017; *DiPrete/Buchmann* 2013; *Van Bavel*

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et al. 2018). As a result of this structural change, educational homogamy among couples, and thus among parents – i.e., partners having the same level of educational attainment – has increased across cohorts in many European countries (*Blossfeld/Timm* 2003; *Hu/Qian* 2023; *Uunk* 2024).[1] However, we still know little about the consequences of parental homogamy for children's educational inequalities. Only a few retrospective[2] country studies have examined the association between parental homogamy and children's school readiness, academic achievement and educational attainment, studying South Korea (*Byun et al.* 2020), the United States (*Beck/González-Sancho* 2009; *Edwards/Roff* 2016), and European countries such as Denmark (*Bingley et al.* 2022) and the United Kingdom (*Gonzalez-Sancho* 2014). Furthermore, only very little research has examined the association between parental hypogamy (the mother has a higher education than the father) and children's educational expectations and attainment in cross-country comparisons (*Ortiz-Gervasi* 2021). In particular, to our knowledge, there is no international comparative study that examines the moderating effect of parental education on the association between parental educational homogamy and children's educational attainment. This article aims to fill this gap in the literature.

We use data from the 2016 and 2018 rounds of the European Social Survey (ESS) from 20 European Union (EU) countries. We analyse tertiary educational attainment because this education level is fully comparable across countries and more than half of the current inequality of educational opportunities is generated at the transition to it (*Katrňák/Hubatková* 2022). Accordingly, our study focuses on two questions: (1) Is parental homogamy associated with a higher likelihood of children's tertiary educational attainment in different European countries? (2) Is this association moderated by a family's educational background? We focus on parental *educational* homogamy because (1) it has been empirically shown to be the most important family resource for children's educational attainment (*Bukodi/Goldthorpe* 2013; *Meraviglia/Buis* 2015: 57), (2) both mother and father have an educational degree, but not necessarily a job, and (3) parental educational attainment is in most cases stable over the life course, while this is less often the case for occupation (*Marks* 2008).

This article is structured as follows. The first section briefly reviews the theories that attempt to explain why parental homogamy is relevant for children's educational opportunities. We also provide a short introduction to the context of the 20 European countries we analyse. We then relate our study to the discussion on the operationalisation of family background. Next, we present our data, methods,

1 Note that parents that do not reflect a certain population at a specific point in time.

2 A retrospective study examines the direct intergenerational transmission of educational inequality, starting from a sample of children and then collecting information about their parents. The prospective approach, on the other hand, also examines the demographic processes (such as mating and fertility) of the intergenerational reproduction of education inequality. It is usually based on a representative sample of individuals who are then asked about their children. This takes into account, for example, the fact that not all individuals in a cohort become parents. A prospective comparative study is presented by *Wittemann* and *Yastrebov* (2024) in this special issue.

and empirical results. Our findings show that parental educational homogamy increases the probability of obtaining a tertiary degree and that there is cross-national variability. Moreover, we find that parental homogamy is particularly relevant for children from more highly educated parents. These results suggest that parental educational constellations should be studied in further research on the intergenerational transmission of education inequality.

2 Theories and hypotheses

To understand how parental educational similarity and children's tertiary educational attainment are linked and why parental education might act as a moderator, we consider different theories for (1) the association between parental homogamy and children's educational attainment and (2) the interaction between parental education and parental homogamy on children's educational attainment.

Pooling of resources

In the *pooling of resources theory,* all resources are pooled and shared within the family. There are different views on whether it matters (*Buis* 2013) if both the mother and father contribute to these shared resources (*Lundberg et al.* 1997). Rising educational similarity of parents across cohorts implies that highly educated families are increasingly pooling their good educational resources and lower educated parents are increasingly pooling their low educational resources, which is likely to lead to greater educational inequality in the next generation (*Blossfeld/Buchholz* 2009; *Mare* 2016). *Resource multiplication theory* suggests that the accumulation of educational resources in households largely perpetuates the educational opportunities of children from highly educated homogamous households (*Becker et al.* 2018; *Blossfeld/Buchholz* 2009; *Erola/Kilpi-Jakonen* 2017). Thus, parental education moderates the relationship between parental educational homogamy and children's educational outcomes.

Highly educated parents are well-informed about the tertiary education system and can guide their children through it (*Bukodi/Goldthorpe* 2013; *Pfeffer* 2008). They are more likely to teach their children to use "refined" language and to expose them to "high culture" (e.g., by visiting museums and libraries or listening to classical music). These traits are in line with the middle-class standards informally required by academic institutions (*Bourdieu/Passeron* 1990; *Lareau* 1989; *Sullivan* 2002). Highly educated parents can also help their children if they have problems with studying (*Pfeffer* 2008) and can complement each other's expertise if they are knowledgeable in different subject areas.

Agreeance in parenting styles

In the literature, a potential mediating mechanism for the association between parental homogamy and children's educational outcomes is the similarity in parenting

preferences. This is reflected by an agreement in parenting styles and low gender specialisation in child rearing among similarly educated parents (*Beck/González-Sancho* 2009; *Gonzalez-Sancho* 2014). Examples of parenting agreement include beliefs about child-rearing practices and the role of parents in child development, concordance in the quality of parent-child interactions, approaches to discipline, the intellectual stimulation of children, the promotion of play and learning, and participation in parent-teacher meetings (*Bonke/Esping-Andersen* 2011; *El Nokali et al.* 2010; *Gniewosz et al.* 2023; *Gonzalez-Sancho* 2014).

Research shows that parenting styles affect children's educational outcomes (*Kiernan/Mensah* 2011; *Wang et al.* 2014). It can be assumed that individuals who enter into a partnership and have children together have previously gone through a selection process that avoids potential partners who differ greatly in their views on childrearing. While this selection process will not be perfect, homogamy nonetheless should lead to greater agreement in parenting styles among couples (*Beck/González-Sancho* 2009; *Gonzalez-Sancho* 2014).

However, other arguments point to the role of education as a moderator. *Bonke* and *Esping-Andersen* (2011) and *Byun et al.* (2020) suggest that highly educated homogamous parents in particular prioritise their children's education. These highly educated parental couples are in daily contact with each other, learn from each other, share information, influence each other on how to be better parents, and discuss their children's problems and successes. Such parents are also more likely to share the amount and quality of parenting time with their children in a more gender-equal way, leading to greater family harmony and a more conducive learning environment for their children (*Keizer et al.* 2020). Conversely, homogamous parents with low levels of education are more likely to have a more traditional division of childcare between the sexes, leading to less family harmony (*Bonke/Esping-Andersen* 2011; *Keizer et al.* 2020). Their parenting may also be of lower quality because they have less experience of learning from each other than couples who share childcare more equally. This should in turn lead to a less positive learning environment for their children.

Divorce

Homogamous couples also have a lower probability of union dissolution and divorce (*Goldstein/Harknett* 2006; *Mäenpää/Jalovaara* 2014). They have a higher status equality in their relationship and experience higher rewards in their interactions with their partner (*Boertien/Härkönen* 2018; *Theunis et al.* 2018). They are also seen as more equal in their beliefs, attitudes, opinions, and preferences (*Theunis et al.* 2018). Finally, family and friends are more likely to endorse homogamy in parents' education because they prefer members of their own social group (*Mäenpää/Jalovaara* 2014).

Thus, children who grow up in homogamous families are more likely to live in intact families than children from heterogamous families. Dysfunctional families represent a less stable environment, often implying greater stress for children. Researchers have shown that this has a negative impact on children's educational

outcomes (*Bernardi/Boertien* 2016; *Gähler/Palmtag* 2015; *Grätz* 2015; *Härkönen et al.* 2017). Family dissolution and the corresponding changes in children's living arrangements negatively affect their educational outcomes (*Perkins* 2019). Therefore, the association between parental homogamy and children's tertiary educational attainment may in fact be partly caused by the lower probability of divorce among homogamous couples.

However, empirical evidence shows that homogamy leads to lower union dissolution and divorce rates only among highly educated homogamous parents (*Theunis et al.* 2018). Thus, parental education also acts as a moderator in this case. From the perspective of the highly educated, homogamy is seen as particularly attractive because it facilitates maintaining a societally privileged position (*Mäenpää/Jalovaara* 2014; *Theunis et al.* 2018). It is also argued that highly educated homogamous couples are more gender egalitarian and have better interpersonal skills, leading to a more equal distribution of household tasks and higher marital satisfaction (*Boertien/Härkönen* 2018). Some research also indicates that parental separation does not have a negative impact on children's educational opportunities for highly educated (homogamous) parents (*Boertien/Härkönen* 2018). This implies that highly educated parents are more likely to be able to compensate for this negative life event with their advantageous resources (*Grätz* 2015).

From the perspective of the less educated, homogamy means that both partners have similarly disadvantageous characteristics, which is not particularly conducive to a relationship (*Tynes* 1990). For example, two parents with lower levels of education are likely to face greater economic constraints, resulting in more stress, less satisfaction, and a higher risk of divorce. They may also be less able to manage and resolve marital disputes (*Conger et al.* 2010). Thus, parental homogamy should only have a positive effect on the educational attainment of children of highly educated parents.

We derive the following two competing hypotheses from our theoretical considerations:

> *Hypothesis 1: Children of educationally homogamous parents will have higher educational attainment than children with heterogamous parents.*
>
> *Hypothesis 2: Only children of highly educated homogamous parents will benefit from parental homogamy.*

Our cross-national ESS dataset limits our ability to disentangle the various mechanisms of the theoretical considerations presented above. Moreover, the ESS dataset does not allow us to investigate whether the differences in educational attainment between children of educationally homogamous and heterogamous parents are true causal effects or the result of selection processes into homogamous couples. If the parental mating process were truly random and unaffected by other social factors, then parental homogamy would be exogenous and causal inference would be possible. However, parental homogamy is very likely endogenous and mate choice is influenced by other social factors that explain differences in

children's educational opportunities (*Gonzalez-Sancho* 2014). For example, we could hypothesise a reverse causal relationship in which parents who choose an educationally homogeneous partner are generally less likely to divorce, and that the lower likelihood of divorce is not necessarily a consequence of educational homogamy and greater harmony in the relationship, but rather a selection effect. Therefore, more detailed information and longitudinal data would be more suitable. However, for our research interest, it is more relevant to establish this phenomenon and to test our two hypotheses in a variety of European countries than to investigate the underlying mechanisms or causal direction.

3 The European context

We analyse 20 European countries that differ in their welfare and education systems, as well as in their educational expansion patterns. We expect these institutional and macro-structural contexts to be important for understanding the cross-country differences in the relationship between parental homogamy and children's tertiary educational attainment. We provide only a very rough overview of these contexts here, as some have changed considerably over time and we cannot go into detail on all these changes (e. g. *Van de Werfhorst* 2019; *Esping-Andersen* 1999).

In our analysis, the *Western Continental European* group of countries includes Germany (DE), Austria (AT), Switzerland (CH), the Netherlands (NL), France (FR), and Belgium (BE). These countries are characterised by the retention of strong traditional and hierarchical social structures and social security remains organised around the traditional male breadwinner model (*Esping-Andersen* 1990). We therefore expect that educational hypergamy (the father has a higher education than the mother) and homogamy are still the dominant patterns among parents compared to educational hypogamy (the mother has a higher education than the father). In the German-speaking countries (Austria, Germany, and Switzerland) and the Netherlands, the emphasis on social stratification is also strongly reflected in the early tracking into different school types and a strong vocational training system that discourages working class children from pursuing academic careers (*Buchholz et al.* 2016; *Buchmann et al.* 2016; *Dronkers/Korthals* 2016; *Van de Werfhorst* 2019). Therefore, we would expect a strong association between the similarity in parental resources and children's tertiary educational attainment. Conversely, France and Belgium moved to comprehensive school systems in the 1960s and 1980s, respectively (*Farges et al.* 2016; *Van de Werfhorst* 2019). We therefore expect lower associations in these countries.

Our analysis also covers *Eastern European* countries such as Poland (PL), Czechia (CZ), Hungary (HU), Estonia (EE), Lithuania (LT), and Slovenia (SI). These countries have undergone a remarkable transformation from socialist to capitalist systems. The socialist system was characterised by an early educational expansion, as education was seen as a means to increase social and gender equality (*Esping-Andersen* 1999). Thus, we expect parental homogamy, and perhaps even parental hypogamy, to be particularly high among parents in these countries. The comprehensive school system was very common during the socialist period (*Van de Werfhorst* 2019). After the fall

of the Iron Curtain, inequality and competition increased (*Cook* 2010), and school tracking was introduced in Czechia and Hungary (*Horn et al.* 2016; *Van de Werfhorst* 2019). These two countries (and Slovenia) also had early tracking before the Cold War (*Van de Werfhorst* 2019). Social protection is still relatively high in Czechia and Slovenia and intermediate in Poland and Hungary (*Cook* 2010). We therefore expect the association between parental educational homogamy and children's tertiary education to be less pronounced in these countries. Estonia and Lithuania have become particularly liberal and market-oriented (*Cook* 2010). Therefore, we expect the association between parental homogamy and children's tertiary education to be particularly high in the two Baltic countries in our analysis.

The *Mediterranean* countries of Spain (ES), Portugal (PT), and Italy (IT) experienced transitions from authoritarian dictatorships to democracies in the 20th century (*Teixeira et al.* 2003; *Ballarino et al.* 2009). Italy was the first, followed by Portugal and Spain. All three had a strong emphasis on the traditional male breadwinner model, but have emancipated themselves (*Ferrera* 2010). They were also latecomers to the educational expansion process, with a strong catching-up process in educational attainment in recent decades (*Cobalti/Schizzerotto* 1993; *Teixeira et al.* 2003). It is therefore to be expected that the percentages of educational hypergamy and homogamy are relatively high in these countries and that parental educational hypogamy is still very low. Mediterranean countries are also characterised by a relatively late establishment of the welfare state (*Ferrera* 2010). These countries have moved from early- to late-tracking school systems across cohorts (*Ballarino et al.* 2009; *Van de Werfhorst* 2019). Consequently, we expect weak associations between parental educational similarity and children's tertiary attainment.

Scandinavian countries such as Sweden (SE), Norway (NO), and Finland (FI) are characterised by strong social-democratic welfare regimes (*Esping-Andersen* 1990), placing great emphasis on social and gender equality. In addition, these countries provide extensive childcare and many highly educated women work in the service sector. We therefore expect the proportion of educationally homogamous and hypogamous couples among parents to be relatively high in the Nordic countries. The strong focus on equality, such as the equality of living conditions in these countries (ensured, e.g., by high taxation and redistribution) is also reflected in comprehensive schooling systems that do not stratify children into different school tracks (*Esping-Andersen* 1990; *Van de Werfhorst* 2019). Scandinavian countries are known for their low social origin effects on children's educational attainment (*Erikson/Jonsson* 1996). However, in recent years, these countries, especially Sweden, have also experienced a rise in inequality and welfare cuts, which could make the pooling of resources for children's educational attainment more consequential (*Esping-Andersen* 1999). However, since this is a relatively recent phenomenon, we still expect low associations between parental educational homogamy and children's tertiary attainment for these countries.

Finally, our analysis also includes two *Anglo-Saxon* countries; Ireland (IE) and the United Kingdom (UK). These two countries are generally characterised by liberal welfare regimes, i.e., they are very market-oriented, with low social redistribution and high social inequality (*Esping-Andersen* 1990). There is a strong focus on equality

of opportunity by social origin and gender (*Esping-Andersen* 1990). As a result, these countries were forerunners in the educational expansion process. However, the UK also had a stronger emphasis on the traditional breadwinner model (*Orloff* 2010). We therefore expect relatively high proportions of educationally homogamous and hypogamous parents in Ireland and educationally homogamous and equal shares for hyper- and hypogamous parents in the UK. The UK introduced a comprehensive school system in the 1960s (*Van de Werfhorst* 2019). However, due to these countries' liberal market systems, there are strong inequalities in living conditions between children from different family backgrounds, and not all can take advantage of these equal opportunities to the same extent. The Irish education system is characterised by a stable early tracking system across cohorts (*Van de Werfhorst* 2019). Thus, in both education systems, we expect strong associations between parental educational similarity and children's tertiary attainment.

4 Parental homogamy and the operationalisation of family background

In the literature on the intergenerational transmission of social inequality, family background has been captured through various approaches. It is assumed that families pool their resources and share the same living conditions, which affects their children's opportunities in life (*Sørensen* 1994: 32-33). In this section, we provide an overview of different approaches to measuring family background and how parental educational hypergamy, homogamy, and hypogamy can be integrated into analysis. We then outline and justify the approach we choose for our analysis.

In early research, both economists and class theorists only used data on fathers to analyse children's educational inequality (*Holmlund et al.* 2011; *Goldthorpe* 1983). One reason for this was that no data on maternal resources were available (*Goldthorpe* 1983; *Sørensen* 1994). This literature also argued that the father's position reflected the mother's position in the case of parental homogamy (*Goldthorpe* 1983: 470; *Björklund/Jäntti* 2009: 4). Furthermore, in traditionally male-dominated societies, the mother's position was still seen as strongly dependent on the father's position (*Goldthorpe* 1983; *Sørensen* 1994). The following describes how maternal resources and parental similarity are considered in operationalising the concept of "family background."

Joint classifications and parental homogamy

To take into account the educational resources of both the father and the mother, educational levels of both parents were included in additive models (*Sørensen* 1994). However, including both parental resources into regression models as separate variables represents an individualistic rather than a family approach (*Sørensen* 1994). In addition, separate parental resources cover the independent contributions of each parent, but not their similarity (*Holmlund et al.* 2011). To reduce collinearity and to introduce a single measure of the family's position, the sum or average of

parental resources were added into later analyses (*Erikson* 1984; *Holmlund et al.* 2011). These approaches also control for the case of assortative mating (*Holmlund et al.* 2011; *Bingley et al.* 2022). Researchers therefore often include an interaction term to account for the case that the effect of one parent's resources is influenced by the other parent's resources, leading to an effect beyond the individual parents' effects (*Becker* 1973; *Eeckhaut et al.* 2013). However, for our research interest in the similarity of parental resources and its association with children's acquisition of a tertiary degree and whether it only plays a role when parents have high educational resources, we do not need to distinguish between the similarity of parental resources and the reinforcing effects of parental resources. Furthermore, including both parental resources separately in a model with an interaction term can also exacerbate collinearity problems.

Moreover, latent variable approaches have been used to operationalise family background as a pooling of resources, taking into account different parental characteristics and allowing to specify the relative importance of paternal and maternal resources (*Meraviglia/Buis* 2015). As far as we know, however, this approach does not allow us to assess in which cases educational similarity matters. Does it only matter at the lower or higher rungs of the educational ladder, or is resource pooling always beneficial?

Head of household measures and parental homogamy

In class analysis, only the head of the household determines the class position of the family and therefore assumed to be the main influence on the life chances, lifestyles, attitudes, and interests of family members (*Sørensen* 1994). The class concept also implies that when parents have different positions in the employment system, the family nonetheless has a single class position in the stratification system that determines the position of power and advantage in society (*Goldthorpe* 1983, 1984; *Erikson* 1984). It is assumed that there are no differences in class positions between members of the same family. If this were the case, there would be class conflicts within families (*Goldthorpe* 1983). In conventional class system scholarship, the father determines the family class position (*Goldthorpe* 1983). However, as the education and labour market attachment of women increased and researchers realised that the father is not necessarily the head of all households, the dominance approach was developed to integrate maternal resources into the family concept (*Beller* 2009; *Sørensen* 1994). In this operationalisation, the family's position in society is determined by the "dominant" position of both parents (*Erikson* 1984). This operationalisation accounts for cases in which the mother has a higher position than the father does. Although these approaches were originally developed for parental social class to determine families' market situations, they have also been applied to parental education to define family background (*Thaning/Hällsten* 2020; *Sørensen* 1994: 33). However, research in the dominance approach tradition still often neglects the mother's educational resources, as the highest education is often that of the father (*Blossfeld* 2018; *Sørensen* 1994; *Thaning/Hällsten* 2020). This is problematic in contemporary societies, as mothers generally play an important role in children's

educational attainment, as they tend to spend more time with children and interact more actively with them (*Ballarino et al.* 2021; *Buis* 2013: 3-4; *González-Sancho* 2012).

Proponents of the conventional and dominance approaches argue that the resources of the other parent are important for intergenerational transmission and can be accounted for through complementary measures of household composition (*Erikson* 1984: 508-509; *Goldthorpe* 1984: 498). We follow their suggestions and add information on household composition in terms of parental educational hypergamy, homogamy, and hypogamy to the analysis. In combination with the dominance approach, this measure can be used to examine whether it makes a difference whether the mother or father is more highly educated and is considered the head of the family (hypogamy and hypergamy) or whether both parents have the same level of education (homogamy). The interaction of the two operationalisations also allows to directly test whether homogamy and heterogamy are only relevant for high or low levels of education.

5 Data, variables, and method

We use ESS data from the 2016 and 2018 rounds. The ESS is a biennial, cross-sectional, and cross-national survey, which is particularly suitable for our purposes as it provides fully harmonised and comparable data on respondents' education and family background.[3] The country samples are representative of all individuals aged 15 and over. We restrict our analysis to individuals between the ages of 25 and 69 at the time of data collection. The lower age limit of 25 ensures respondents' highest level of education and the upper age limit enables reliable cross-country comparisons. This results in a sample of 54,379 respondents across both survey rounds and 20 European countries. Sample sizes per country are reported in Table A2 in the Appendix.

Table 1 presents descriptive statistics of all analysed variables for 20 countries. Our dependent variable is the *respondent's tertiary educational attainment*. Country experts classified the different educational attainment levels covered in the ESS based on the International Standard Classification of Education (ISCED) 2011. We use four hierarchical educational categories: primary, lower secondary, upper secondary, and tertiary education.[4] We created a dummy variable with 0 indicating individuals

[3] For 2016, we use "ESS8 – integrated file, edition 2.2"; for 2018, we use "ESS9 – integrated file, edition 3.1." We use data from two years to ensure enough cases for analysis. Before merging these two rounds, we tested the differences in respondents' educational attainment categories (our dependent variable) over these two years. Using likelihood-ratio chi-square tests, the differences in frequencies of tertiary education and non-tertiary education are not statistically significant at the 5 percent level in all but two countries (the Netherlands and Sweden, cf. Table A1 in the Appendix).

[4] The ISCED 2011 is the International Standard Classification of Education, using three-digit codes. The first digit distinguishes the vertical levels of education, the second digit distinguishes the horizontal differences within the educational levels and the third digit identifies the degree that relates to the next possibilities to study. The ISCED 2011 codes of the ESS are not exact equivalents of the international ISCED 2011 codes (cf. *Schneider* 2010). We recoded the three-digit ESS codes into four levels as follows: (0/129 = 1) (212/229 311 321 421 = 2) (312 313 322 323 412 413 422 423 510 520 = 3) (610/800 = 4).

Tab. 1: Descriptive statistics

Variable	Mean	Std. Dev.	Min.	Max.	Categories	Proportions
Individual variables (level-1)						
Tertiary education attainment	-	-	0	1	0) no; 1) yes	0) 70.2%; 1) 29.8%
Educational origin (ISLED std.)	0.00	1.00	-1.23	2.44	highest parental ISLED standardised	
Parental educational pairing	-	-	0	2	0) homogamy (the same education); 1) hypogamy (father's education lower); 2) hypergamy (mother's education lower)	0) 66.1%; 1) 14.2%; 2) 19.7%
Gender	-	-	0	1	0) male; 1) female	0) 47.7%; 1) 52.3%
Birth cohorts	-	-	0	2	0) 1949-1963; 1) 1964-1978; 2) 1979-1993	0) 36.0%; 1) 34.8%; 2) 29.2%
Occupational origin	-	-	0	2	0) routine and semi-routine manual and service occupations; 1) technical, craft occupations and farmers; 2) professionals, clerical and intermediate occupations, managers and administrators	0) 35.1%; 1) 53.9%; 2) 11.0%
Contextual level						
Country (level-2)	-	-	1	20		

Source: ESS8 (2016) – integrated file (DOI: https://doi.org/10.21338/ess8e02_2), edition 2.2 and ESS9 (2018) – integrated file, edition 3.1 (DOI: https://doi.org/10.21338/ess9e03_1)

who did not attain tertiary education and 1 for those who did. In the 20 ESS countries analysed, on average, about 70 percent of respondents aged 25-69 did not attain tertiary education and 30 percent did. Proportions for all 20 analysed countries are presented in Table A3 in the Appendix.

The two main independent variables at the individual level are *parental education* and *parental educational pairing*. For *parental education*, we first transformed the paternal and maternal ISCED 2011 measures into continuous International Standard Level of Education (ISLED) variables (*Schröder/Ganzeboom* 2009, 2014). The ISLED measure optimises the role of education in the status attainment process and, as a continuous variable, is more appropriate for our statistical analysis than a categorical variable. We then applied the dominance principle, according to which the highest parental ISLED defines the respondent's educational origin (*Erikson* 1984). Average ISLEDs in ESS data for the 20 analysed countries are presented in Table A4 in the Appendix. In the analysis, we use a standardised ISLED measure of educational origin (z-scores: mean = 0, SD = 1).

For *parental educational pairing*, we examine the pairwise combinations of education based on the parents' educational levels. To construct the parental pairing variable, we used the highest educational level of the father and mother based on ISCED 2011 and distinguished four hierarchical categories: (1) primary, (2) lower secondary, (3) upper secondary, and (4) tertiary education.[5] Since we determine educational origin through the highest parental level of education, we are able to create a pairing variable by combining these four categories for both parents, which has these three categories: (0) homogamy (both parents have the same level); (1) hypogamy (the father has a lower level of education than the mother); and (2) hypergamy (the mother has a lower level of education than the father) (*Van Bavel et al*. 2018).

Our control variables are *gender*, *birth cohort*, and *parental occupational class (social origin)*. *Gender* is a dummy variable with two categories (0 for men and 1 for women; see Table A5 in the Appendix). The *birth cohort* is constructed by subtracting the respondent's age from 2018 (the second year of data collection). We define three birth cohorts: (0) 1949-1963, (1) 1964-1978, and (2) 1979-1993 (see Table A6 in the Appendix).[6] To construct the *parental social class*, we used two variables from the ESS dataset that capture the father and mother's occupation when the respondent was 14 years old. On the basis of these occupational measures, we distinguish three basic types of occupations in the European labour market for mothers and fathers: (0) routine and semi-routine manual and service occupations; (1) technical, craft occupations, and farmers; and (2) professionals, clerical, intermediate occupations, managers, and administrators. We report the respondent's occupational origin

5 We created these categories as described above (cf. footnote 3).

6 The three created cohorts only partially follow the established and largely-used cohorts – Baby Boomers (1945-1959), Generation X (1960-1980), and Generation Y (1981-2000). They were designed to match the age range of our dataset (25-69) and an even distribution into three groups. Furthermore, we did not intend to analyse cohort changes in tertiary educational attainment in this paper.

according to the higher of these two values (one for the mother and the other for the father; see Table A7 in the Appendix).

The data have a hierarchical structure. Individuals (level-1) are clustered in countries (level-2). We therefore use multilevel models to estimate the associations between the independent variables and the dependent variable. As our dependent variable is binary (tertiary education attainment or not), we use two-level random logistic regression models (*Gelman/Hill* 2006; *Rabe-Hesketh/Skrondal* 2012). The model has the following form:

$$\text{logit}[P(Y_{ij} = 1)] = \beta_0 + \beta_1 x_{1ij} + \ldots + \beta_8 x_{8ij} + \mu_{0j} \quad (1)$$

The left-hand term in the equation is the logit of the probability of tertiary education attainment for respondent i in country j. Level 1 covariates are: x_{1ij} = parental education (ISLED standardised), x_{2ij} = parental educational pairing (hypogamy), x_{3ij} = parental educational pairing (hypergamy), x_{4ij} = gender (woman), x_{5ij} = cohort (1964-1978), x_{6ij} = cohort (1979-1993), x_{7ij} = parental social class (technical/craft occupations), and x_{8ij} = parental social class (professionals/administrators) with estimated intercept β_0 and parameters $\beta_1,\ldots, \beta_8$. μ_{0j} is a random intercept varying across countries (level 2) (the random intercept is assumed to be uncorrelated with the observed individual variables).

5 Empirical Results

Differences in the patterns of educational pairings of parents in 20 European countries

We begin by describing the patterns of parental homogamy, hypogamy, and hypergamy among the respondents' parents in the 20 European countries we analyse. Table 2 shows that parental homogamy is remarkably dominant in all European countries. Parental educational homogamy clearly outweighs heterogamy. On average, about 66 percent of the respondents' parents are educationally homogamous. Among heterogamous parents, hypergamy is more common than hypogamy, at 20 percent and 14 percent, respectively. Parental homogamy is particularly high in Mediterranean (Italy, Portugal and Spain) and Eastern European (Czechia, Hungary, Slovenia and Poland) countries, where it exceeds 70 percent of couples. These proportions reflect the strong catching up process in educational expansion in the Southern European countries and the strong emphasis on gender equality in the Eastern European countries under state socialism. Traditional parental hypergamy is the second most common constellation in the German-speaking countries of Austria, Germany, and Switzerland, and the French-/Dutch-speaking countries of France, Belgium and the Netherlands. This pattern is consistent with the stronger emphasis on the traditional male breadwinner model in continental Europe. Finally, the countries in which parental hypogamy is the second most common constellation or in which parental hypogamy is as common as hypergamy are the

Tab. 2: Proportion of ESS respondents by parental educational pairing and countries (aged 25-69)

Country type	Country	Parental educational pairing			N
		Homogamy (same level of education)	Hypogamy (father's education lower)	Hypergamy (mother's education lower)	
		in %			
Western European	Austria	66.1	5.2	28.8	*3,181*
	Belgium	58.3	15.1	26.6	*2,184*
	France	63.6	12.6	23.8	*2,258*
	Germany	56.1	8.6	35.3	*3,204*
	Netherlands	59.0	12.9	28.1	*2,009*
	Switzerland	59.7	8.0	32.2	*2,014*
Eastern European	Czechia	71.2	12.0	16.8	*3,402*
	Estonia	59.8	24.8	15.4	*2,530*
	Hungary	74.3	13.2	12.6	*2,121*
	Lithuania	66.7	22.1	11.2	*2,358*
	Poland	75.9	12.8	11.3	*2,088*
	Slovenia	69.6	12.9	17.5	*1,787*
Mediterranean	Italy	74.9	8.2	16.9	*3,453*
	Portugal	80.7	8.4	11.0	*1,468*
	Spain	78.6	7.0	14.4	*2,425*
Scandinavian	Finland	65.6	17.8	16.6	*2,462*
	Norway	61.1	17.5	21.4	*1,981*
	Sweden	59.6	19.5	20.9	*1,888*
Anglo-Saxon	Ireland	64.4	19.8	15.9	*3,237*
	United Kingdom	62.6	16.4	21.0	*2,191*
Total		66.3	13.6	20.1	*48,241*

Source: ESS8 (2016) – integrated file (DOI: https://doi.org/10.21338/ess8e02_2), edition 2.2 and ESS9 (2018) – integrated file, edition 3.1 (DOI: https://doi.org/10.21338/ess9e03_1).

progressive liberal countries (Ireland and UK), former socialist and now very liberal Baltic countries (Lithuania and Estonia) and the Scandinavian countries (Finland, Norway and Sweden). All these countries have a strong emphasis on gender equality and are also forerunners in educational expansion.

The association between parental homogamy and children's attainment of tertiary education

Table 3 shows the estimated random logistic regression models for tertiary education attainment.[7] Model M0 is the null random intercept model, where no covariates are considered ($x_{1ij},...,x_{8ij} = 0$ in Equation 1). The intercept can be interpreted as the average odds across all countries of attaining a tertiary education degree compared to attaining a lower education level. It is 0.42 (exp(-0.855)), or about 58 percent lower (100*[exp(-0.855)-1]).

The individual-level independent variables (parental education and parental educational pairing) and control variables (gender, birth cohorts, and parental social class) are included in model M1 ($x_{1ij},..., x_{8ij}$ in Equation 1). We used a log-likelihood ratio (LR) test to compare Models M0 and M1. This test reveals that the additionally included variables significantly improve the model fit.[8] Model M1 shows that parental education is positively associated with obtaining a tertiary degree. Parental education is a standardised variable (z-scores) and must therefore be interpreted in terms of changes by one standard deviation (SD). For example, an increase of 1 SD in educational origin means that the odds of tertiary education attainment increase by a factor of 2.05 (exp(0.718)). The more educated the parents are, the higher the probability of their children attaining a tertiary degree. This relationship is expected and has been observed in many social stratification analyses (e.g., *Blau/Duncan* 1967; *Breen* 2007; *Breen/Müller* 2020). Educated parents are knowledgeable about academic education themselves and can advise and support their children (*Bukodi/Goldthorpe* 2013; *Pfeffer* 2008). Model M1 also reveals that children from educationally heterogamous parents are statistically less likely to attain tertiary education than children from educationally homogamous parents (the reference category). At first sight, this is consistent with *Hypothesis 1*, in which we expect that children from educationally homogamous parents are more likely to attain tertiary education because their parents are more consistent in their parenting styles, less likely to divorce, and create a less stressful learning environment for their children. With regard to parental heterogamy, our variable also takes into account whether the mother or the father is more highly educated, and the estimated values indicate this does in fact matter. In couples where the mother has a lower level of education than the father (hypergamy), children are significantly less likely (as indicated by a Wald test) to attain tertiary education than children in couples where the father has a lower level of education (hypogamy). The probability is lower by 20 percent for hypergamous parents (100*[exp(-0.228)-1]) and 13 percent for hypogamous parents (100*[exp(-0.135)-1]), respectively, compared to homogamy. In a recent article, *Ortiz-*

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7 We estimated all models with the Stata command melogit. We used combination of ESS weights including design weights and probability weights. The do-file and data will be provided upon request.

8 ICC (intraclass correlation) increases when the predictors are added to random logistic regression models. This happens because an unexplained variation at level one cannot decrease if the standard logistic distribution is used (cf. *Kreft/De Leeuw* 1998; *Goldstein* 2010).

Tab. 3: Random logistic regression models for tertiary education attainment

Variable	Levels	M0	M1	M2	M3
Individual level					
Educational origin (ISLED std.)			0.718***	0.862***	0.867***
			(0.015)	(0.020)	(0.021)
Parental educational pairing	*homogamy*		*ref.*	*ref.*	*ref.*
	hypogamy (father lower)		-0.135***	-0.039	-0.008
			(0.036)	(0.038)	(0.064)
	hypergamy (mother lower)		-0.228***	-0.196***	-0.177***
			(0.030)	(0.032)	(0.061)
Gender	*man*		*ref.*	*ref.*	*ref.*
	woman		0.131***	0.133***	0.135***
			(0.022)	(0.022)	(0.022)
Birth cohorts	*1949-1963*		*ref.*	*ref.*	*ref.*
	1964-1978		0.194***	0.177***	0.177***
			(0.028)	(0.028)	(0.028)
	1979-1993		0.384***	0.352***	0.351***
			(0.029)	(0.029)	(0.029)
Occupation origin	*manual/service occupation*		*ref.*	*ref.*	*ref.*
	technical/craft occupation		0.517***	0.499***	0.499***
			(0.027)	(0.027)	(0.027)
	professionals/ administrators		1.008***	0.932***	0.925***
			(0.046)	(0.046)	(0.046)
Constant		-0.855***	-1.523***	-1.458***	-1.464***
		(0.108)	(0.109)	(0.112)	(0.121)
Interactions					
Educational origin (ISLED std.)*hypogamy (father's lower)				-0.405***	-0.396***
				(0.036)	(0.037)
Educational origin (ISLED std.)*hypergamy (mother's lower)				-0.219***	-0.212***
				(0.028)	(0.029)
Random effects parameters					
Country variation:					
constant		0.226***	0.210***	0.222***	0.265***
		(0.073)	(0.068)	(0.072)	(0.087)
hypogamy (father's lower)					0.040*
					(0.022)
hypergamy (mother's lower)					0.040**
					(0.020)
ICC Country		0.074	0.092	0.094	0.101
LL Model		-21	-19	-19	-19
		560.23	413.46	397.59	383.62
N (respondents)		48 241.00	48 241.00	48 241.00	48 241.00

Note: Standard errors in parentheses. *** p<0.01. ** p<0.05. * p<0.1

Source: ESS8 (2016) – integrated file (DOI: https://doi.org/10.21338/ess8e02_2), edition 2.2 and ESS9 (2018) – integrated file, edition 3.1 (DOI: https://doi.org/10.21338/ess9e03_1)

Gervasi (2021) used ESS data to show that there is a gendered effect of parental educational heterogamy: Women benefit from having educationally hypogamous parents (positive and significant interaction term) and are disadvantaged if they have educationally hypergamous parents (negative and significant interaction term).[9]

Model M1 also demonstrates that women are more likely to attain tertiary education. Their odds are 1.13 (exp(0.131)) times higher than those of men. Many studies have shown that there are gender differences in tertiary education attainment. While men were more likely to attain tertiary education in older cohorts, women caught up and even surpassed them in recent years (*DiPrete/Buchmann* 2013; *Shavit/Blossfeld* 1993). M1 also reveals that across cohorts, more and more children are attaining tertiary education. This reflects the gradual expansion of tertiary education in European countries during the second half of the 20th century. In addition, children from higher parental social classes are more likely to attain tertiary education. The odds are 1.67 times (exp(0.517)) higher for children of parents in technical and craft occupations, and 2.74 times (exp(1.008)) higher for children of parents in professional, intermediate, managerial and administrative occupations than for children of parents in semi-routine, routine manual, and service occupations. These associations do not change significantly in the next two models (M2 and M3 in Table 3).

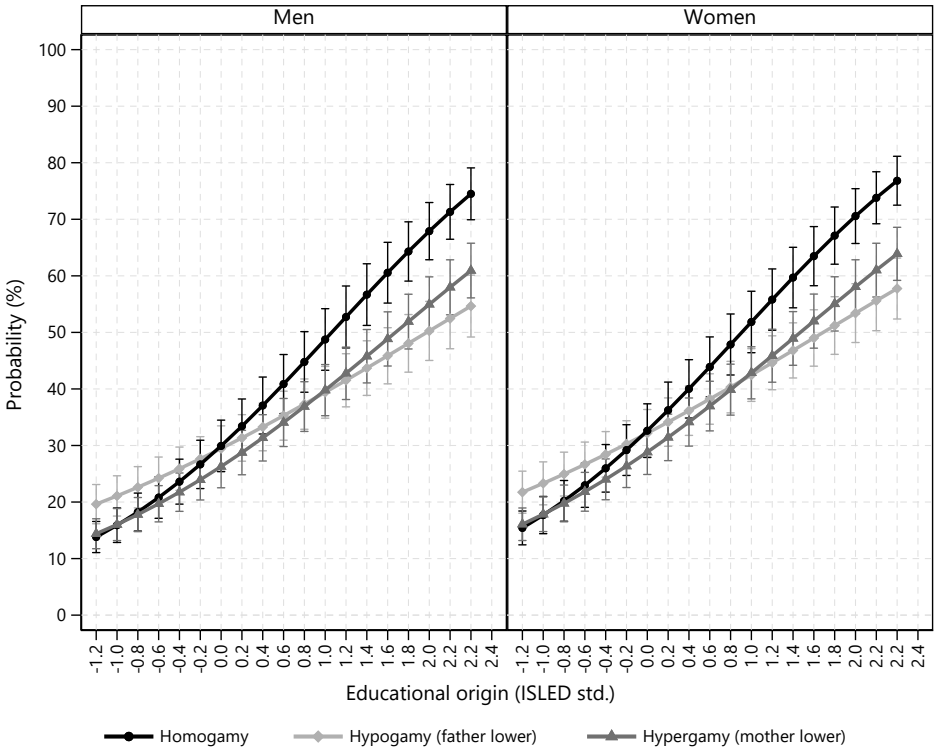
Is parental education a moderator?

Model M2 is the same as model M1, but it adds an interaction between educational origin and parental educational pairing (the term $\beta_9 x_{1ij} x_{2ij} + \beta_{10} x_{1ij} x_{3ij}$ is added to Equation 1). With this interaction term, we test Hypothesis 2 on whether the effect of parental pairing is moderated by parental education levels. Model M3 is the same as Model M2, but it allows both variants of parental pairing (hypogamy and hypergamy) to vary randomly across countries. It is a random coefficient model, which means that the term $\mu_{1j} x_{2ij} + \mu_{2j} x_{3ij}$ is added to Equation 1 (the full equation for Model M3 is presented in the Appendix). This random coefficient model allows us to examine cross-country differences in all variants of parental pairing. The likelihood-ratio (LR) test of nesting model M1 in M2 and M2 in M3 indicates that all these extensions of model M1 significantly improve the model's fit to the data.

We interpret the results using Model M3. The interactions of variants of parental pairing (hypogamy and hypergamy) with educational origin are different, negative, and significant. Educational origin moderates the association between parental educational pairing and children's tertiary educational attainment. This means that for each higher level of parental education, the differences in the probabilities of

[9] We have tested for this interaction in our data (gender by parental heterogamy) and come to similar conclusions as *Ortiz-Gervasi* doe. Parental educational homogamy increases the odds of tertiary educational attainment compared to parental educational heterogamy. Looking at parental educational hypogamy and hypergamy, girls from hypogamous families have significantly higher odds of tertiary attainment than boys from the same families do. However, this is not the aim of our study.

Fig. 1: Probability of obtaining a tertiary degree by educational origin (ISLED std.) and levels of parental educational homogamy by gender



Note: SD is standard deviation of ISLED std. SD 0 is standardised average of ISLED. Whiskers denote 95% confidence intervals.

Source: ESS8 (2016) – integrated file (DOI: https://doi.org/10.21338/ess8e02_2), edition 2.2 and ESS9 (2018) – integrated file, edition 3.1 (DOI: https://doi.org/10.21338/ess9e03_1)

tertiary educational attainment between children of educationally hypogamous and hypergamous parents compared to children of educationally homogamous parents increase. To illustrate this, Figure 1 shows the estimated probabilities of tertiary educational attainment by educational origin (standard deviations of average ISLED) for the three categories of parental educational pairing (homogamy, hypogamy and hypergamy) for men (left-hand side) and women (right-hand side). The probabilities are calculated for average parental class. The probabilities rise from lower to the higher educational origins (from 15 percent on average for the lowest educational origins to 65 percent on average for the highest educational origins). There is no difference in trends by gender. In the case of women, the curves are only slightly shifted upwards by model M3 parameter for gender. Parental homogamy significantly increases the probability of children obtaining a tertiary degree at almost all levels of educational origin, except for children of parents with low levels of education, where there is

no difference between children from educationally homogamous or heterogamous parents. In the highest educational origins, hypergamy and hypogamy reduce the probability of children's tertiary attainment to almost the same (the association of mother's lower education is even stronger compared to father's lower education).

Although each curve point in Figure 1 has a confidence interval, these intervals do not say anything about the statistical differences between parental homogamy, hypogamy, and hypergamy in specific categories of educational origin (they refer to the estimated parameters of model M3 and their differences from 0). The statistical differences between homogamy, hypogamy, and hypergamy must therefore be tested in a different way. We used the contrast statistical procedure (*Mitchell* 2012) for all combinations of parental educational pairing categories and educational origin for men and women separately (cf. Table A8 in the Appendix). Among the higher educated families, parental homogamy is important and significantly increases the probability of tertiary educational attainment compared to parental heterogamy (hypogamy and hypergamy) for both men and women. It does not matter whether the parental constellation is educationally hypogamous or hypergamous (there is no statistically significant difference between these variants), heterogamy is always detrimental to tertiary educational attainment compared to parental homogamy. Among less educated parents, children from hypogamous couples (where the mother is more educated) have a significantly higher probability of obtaining a tertiary degree.

In sum, these empirical findings are consistent with *Hypothesis 2,* which proposed that parental homogamy is only beneficial for children's tertiary education attainment when parents are highly educated. According to the pooling of resources theory, high levels of education from both parents are beneficial for children, as children have access to two people with resources conducive to education. According to a variant of the agreement in parenting styles argument, highly educated parents are more likely to share childcare equally, leading to greater harmony between parents and a more conducive learning environment for children. Finally, according to the divorce argument, highly educated homogamous parents are less likely to divorce and can compensate for doing so, leading to less emotional stress and better educational outcomes for their children. However, we cannot completely rule out *Hypothesis 1*, as our results also suggest that in the middle range of parental educational resources, parental homogamy benefits children. *Hypothesis 1* proposed that parental educational homogamy always increases the probability of tertiary educational attainment compared to parental educational heterogamy, regardless of educational origin. The association of parental educational homogamy is positive for all educational origins except the lowest, where it is not different from parental hypergamy and significantly lower than in the case of parental hypogamy. Only maternal educational advantages matter for the children of less educated parents.

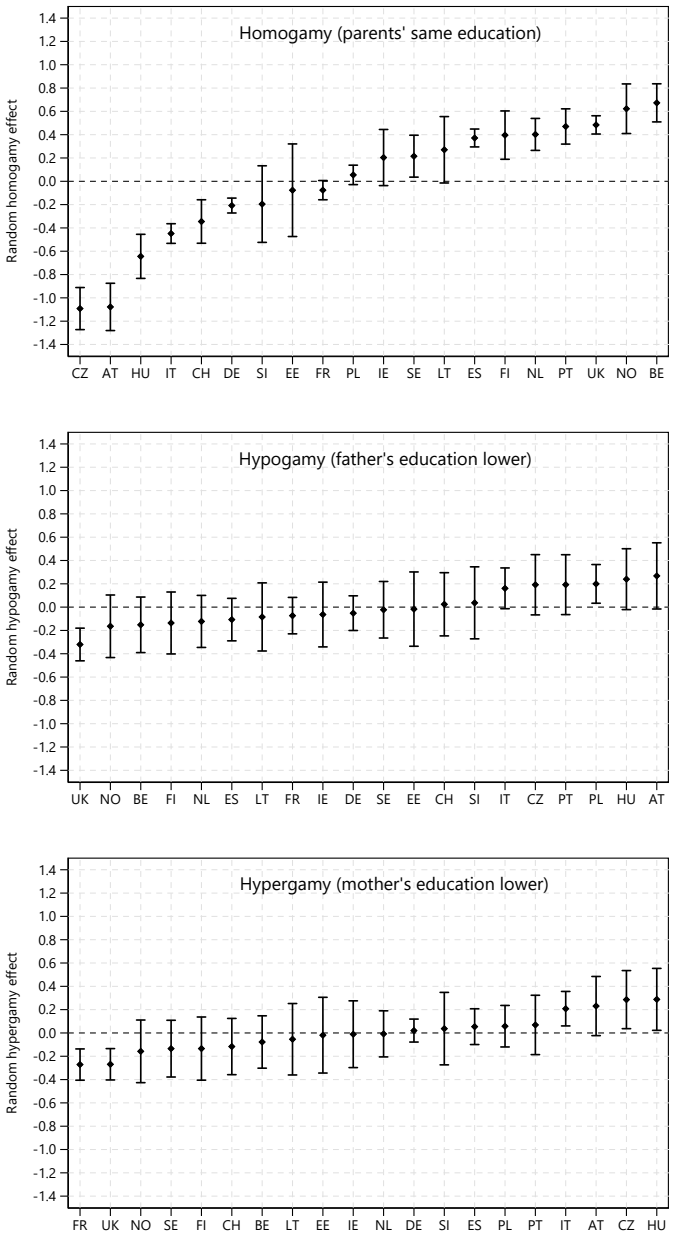
Cross-national differences in the association between parental educational pairings and children's tertiary education attainment

Finally, we examine whether there are country differences in the association between parental educational homogamy, hypogamy, and hypergamy and children's probabilities of obtaining a tertiary degree. Figure 2 shows caterpillar plots of the empirical Bayes residuals based on model M3. The zero line marks an average (main) association of homogamy, hypogamy and hypergamy respectively. The numbers below or above zero indicate the extent to which each country is above or below the average in terms of the association of homogamy, hypogamy, and hypergamy with children's probabilities of obtaining a tertiary degree. There is large variation in parental homogamy across countries. However, there is almost no country variation for parental educational heterogamy (hypogamy and hypergamy).

The lowest association between parental homogamy and children's tertiary attainment is observed in Czechia and Austria. The association is also below average in countries such as Hungary, Italy, Switzerland, and Germany, but less pronounced. These are all countries with a very high share of parental educational homogamy or a relatively high percentage of parental educational hypergamy. While one would expect low associations with parental homogamy in formerly socialist countries, it is surprising that parental homogamy in German-speaking countries is less important for children's tertiary educational attainment than elsewhere, as they are known for their early segregation into different educational branches and high educational inequality. Slovenia, Estonia, France, and Poland do not differ from the average and Ireland, Sweden and Lithuania have an association close to the average. Countries in this intermediate group have a relatively high share of educationally hypogamous parents compared to educationally hypergamous parents (Estonia, Lithuania, Ireland, and Sweden). The highest associations are found in Spain, Finland, the Netherlands, Portugal, the United Kingdom, Norway, and Belgium. These are countries with a percentage of parental educational homogamy above 60 percent and even above or close to 80 percent of couples. This high association was expected for the liberal UK, with relatively high social inequalities, and for the Netherlands and Belgium, with relatively early tracking (which was only changed in Belgium recently). However, this result is more surprising for the Scandinavian countries of Norway and Finland, which are characterised by high social securities, a comprehensive school system, and low educational inequality. Especially in the Scandinavian countries, it seems important to take into account not only the educational position of the family, but also the similarity of resources as an amplifying factor of educational inequality.

Ultimately, the associations between parental hypogamy and hypergamy and the likelihood of children obtaining a tertiary degree are not very different between countries. Both associations are weak and below average in the UK and Norway and stronger and above average in Austria and Hungary. Nevertheless, the differences in parental educational hypogamy and hypergamy associations between countries are relatively small and we should not overinterpret them. We therefore conclude that parental heterogamy, compared to parental homogamy, reduces the probability of children obtaining a tertiary degree in a similar way in all European countries.

Fig. 2: Estimation of homogamy, hypogamy, and hypergamy associations for tertiary education attainment by country



Source: ESS8 (2016) – integrated file (DOI: https://doi.org/10.21338/ess8e02_2), edition 2.2 and ESS9 (2018) – integrated file, edition 3.1 (DOI: https://doi.org/10.21338/ess9e03_1)

7 Conclusions and discussion

The consequences of parental homogamy on children's educational attainment are an understudied topic. This paper aimed to shed light on the issue in two ways: (1) by testing whether parental homogamy is associated with children's tertiary education attainment in different European countries and (2) by assessing whether this association is moderated by parental education.

With regard to the first objective, we demonstrated that parental homogamy has a positive association with children's tertiary educational attainment compared to parental heterogamy. Parental educational homogamy increases the chances of children obtaining a tertiary degree. Conversely, children from educationally heterogamous parents are less likely to attain tertiary education. However, children from educationally hypogamous parents – i.e., whose mothers have higher educational attainment than their fathers – are less disadvantaged than children from educationally hypergamous parents.

Concerning the second objective, we were also able to show that parental educational homogamy is partly moderated by parental education. Children of highly educated homogamous parents are much more likely to obtain a tertiary degree than children of educationally hypergamous or hypogamous parents. In this study, we found empirical support for theories suggesting that parental homogamy is relevant to children's educational opportunities only among parents with higher levels of education. However, we could not completely rule out theories and hypotheses suggesting that parental homogamy is important for children of all educational backgrounds. Only for children of parents with low levels of education did homogamy show no association.

Finally, we also examined whether there are differences in the association between parental homogamy, hypergamy, and hypogamy for children's tertiary educational attainment across European countries. Cross-country differences in parental homogamy are much greater than in parental hypogamy and hypergamy. Two surprising findings were that the association between parental homogamy and children's tertiary degree were below average in continental European countries and above average in Scandinavian countries. One interpretation might be that in continental countries with high social origin effects on educational inequality, similarity has a less strong additional effect. Conversely, the similarity of parental educational resources may be particularly important in the Scandinavian countries, where educational attainment is less influenced by parental education. Whatever the reasons for these findings, more research is needed to investigate this unexpected result. Parental hypogamy and hypergamy reduce the probability of obtaining a tertiary degree in all European countries in a similar way compared to parental educational homogamy. We conclude that when studying differences in children's educational opportunities by family background, it is important to not only include indicators of parental resources, but also to take into account the similarity and dissimilarity of maternal and paternal resources.

Our study also has some limitations: First, our sample of two ESS waves does not allow us to examine changes in the associations of parental homogamy with

children's tertiary education across cohorts. Further research examining these associations across cohorts is needed. There is also a need for research that examines how the association between highly educated homogamous parents and children's tertiary educational attainment varies across countries and cohorts. Second, ESS data does not provide information on how long children lived with their parents, whether their parents were divorced or not, or when they got divorced. It is therefore unclear what influence non-resident parents have on their children, apart from child support payments. This could be problematic if we want to examine the effect of the similarity of parents' education on children's education. However, studies show that non-resident parents invest significant time and money in their biological children (*Tach* 2015). The data also does not allow us to examine parenting style mechanisms. Third, we cannot determine whether parents are cohabiting or married, and whether this makes a difference for the effect of parental educational homogamy. Especially in the European context, cohabitation has become a means of testing a relationship for its suitability for marriage or even as a substitute for marriage (*Hiekel et al.* 2014; *Perelli-Harris et al.* 2014). However, there are country-specific variations. There is no universal model of whether marriage is still a prerequisite for childbearing, despite the spread of cohabitation and out of wedlock birth in Europe. There is evidence of a decoupling of marriage and childbearing, particularly in Scandinavian countries (*Heuveline/Timberlake* 2004; *Kiernan* 2002). However, even in Sweden, family-forming marriage (no children and no conception of a first child at least 8 months before marriage) remains the most common family model (*Holland* 2013). Cross-national comparisons show that this model is still typical for the majority of the population across cohorts and ages, although cohabitation now frequently precedes marriage (*Holland* 2017). On the other hand, legitimising conception through marriage has become more important in Central and Eastern Europe in recent decades, while in Western Europe and Norway this model is less preferred (*Holland* 2017). This reflects changes in family values and norms (*Inglehart* 2020), as well as individualisation and the deinstitutionalisation of marriages (*Cherlin* 2004; *Fučík et al.* 2019). Empirical evidence is inconclusive as to whether patterns of homogamy differ between cohabiting and married couples (*Blackwell/Lichter* 2004). However, if there are differences, they appear to be small (*Blackwell/Lichter* 2004). Future studies with better and longitudinal data should examine these issues in greater detail.

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