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Family structures and social reproduction in education

Steffen Hillmert

Department of Sociology
University of Tübingen
E-Mail: steffen.hillmert@uni-tuebingen.de

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Abstract

Social mobility research starts conventionally from the children's generation and looks at group-specific individual life chances. However, an immediate interpretation of these results as measures of social reproduction is often misleading. This paper intends to demonstrate the usefulness of a related but alternative approach. It looks at intergenerational links from the perspective of the parents' generation. It asks about the consequences of social inequality in this generation for the following generation(s). This includes questions of how the parental origin context is formed, whether there are any children at all and when they were born as well as the aspect of these children's relative chances of attaining particular social positions. As an empirical example, the paper describes patterns of educational reproduction in (West) Germany during the mid- and late 20th century. Cohort data from the West German Life History Study provide the empirical basis. In many instances, a large proportion of the observed levels of educational reproduction can be attributed to family-related processes such as union formation.

Keywords: Social reproduction; social mobility; education; intergenerational transmission; simulation

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1. Introduction

Sociological analyses of intergenerational social mobility and reproduction have always stressed the importance of the family of origin for the creation and transmission of social inequality. For example, educational and occupational opportunities of children decisively depend on family background and the social situation of the parents. In this context one often speaks of a social "inheritance" of status. Characteristics relevant for social inequality are transmitted from parents to children. This happens through biological (genetic) as well as social processes, but the biological component seems to be rather small in its contribution (Bowles and Gintis, 2002). Social processes include in particular learning processes within the family environment. In addition, the social situation of the family and the economic, cultural and social "capital" (Bourdieu, 1986a) it provides defines specific chances for the children – regarding in particular institutionalized forms of education, learning and development. Moreover, there is the direct transfer of resources by donations or inheritance, particularly in the case of economic capital. In conceptual regard, it is important that both parents are involved in the transfer of characteristics relevant for social inequality. Hence, the *composition* of the parental context becomes crucially important for the situation of the children. While the biological definition of the two parents is unequivocal, there is much greater variation in social terms – especially along the life course.

Conventional studies of social reproduction are often rather historical snapshots and are characterized by typical restrictions. They mostly focus on estimating the *effects* of social origin characteristics on the attainment of the children. Moreover, most studies restrict themselves to studying associations between two family generations. Such investigations yield important insights into the process of intergenerational status transmission; however, other, chronologically preceding aspects which are conditions for this transmission often remain out of sight. This applies to the actual distribution of the social origin indicators at the level of families and to the causes of this distribution. If one is interested from a social-structural perspective in the *reproduction* of education among the generations, additional questions arise: Who of a generation of (potential) parents does actually have children at all, how many children do parents have and when do they have them? This also depends on social conditions. One may ask whether and how

these additional processes are associated with the well-known educational inequalities or, in other word, how these inequalities are related to family structures and the population development.

This paper looks at the role of the family in the process of the intergenerational transmission of social inequality. It follows previous studies when describing origin-related social inequalities, but it also accounts for the mentioned restrictions. On the basis of selected parental cohorts it investigates central family-related aspects in intergenerational social reproduction. Apart from presenting selected empirical results the aim is to demonstrate the broader conceptual possibilities of an inequality-related research that incorporates family dynamics. Such an approach may provide the basis of comparative research which builds upon, but also reaches beyond conventional social mobility research. The paper has the following main focuses: *First*, effects of the structure of the family for individual attainment are examined. This includes the consideration of gender differences. *Second*, the formation and the distribution of the origin contexts are the subject of analysis. *Third*, the social reproduction between generations and the connections between various family-related processes within this reproduction are studied. After an outline of the fundamental conceptual issues (section 2), the theoretical foundations of their elements are concisely reviewed (section 3). On the basis of intergenerational *educational* reproduction as an example, these steps are empirically illustrated using German life-history data (section 4 and 5). Section 6 concludes with some implications for comparative research.

2. Conceptual considerations

Questions of social mobility and social reproduction have always been in the center of sociological analyses. According to Sorokin (1959/1927), *social mobility* can be defined as the movement of individuals or social units among the social positions in a society which form structures of social inequality. Hence, social mobility can be regarded as an indicator of the individual or group-related stability of social advantage and disadvantage. An underlying assumption of mobility research is that the permanence or transience in holding social positions and hence rates and patterns of mobility also influence the social definition of identities and interests. In this sense social mobility can be understood as a process mediating between social

structure and (the motivation for) individual action (cf. also Berger, 2001). Social mobility has also important effects on social integration in a society. From a liberal perspective, social mobility helps to stabilize the political order. It can legitimize social class and status inequalities, in particular if it is associated with meritocratic principles. On the other hand, however, it can also reduce social class identification and the potential of collective class action. In view of the possibility of (upward) mobility, collective action tends to be given up in favor of individual solutions (Blau and Duncan, 1967; Erikson and Goldthorpe, 1992).

Along with theoretical considerations, there is a long tradition of mainly descriptive research looking at the actual levels and patterns of mobility. Research of this kind looks at *intra-generational* mobility, i.e. social mobility within individual life courses, as well as *inter-generational* mobility, i.e. social mobility between the different generations of a family. In most cases this means that socio-economic positions are compared between parents and their children. According to the systematization by Ganzeboom et al. (1999), thematically broadly defined socio-structural studies were succeeded by more specific analyses estimating the role of social background in the process of status attainment, before models of intergenerational mobility tables dominated the scene. Given the temporal distance between the generations, the analysis of intergenerational mobility is necessarily associated with a long-term perspective. Social mobility has been analyzed with regard to both historical trends and international comparisons (e.g., Featherman and Hauser, 1978; Erikson and Goldthorpe, 1992; Breen, 2004).

In probably most studies on the intergenerational transmission of social inequality, the term *social reproduction* is used to denote a strong association between the social positions of different generations (in a way as a counter-concept to social mobility). Alternatively, however, two paradigms of intergenerational inequality research can be distinguished; in one of these the term gets a specific meaning. They could be labeled as (1) “origin-specific chances” and (2) “total social reproduction”.

(1) Analyses of origin-specific chances take the *children’s generation* as a starting point. For example, occupational attainment is compared among persons with regard to their *social*

background (i.e. to the status of their parents). Regarding the individuals in the analysis, the question asked is essentially: „Where do they come from?“ This is by far the more frequent analytical approach. It also corresponds to the modern idea of individual life courses. It puts life chances of the children into the center of attention and can be related to individual rights; if necessary, it can also be used to discuss possible policy interventions. However, it is essentially concerned with *conditional* origin-specific chances. They condition on the formation of the origin context as well as on the very existence of these children. If one is interested in the analytical questions of intergenerational *social reproduction* in societies, it appears that an immediate interpretation of the conventional results as the overall extent of such reproduction is often misleading (Duncan, 1966; Sakamoto and Powers, 2005).

(2) An alternative approach – rooted in traditional concepts of demography (Mackenroth, 1953) and in recent years mainly inspired by the work of Mare (1997) and colleagues – looks at intergenerational associations from the *perspective of the parental generation* and asks about the consequences for (the) following generation(s): „Where do they go?“ This includes questions of how the origin context *originates*, whether there are *at all* children descending from a particular relationship, *how many* children and when they are born. Finally there is of course the aspect of the relative social chances of these children. While the parents of a certain cohort of children will represent a wide spectrum of birth cohorts, an analysis from the parental perspective will normally start with a particular cohort of individuals and then look at the social positions of their descendants in the following generations. When the natural population process is included, conceptual limitations of social mobility analyses which result from the conventional conditioning on the children can be overcome. In order to be able to adequately describe the path of social status transmission from one generation to the next, it should be distinguished between at least three *partial processes* in the process of intergenerational social reproduction (cf. Maralani and Mare, 2005): socially selective partner choice, socially selective fertility, and socially selective status attainment (cf. figure 1). In both conceptual and empirical regards, it is suitable to start from individuals and to model their partner choices and fertility behavior. For reasons of data availability such demographically enhanced models are normally specified for women.

Fig. 1 here

In reality, the process of intergenerational social reproduction is more complicated. In particular, the part of the individual status acquisition can be further differentiated into additional partial processes like acquiring qualifications and receiving returns to these qualifications in the labor market. Again, educational attainment plays the dominant role. Nevertheless, the three steps presented in figure 1 form the simplest model connecting individuals of two successive generations, thus describing an entire cycle of intergenerational reproduction. This cycle can be seamlessly extended across more than two generations. In the simplified version, effects of mortality are neglected. The model serves first of all as a specification of phenomena that are appropriate for explanatory models, not as a causal model of explanation itself.

Previous empirical findings that follow a similar approach are mixed with regard to mutual relationships between the processes. Analyses on the United States have found out, for example, that the effects of differential fertility on educational mobility are relatively small (cf. Mare, 1997), while it has a larger impact in rapidly changing developing countries (Mare and Maralani, 2006). In general the role which the partial processes play for the whole process of status reproduction in a certain society depends on how significantly they vary among social groups, on how fast they change and how closely they are connected with each other. Given the likely international variations in these features, the model provides a reasonable analytical basis for comparative research.

In the following, the description of selected connections between family structures and inequalities will be extended towards social and educational *reproduction* in the sense of "generating" children with certain levels of attainment from one generation to another. Rates of intergenerational reproduction in this sense are relevant for a better historical understanding of social dynamics in general and the stability of social collectivities in society in particular. The relatively broad analytical approach that is pursued here bases conceptually in ideas of life course research. Areas of life are inter-dependent and life courses are embedded in longer-term

generational relations (Elder, 1985; Mayer, 2001). A comprehensive approach has therefore to draw upon research from a number of research fields; given the restricted scope of our paper, such a summary has to be very concise.

3. Theoretical background

While a large part of the more recent research on social mobility is descriptive, there has also been a long-term tradition of explanatory approaches focusing on individual mobility and collective mobility patterns. Social mobility research has concentrated on two central subjects, occupational and marriage mobility, whereby marriage mobility has been traditionally seen as a possible strategy (for women) to compensate for missing opportunities for occupational upward moves (Geißler, 2002). An important conceptual differentiation is between *absolute* and *relative* mobility. Absolute mobility rates looking at instances of mobility in general can be strongly influenced by structural change as expressed by the "marginal distributions" of social positions at any point in time, in particular by the collective upgrading of occupational positions (Mayer, 1979). As a result of this development, often a majority of individuals is socially mobile. This kind of mobility is often regarded as involuntary, or an (action-related) theoretical explanation of it is skipped altogether. Relative mobility rates – also called *social fluidity* – describe the relative chances to which people with particular origin positions reach particular destinations. Comparing different groups in this regard, they represent the degree of "social openness" within a society. In action-based theoretical explanations for intergenerational mobility or its absence the dominant assumption is the motive of intergenerational status preservation – in particular with regard to *counter mobility* found in transient situations of intergenerational status inconsistency (Goldthorpe et al., 1987). However, there are also typical intentions of upward social mobility. In regard to the relevant mechanisms, social mobility must be understood as being accomplished by intervening processes; again, this applies in particular to educational attainment.

The theoretical basis of *social reproduction* is even more diverse. This is not least due to its mediating position between sociological and demographic perspectives; so far they have not led to specific hypotheses about the internal structure of social reproductive processes. In a broad

sense, a similar emphasis on absolute quantities in selective reproduction can be found biological theories of evolutionary optimization which relate parental investments and reproductive success not only to the immediate descendants, but also to relatives ("inclusive fitness"; cf. Hamilton, 1964). In social science, materialist approaches construct a close connection between the relations of social inequality in a society and the degree of intergenerational transmission of resources within families (Bowles and Gintis, 2002). In an ethnological perspective (Bourdieu, 1976) it becomes clear that marriage strategies can be explicitly aimed at the reproduction of social structures, and also for modern societies, adequate marriage and occupational investments can be regarded as compensatory strategies of status preservation that actors are more or less conscious about (cf. Bourdieu, 1986b). As a contrast, one could follow Lipset and Zetterberg's (1959) thesis of the similar and generally increasing social openness of modern societies which expresses itself in both social heterogamy, i.e. diverse marriage patterns, and increasing levels of intergenerational social mobility. Apart from that, inherent statistical connections between mobility patterns and opportunity structures of partner choice have repeatedly been pointed out (Collins, 1986).

Following theories of action, two essential questions which go beyond the single partial processes are: First, are the relevant decisions primarily a result of personal criteria or do they represent more or less specifically defined collectivities („classes for itself")? Second, do the relevant partial process interact "behind the backs" of individuals and families or is there a general logic of action for social *reproduction* in the sense of a conscious combination of several partial processes? These questions have hardly been solved yet. Each of the specified partial processes – partner choice, fertility and educational attainment – has been documented in detail, but the interaction of these processes has so far only insufficiently been analyzed.

(1) Status attainment, educational inequality and family structures: The analysis of occupational status acquisition as a function of parental status and educational attainment has developed into a prominent field of inequality research (Blau and Duncan, 1967). In modern societies formal education has become the most important mechanism of the (conditional) status transmission between the generations. There is a close connection between, on the one hand, inequality in the

access to education and educational attainment and, on the other hand, educational consequences in the labor market and in other areas of life. The German labor market in particular is structured by formal educational qualifications, and this includes high risks of exclusion for the unqualified. Returns to education and training regarding positions in the labor market have been remarkably stable during the last decades. In spite of educational expansion this applies in particular to academic training (Müller, 1998; Becker and Hadjar, 2009). The degree of the structuration of life courses by social origin and education has rather increased in the post-war period (Mayer and Blossfeld, 1990). Hence, intergenerational educational mobility has itself become a relevant topic for social mobility research. Research on selective educational opportunities in connection with social background – education, income, occupational status of the parents – forms the core of educational sociology. Educational opportunities are measured by competence acquisition as well as educational participation, and, above all, as attainment of certain educational qualifications. For (West) Germany as well as for many other industrial countries empirical studies have found reduced inequalities in the long run, but inequality relations have been relatively stable during the last decades (Shavit and Blossfeld, 1993; Schimpl-Neimanns, 2000). Such origin-related inequalities can be attributed to a number of factors. An important conceptual distinction for a life-course oriented analysis is between primary and secondary effects with regard to transitions in educational careers (Boudon, 1974). While primary effects refer to the conditions acquired up to certain transitions – in particular cognitive abilities and competencies – secondary effects refer to selective transitional behavior. In theoretical terms, this reflects the socialization function of the family including its resources as well as its decision behavior at important educational transitions. Action-theoretical models of decisions have once again stressed the motive of intergenerational status preservation (cf. Breen and Goldthorpe, 1997; Stocké, 2007). Educational decisions must be related to specific institutional contexts which define the respective times and alternatives of decision (Hillmert, 2007); apparently they also influence the relative importance of primary and secondary origin effects (Neugebauer, 2010). “Discriminating” institutional selection processes may also play a role (Bourdieu and Passeron, 1971). *Gender differences* in educational behavior form another important dimension of inequality. Traditional educational disadvantages of girls have turned into relative advantages since the 1980s – at least with regard to school education (cf. Diefenbach and Klein, 2002). This development is valid for most modern societies;

the causes for this development, however, are not entirely clear (Buchmann et al., 2008). In the 20th century effects of social background have developed for both genders in a similar manner (Breen et al., 2010). *Incomplete families* – in the sense of an at least temporary absence of one or both parents – are another aspect of the role of social origin and family structures for educational attainment. Studies have repeatedly shown better educational opportunities for children who grow up with both (natural) parents. This is also true in comparison with step families. A large part of the effects can obviously be attributed to a lack of resources; however, the problems of causal conclusions are increasingly stressed (Francesconi et al., 2010). The role of *siblings* in educational attainment has also been thoroughly analyzed. Sibling effects on education show up with regard to the number, the age and the gender of siblings and a child's own position in the order of birth. Typical explanations for (negative) sibling effects either point to cognitive influences or to family resources and their sharing among more or less children. Again, however, there is increasing doubt about the causality of the described effects (Steelman et al., 2002; Jæger, 2009).

(2) Formation of the parental context: The formation of parental contexts can also be described with reference to socio-structural characteristics like education. An important type of structural effects concerns the "marriage market" and the group-specific formation of marriages and partnerships. This includes questions of whether persons marry at all, and if so, who marries whom. Cultural capital of the family of origin influences not only educational attainment, but also marital success. Just like educational decisions, marriage behavior can be interpreted as an expression of strategies of status preservation (DiMaggio and Mohr, 1985). Relevant is in particular the phenomenon of *social homogamy*, i.e. the fact that individuals with similar educational or status background tend to join as (marriage) partners. For social inequality this means that the individual-level distribution of resources is reproduced on the level of families and households. Relative social advantage and disadvantage concentrate there even stronger. In statistical terms, education has gained importance as a means of homogamy during the 20th century, and this is probably also true for education as a criterion of individual partner choices. Patterns of homogamy can be explained by typical preferences, opportunity structures created by the educational system and the growing labor-market integration of integration of women, which

has been accompanied by parallel changes in education and social roles (Blossfeld, 2009). However, the exact historical trends during the last decades are not exactly clear and are also depending on the actual operationalization (Blossfeld and Timm, 2003).

(3) Selective fertility: Particularly relevant for the aspect of social *reproduction* is the fact of socially selective fertility. A (negative) association between education and fertility can be seen in (West) Germany (Kreyenfeld and Konietzka, 2008) and many other countries. In contrast to classical assumptions of Human Capital Theory (Becker, 1973), however, this is primarily a temporal effect of a procrastination of childbirth for the duration of vocational training or higher education (cf. Blossfeld and Huinink, 1991). It can also be expected that the relative instrumental "value of children" for achieving valued goals – in emotional, economic, and normative respect – is different for various socio-economic groups (Hoffman and Hoffman, 1973). The analysis of education-specific fertility requires again that both partners are considered. At least for younger cohorts born after the mid-1960s, couples showing traditional hypogamy (i.e., the woman has the lower education), but also homogamous couples have higher fertility than couples where the woman has the higher level of education (Bauer and Jacob, 2010). Bargaining approaches highlight the fact that family decisions are not necessarily approached consensually (Corijn et al., 1996). While parental status is an important determinant of fertility behavior, this is also increasingly influenced by the specific family tradition net of their socio-economic position (Murphy and Wang, 2001).

(4) Social reproduction: If one tries to grasp the whole process of social reproduction as the sum of partner choice, fertility and individual attainment, in particular three perspectives are of interest. *First*, one can look for similarities or analogies in the determinants and the consequences of the different partial processes. Here the preceding sections already show that education – educational level of the parents and own education – has a determining influence on these partial processes and that these may have similar functions (status preservation). *Second*, in the sense of a "decomposition" one can ask how important the different partial processes are for the overall result of social educational reproduction. *Third*, possible connections or exchange relations ("trade-offs") between the partial relations are of interest (cf. Mare, 1997), which may also be

used for an evaluation of the (net) effects of political interventions. However, in theoretical regards it is far from clear whether the relevant decisions are made separately for the different domains of life and with specific rationalities or whether there is a general logic of action in social and educational reproduction gives, which could also provide the basis for actor-related explanations. At the moment, it is even difficult to find clear explananda. The primarily descriptive analyses of this paper have not least the aim to derive such objects of explanation. To simplify the main arguments, we concentrate on intergenerational *educational* reproduction.

4. Data, methods, and historical context

The basis of the following empirical analyses is provided by data from the West German Life History Study. Three cohorts from the earlier waves of this study (Mayer and Brückner, 1989; Brückner, 1993) are used which have sufficiently broad observation windows for the analysis of the life courses (cf. also the information in table A1 in the appendix). The interviewed individuals were German citizens; holding this variable constant makes the effect of social origin clearer, but probably reduces the educational inequalities observed in comparison to the whole population. The cohort studies cover a relatively long historical period of time and show at the same time a high degree of comparability. A "survival bias", typical for retrospective studies and meaning the conditioning on the cohort members who are still alive at the time of the interview, will mainly affect the birth cohorts around 1920. The reason for this is not just their higher age, but also casualties of World War II (cf. also the unequal gender distribution in this sample). All of the cohorts were affected by flight and migration movements associated with World War II. Also for a substantial interpretation, the historical circumstances of the selected West German cohorts which were born around 1920, around 1930 and 1940 need to be considered.

Educational expansion in Germany during the 20th century was by no means a linear process (Mayer et al., 2009). In the direct comparison between these cohorts this may become obvious in the relatively low educational attainment of cohorts born around 1930. However, in the long term the families of all our cohorts have experienced larger waves of educational expansion between generations. Persons born around 1920 form the oldest cohort of our analysis. Their childhood

was in the times of the Weimar Republic and an increasingly difficult economic situation. Their youth and adolescence was shaped by the experiences of National Socialism and World War II. Men of these cohorts were drafted as soldiers. The birth of their children fell into wartime and the immediate post-war period. These children experienced their school hours predominantly during the 1950s. The life situation of the cohorts born around 1930 was also heavily influenced by World War II, the Third Reich and its breakdown. Their schooling fell predominantly into the time of the Third Reich, final-year classes and vocational training into the immediate post-war period. Their descendants were born in the 1950s and 1960s and experienced economically increasingly better times. The schooling of these children took place during a phase of marked educational expansion. The cohorts born around 1940 experienced their childhood still during World War II and its aftermath and went to school during the immediate post-war period. As young adults they experienced the separation of the two German states and the "economic miracle" in West Germany. Their children were born predominantly during the 1960s and the early 1970s and had their educational careers in times of substantial educational expansion.

Historical conditions that were full of change have been accompanied by a relatively high level of institutional stability. Since the Weimar Republic, the German education system or rather the education systems of the federal states have been characterized by structural characteristics like a universal elementary school, an essentially three-tier secondary school system, a broadly developed vocational training system and a system of higher education which has been differentiated only in the last decades (cf. also Cortina et al., 2008). In the following, individual educational behavior is measured by the attainment of different secondary school degrees or by track-specific school attendance and hence by indicators which have consequences also for following steps of the educational career, like access to university. In theoretical regard, origin-related primary effects as well as selective transitional decisions at the end of elementary school are possible causes of social differences in these indicators. Substantial social inequalities at this particular transition were repeatedly confirmed (Becker and Lauterbach, 2007). However, the inequality in the acquisition of school qualifications has also proven to have a considerable development over the life course (Hillmert and Jacob, 2010).

Our analyses abstract from the complexity of empirical life courses in a number of ways: We only consider partners within first marriages. Deliberately only few grouping variables are used for all generations, in particular educational attainment. For the purposes of a "sophisticated description" (Goldthorpe 2007) the goal is to systematically describe the social inheritance across the generations and hence the identification of multiple effects and possible explananda, not the causal explanation of individual educational behavior or the explanation of a maximum of variance. The structure of the analyses allows making comparisons between graphical representations and multivariate models. The multivariate analyses are based on ordinal probit models (Long, 1997) for the analyses of partner choice and educational attainment and on count data models for the fertility analyses (Wooldridge, 2002) which are regarded to be relatively robust against possible violations of distributional assumptions. The central indicator of educational attainment refers to attained school qualifications. These characteristics can be determined relatively early in the life course. This makes it easier to find longitudinal data with a sufficiently large observation window.

To simplify, the following classification of school qualifications (with abbreviations) is used in accordance with the three-tier secondary school system: Low = at maximum lower level secondary school degree (*Hauptschulabschluss*); Medium = intermediate secondary school degree (*Realschulabschluss/mittlere Reife*); High = upper secondary school degree (*Abitur* or *Fachhochschulreife*). For the children who are still in school at the time of the interview, the level of their school attainment is estimated from the school type they currently attend. This abstracts from possible changes between school types and drop out, as well as from the fact that there is increasingly no identity between attained degrees and the type of school attended (Schuchardt and Maaz, 2007). Age-specific cumulative birth rates (not presented) indicate that – with the exception of the youngest cohort – the processes of family formation and fertility were obviously finished in most families at the time of the interview; however, this does not apply to the educational attainment of the children.

Figure 2 presents the educational distributions of school attainment across generations. The differences between the parental generations of the different cohorts are relatively small. The

general educational expansion is reflected, however, in the generational differences within families. Marked differences between the distributions are visible when turning to the children's generation. Also in these data the educational expansion is more distinctive for young women than young men.

Fig. 2 here

5. Empirical results

(1) Educational inequality, gender and family structures. Our analyses start with descriptions of inequality concerning the school attainment of the children's generation. Figure 3 presents a typical finding in educational sociology: The educational distribution of the children varies systematically with the educational level of their parents. A bit more unusual may be the differentiation by gender which in this case does not refer to the children; rather, the differentiation is applied with regard to the educational level of fathers and mothers. Again, there are differences between fathers and mothers in the educational attainment of their children. This is a first indicator of the fact that it makes sense to distinguish analytically between educational reproduction of men and women.

Fig. 3 here

In order to describe the role of family background for educational attainment more precisely, multivariate models of educational attainment are estimated for the children's generations (cf. table A2 in the appendix). The dependent (ordinal) variable is the level of attained school education. *Model 1* indicates clear influences of the schooling level of both the father and the mother, which are comparable in magnitude. *Model 2* includes interaction effects between gender and parental education. The question here is whether the effects of father and mother are different for girls and boys. Although the evidence is much less clear than with the main effects, this question can nevertheless be confirmed. The (higher) level of schooling of the father seems to influence the school education of the sons more positively than the education of the daughters.

For the schooling level of the mothers the opposite is the case. There are also indicators of negative interactions between the educational levels of the parents (models not displayed). In the sense of "ceiling effects" this means that the educational effects of one partner are a little weaker if already the other partner has a higher educational level. However, the effects are not significant. There is also no indication that there is a "trade-off" between status preservation in families by the choice of suitable partners and the transmission of educational attainment to the next generation. In *model 3* sibling effects are added. In this model, a larger number of siblings tends to affects own educational attainment negatively. Also these (negative) consequences for educational attainment are slightly larger for girls than for boys, a fact that has to be seen in the historical context of the cohorts in our study. In general, the results confirm existing findings.

(2) Formation and influence of the parental context. In the discussion about origin-related educational inequality it is often neglected that there is substantial variation among families with the same educational level of one parent – e.g., fathers with intermediate school education. The effects of the school education of *both* fathers *and* mothers in the model estimates described above are already an indicator of this fact. Figure 4 gives another descriptive illustration of this. It presents the educational distributions of the children as a function of combined parental education, i.e. of the schooling level of the father as well as of the mother. There is a large variation in these distributions when the school education of the father is held constant as well as when the school education of the mother is held constant. This finding emphasizes the great importance of the educational resources of *both* parents for the educational success of the children.

Fig. 4 here

Of course the combinations of parental education are not distributed equally among families. In table A3 in the appendix, the distribution of these combinations is shown for the parental generation (only married couples and first marriages). Though the homogamous couples dominate in quantitative terms, also other combinations have a relevant share. This encourages the question of how these combinations come about. Table A4 in the appendix presents a simple model of partner choice. Using an ordinal probit model, the educational level of the male partner

is estimated for women of the parental generation. As expected, higher levels of the woman's own school education raise the likelihood for the partner having a higher-level school education, too *(model 1*). The cohorts do not differ remarkably in this regard (model with interactions not displayed). However, it is remarkable that even when school education is controlled for, the education of this generation's own parents – both father and mother – has still an additional, positive impact *(model 2*). Hence, the education of the (grand-)parents has long-term effects in various ways: It influences the level of education of the children as well as the education of the chosen partner, and both variables are themselves important determinants of the educational attainment of the (grand-)children.

This brings us back to the analysis of educational attainment in the children's generation. The great importance of the combined parental context can be illustrated in yet another way, namely as a "decomposition" of the relative importance of both partial processes. In figure 5, the empirical educational distributions of the children of parents with particular school education are compared with suitable counterfactual distributions. These are calculated as the distributions that would result if the partners met not according to the empirical patterns, but – at least with regard to education – by chance. Assuming statistical independence, these distributions are generated by multiplying the marginal distributions of the cohort-specific marriage contingency tables. Holding everything else constant, which educational attainment would then result for the children of a father or a mother with a particular level of schooling?

Fig. 5 here

The observed differences between the two types of distributions may at first seem rather small. However, this impression changes if measures of inequality are calculated on the basis of both the empirical and the counterfactual educational distributions. Figure 6 shows selected relations of inequality. As measures of inequality in educational opportunities, we use odds ratios as the conventional measures in educational research. They represent the relative chance of attaining a particular level of education (vs. not attaining) of children from a parent of one particular educational group in comparison with children from a parent of another group.

Fig. 6 here

It turns out that the values for inequality in the counterfactual educational distributions are clearly lower; they fluctuate in their relative level, but on average they are about half as large as the corresponding empirical values. To express it differently: In these cases, approximately half of the empirically observed inequality between children of parents from two different educational groups can be attributed to the fact that these parents have chosen their partners not randomly, but that they chose *specific* partners who – according to their social position – have themselves typical influences on the education of the children.

(3) Fertility and social reproduction. Our analyses finally turn to the third important partial process in the whole process of social reproduction. As in comparable studies, also our data indicate specific fertility patterns related to education which express themselves in both the timing of the parenthood and in the number of children. Table A1 in the appendix presents the average number of children at the time of the interview, cumulated for men and women in the particular cohorts. Even stronger than in the average numbers the educational differences are expressed in the proportion of childless persons (cf. table A1) – though the fertility phase was probably not yet completed in youngest cohort at the time of the interview. For an analysis of social reproduction, the absolute numbers of children are of primary interest. Table A5 in the appendix analyses these numbers on the basis of simple count data models. *Model 1* shows essentially negative effects of higher and especially of intermediate school education on the estimated number of children. In *model 2* the close connection with marriage becomes obvious: Unmarried persons have clearly less children. However, the education of the partner seems to play only a minor additional role *(model 3*). The same applies to long-term educational traditions in the family, but even after controlling for all the other variables, there is at least a significant effect for the (intermediate) school education of the (grand-)father *(model 4*).

To summarize these analyses, parental education influences the educational opportunities of the children positively and influences fertility negatively. In this sense one could speak of a "trade-

off" between both partial processes. If one brings these aspects together in one analysis, there is indeed a somewhat moderating effect. In figure 7 simple ratios are used as measures of inequality; they can be applied to both proportions and absolute numbers. In this example they refer, in one case, to the proportion of the children who attained upper secondary school education and, in the other case, to the absolute number of children with this educational level, comparing in each case descendants from fathers or mothers of two particular levels of schooling.

Fig. 7 here

The observed level of inequality in the absolute numbers of children with upper secondary school degree turns out to be slightly, but consistently lower than the level of inequality in the proportions of the children with this level of educational attainment. In this sense, selective fertility can moderate the extent of (absolute) educational reproduction. This leads us to the final analyses of intergenerational educational reproduction. The empirical level of this reproduction depends strongly on the specific measures that are used. We therefore look at a number of different alternatives. The first decision concerns the units of origin and destination in the analysis. Figure 8 presents various measures of intergenerational reproduction rates, using different definitions in that regard. The first column for each cohort/education combination indicates the degree of reproduction brought about by all children of a parent; the third column refers to the reproduction achieved only by children of the same gender as the parent. The latter rates are necessarily much lower, but they can be informative about intergenerational continuities particularly in times with a high level of inequality between genders. In all cohorts, the lower educated and particularly the higher educated had relatively high reproduction rates, while the inter-mediate group had much lower rates. Note that these differences between the educational levels are not necessarily an indicator of social inequality between these groups. Given their different sizes, it is statistically more likely for some groups to have higher reproduction rates than for others, even if there is no relationship between origins and destinations. In fact, a number of statistical measures use this assumption of independence to derive a standard against which the empirical values can be assessed. We therefore present reference values that represent the degree of reproduction under this assumption. When comparing these values with the empirical results, it

becomes clear that all educational groups have a higher than random reproduction rate, but again, this applies in particular to the high educated.

Fig. 8 here

In figure 9, we select a specific rate of reproduction for a more detailed analysis. The example is the reproduction among the high qualified and between a parent and all his/her children, i.e. we look at the children of parents who have an upper-level school education. We use this example to look once again at the effect of counterfactual changes in processes of family formation. We follow two scenarios: first, "random allocation" of partners in the marriage market and second, both random allocation of partners and (cohort-specific) equal fertility among all couples. It turns out that while random partnership formation tends to reduce educational reproduction rates, equal fertility has a counter-acting effect. This means that in real life – which is characterized by both social homogamy and selective fertility – the high reproduction rates of the high qualified are partly due to their specific marriage patterns, but are also limited by the relatively low fertility of this group.

Fig. 9 here

Such counter-factual scenarios always imply another type of assumption. These additional assumptions concern the "demand side" of educational opportunities and the allocation process which determines which children attain which level of education. This is especially obvious if the counterfactual scenarios predict a change in the overall number of children, but it is already relevant if empirical and counterfactual situations differ with regard to the number of children from any specific background. In this case it is unlikely that the final counterfactual distribution will remain exactly the same as the empirical educational distribution, given the fact that quantities in various school tracks are normally not fixed and that allocation is (legally) supposed to be based on the ability and achievement of the actual population of students. But – given other well-known facts, competition and non-meritocratic inequality – how exactly does the allocation process work? In our example, we have used the simple assumption that also under the

counterfactual conditions the proportions of attainment in any of the groups remain constant. Alternative scenarios might assume, for example, that the school system expands or contracts completely exogenously and disproportionately on different levels. A thorough discussion of these scenarios, their theoretical foundations and their interactions with the scenarios of family formation mentioned above would be beyond the scope of this paper. It may be sufficient to state that both "demand side" and allocation can be modeled on the basis of plausible assumptions. Moreover, systematic considerations about these issues are important also for the interpretation of results from conventional mobility research, which all too often takes "structural change" as completely exogenous. At least in the context of education, this is a very strong assumption.

6. Summary and outlook

While this paper is not comparative as such, it proposes a research perspective that can serve as a promising basis for systematic comparative research. The presented analyses are not an exhaustive set of applications of such an approach, and the specific results of this paper should be regarded as exemplary. They are to be placed in their specific historical context, are consciously designed simple and subject to different restrictions. Especially if causal questions are of interest, having even more detailed data on educational success, family structure and possible transmission mechanisms would be desirable. This includes measures of individual achievement as well as attempts to control unmeasured factors (for the role of inherited endowments cf. Behrman et al., 1994). In historical perspective, the sequence of selected cohorts can be expanded, so that it becomes part of a longer sequence. In our case the educational behavior clearly differs across the family generations, but it differs only slightly between the parental generations. Hence, an interesting contrast case would be the inclusion of (younger) parental cohorts which themselves have profited especially strongly from educational expansion. Also more recent demographic developments regarding social homogamy and education-specific fertility promise interesting associations.

However, the available analyses already make clear that family-related analyses of social and educational inequality offer still considerably broader possibilities than "only" the description of

origin-related educational chances of children of certain cohorts. In particular long-term processes of social reproduction in society can be studied by taking the partial processes of partnership formation and fertility into account. Obviously a large proportion of the observed educational reproduction can be attributed to these partial processes which are essentially located outside the educational system – and which are therefore sensitive to interventions of educational policy only to a rather small degree. Therefore international comparisons which refer not only to (conditional) educational opportunities but to *all* selective processes of social reproduction are a consistent application of such an approach. Empirical comparisons could refer in particular to the relative contribution of the specified partial processes for the total result of intergenerational educational and social reproduction, and international differences in these relative contributions would be significant objects of explanation. Given a sufficiently long series of cohorts, trends in these contributions and associations between them could themselves be modeled. Moreover, conceptualizing social transmission from the parents' generation can be used as heuristic tool also for conventional social mobility analyses: It makes the research sensitive to underlying assumptions like the question of how to conceive of the development of "structural" changes. In general, however, a number of important theoretical questions are still open. Finally, it is worth noting that the partial processes relevant for social reproduction are analyzed in great detail in different fields of sociology. Hence, it is important to interpret the available results more in connection with one another, and this does not necessarily require a common statistical model.

Appendix

Tables A1 to A5 here

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Figure 1: Partial processes of social reproduction

Individual social status (parents' generation: *social origin*)

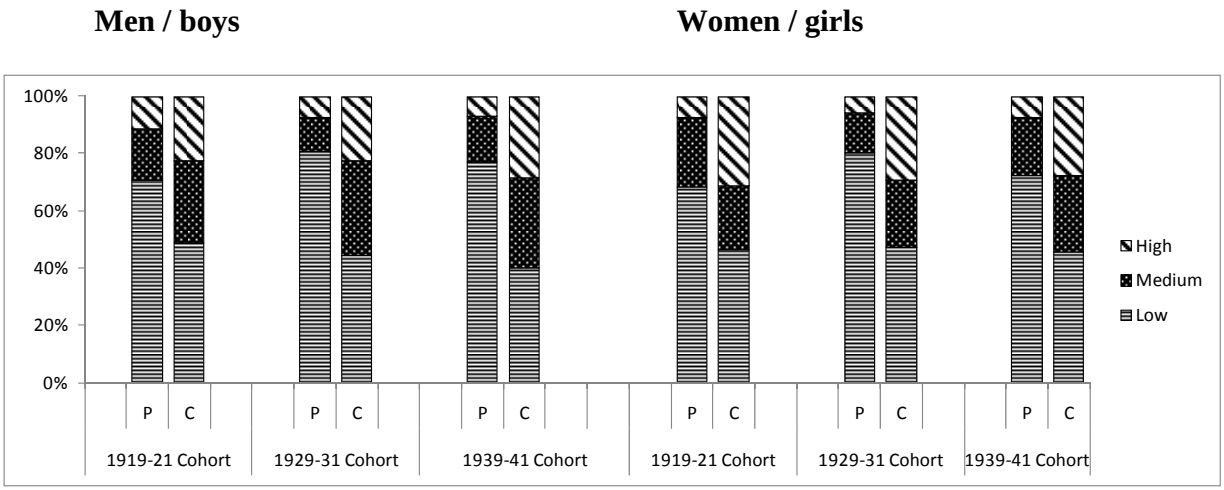
(1) Socially selective **partner choice** *(formation of parental context)*

(2) Socially selective **fertility**, conditional on (1) et al.

(3) Socially selective **status attainment**, conditional on (1) and (2) et al.

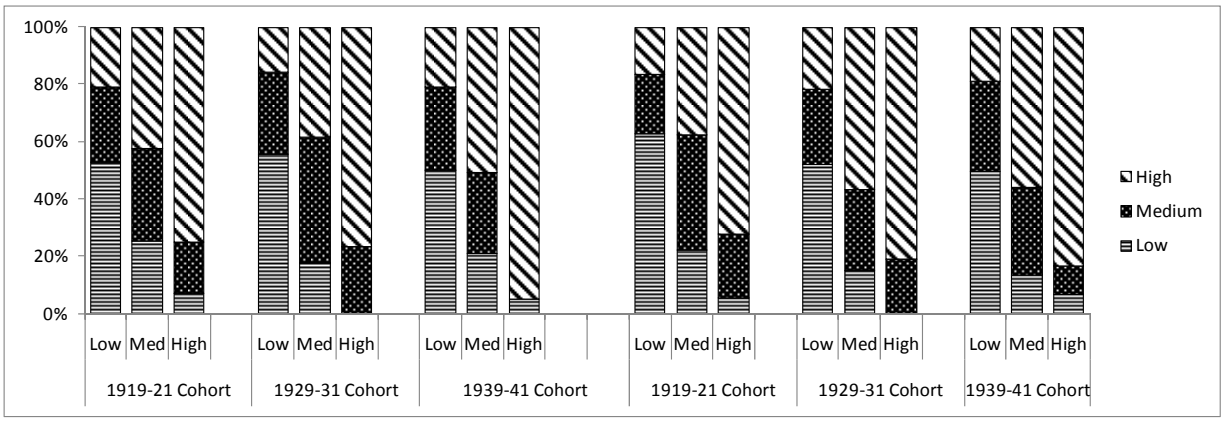
Individual social status (children's generation: *social destination*)

Figure 2: School attainment over the generations, by birth cohort (of the parental generation)



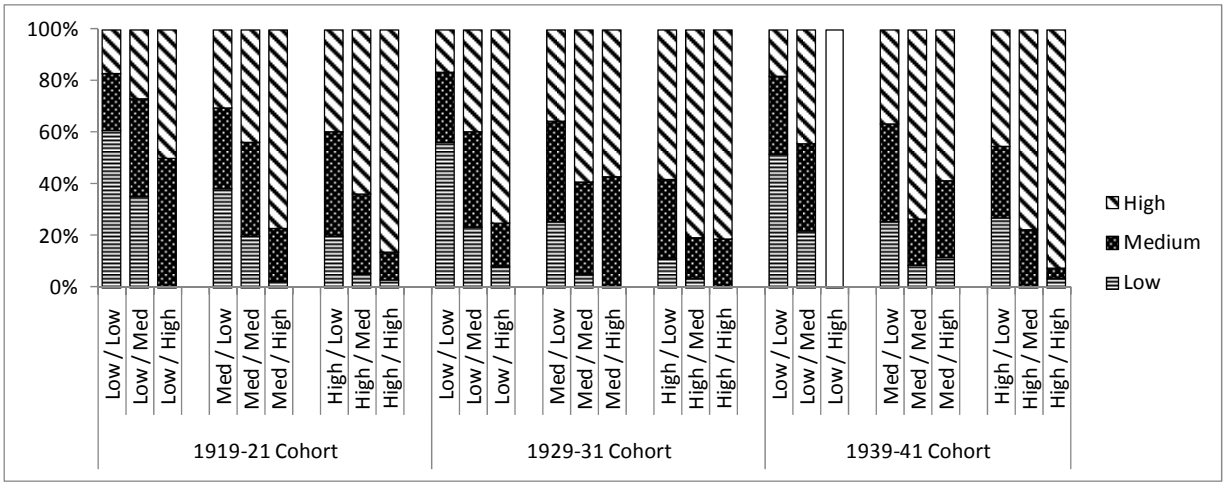
P: parent, C: children

Figure 3: School attainment of children of parents with particular school qualifications, by birth cohort of the parents



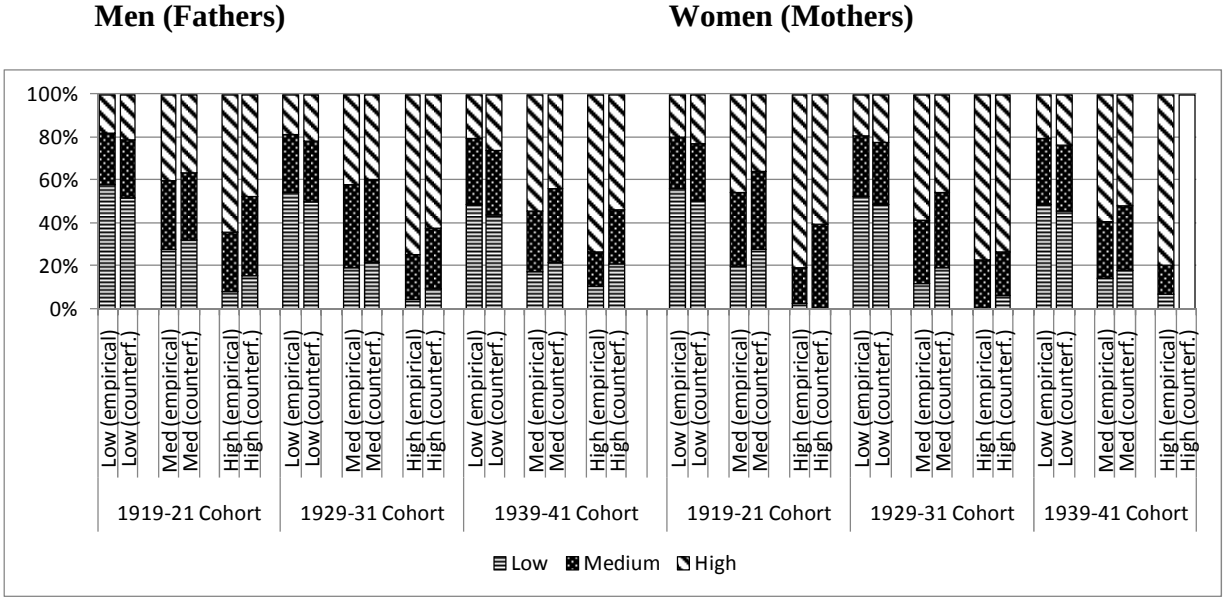
The labels Low/Med/High below the columns denote the school level of the parents; the charts represent the distribution of the children's school attainment

Figure 4: School attainment of the children, by the *combined* education of the parents



The labels below the columns denote the school level of the parents. Parents' education is ordered by father/mother. Transparent chart: Combination does not exist in the data.

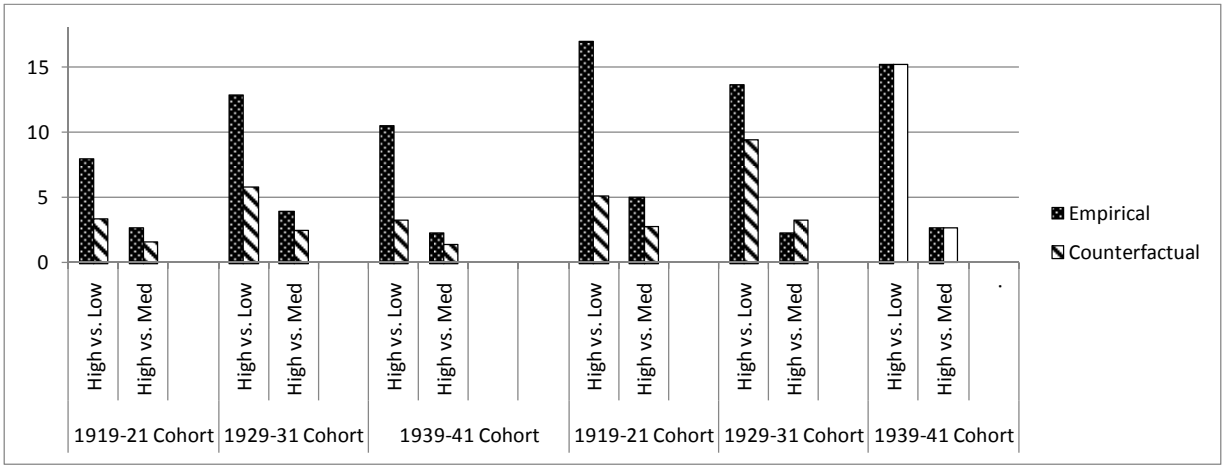
Figure 5: School attainment of the children, by parents' education: Comparing empirical and counterfactual (combined) distributions



The labels below the columns denote the school level of the fathers or mothers. Counterfactual assumption: Partnership formation is independent of partners' education. Transparent column: Distribution cannot be reasonably determined (descriptively) due to missing data.

Figure 6: Attainment of upper secondary school education: Inequality (Odds ratios), by education and birth cohorts of the parents

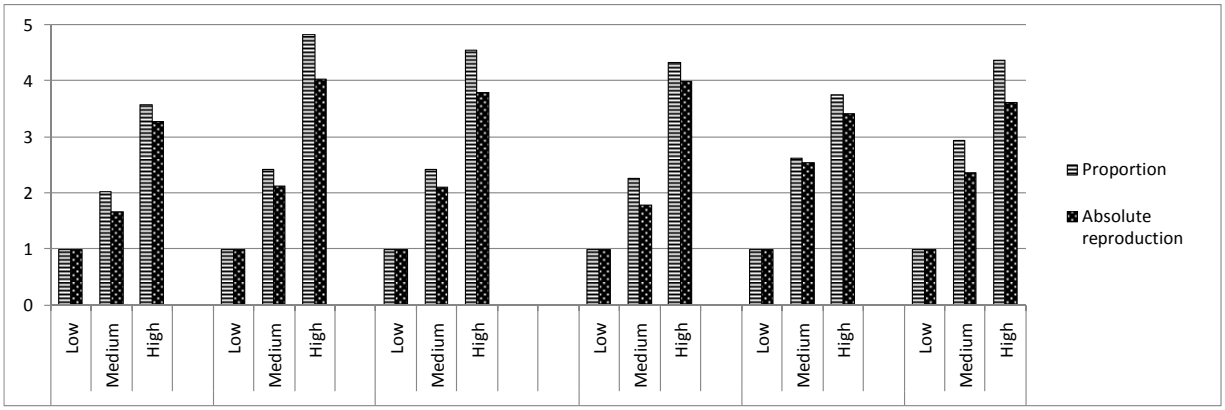
Men (Fathers) **Women (Mothers)**



The labels below the columns denote the school level of the fathers or mothers. Counterfactual assumption: Partnership formation is independent of partners' education. Transparent columns: Reference values cannot be reasonably determined (descriptively) due to missing data

Figure 7: Example attainment of upper secondary education: Inequality in relative educational attainment and absolute reproduction (by parent's level of education; Low=1)

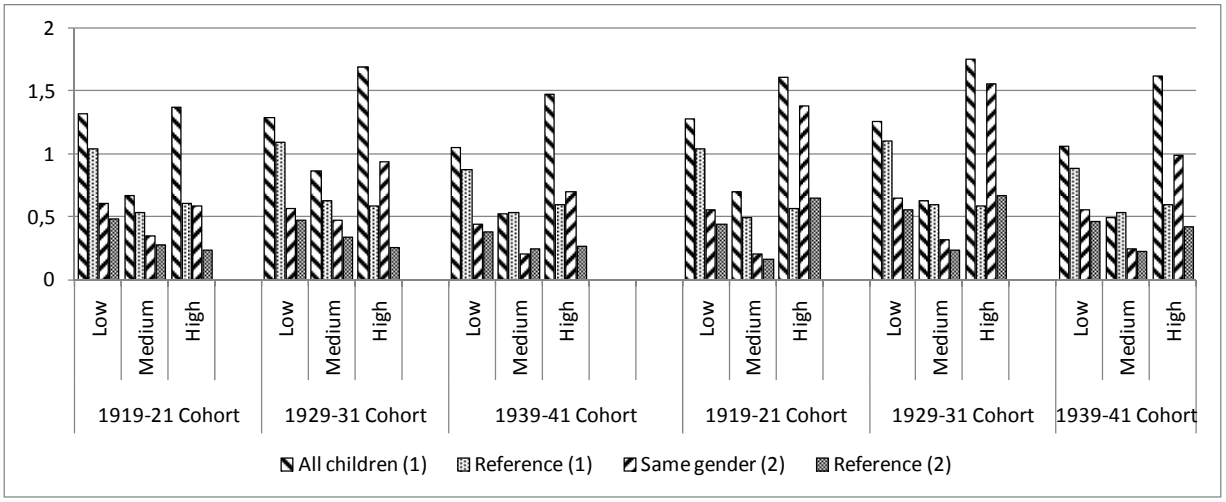
Men (Fathers) **Women (Mothers)**



The labels below the columns denote the school level of the fathers or mothers (compared to the reference category 'Low'). Children of cohort 1939-41: Absolute numbers estimated from numbers at the time of the interview.

Figure 8: Rates of intergenerational reproduction, by education and cohort of the parents

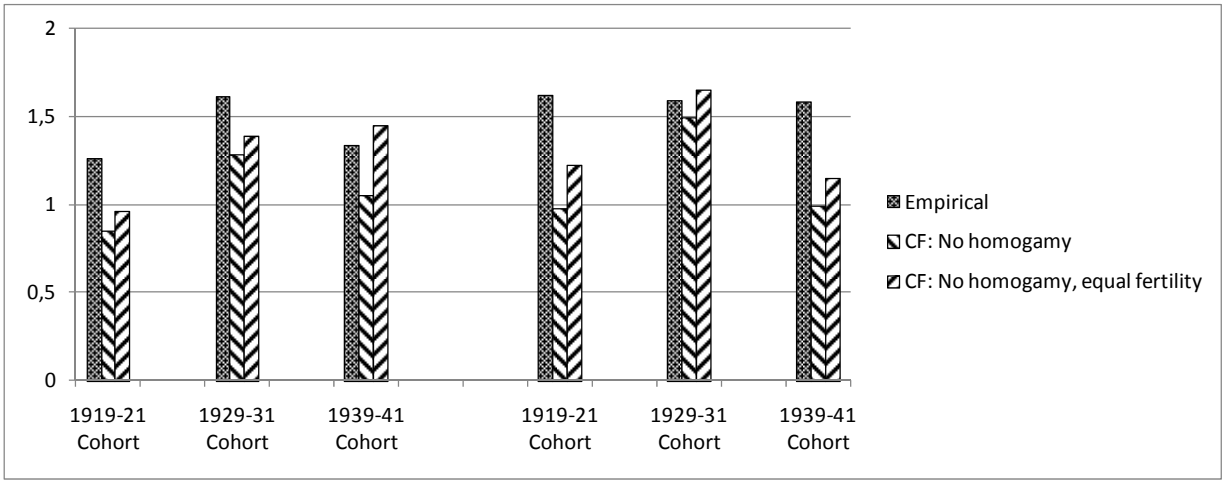
Men (Fathers) **Women (Mothers)**



Proportion to which the educational groups in the parental generation are quantitatively reproduced by their children. Reference values assuming independence between educational origins and destinations. The labels below the columns denote the school level of the fathers or mothers.

Figure 9: Rates of intergenerational reproduction regarding upper-secondary school education: Empirical values and counterfactual estimates, by cohort of the parents

Men (Fathers) **Women (Mothers)**



Proportion to which the group of highly educated parents is quantitatively reproduced by their children.

Table A1: Basic information about the data

	1919-21 Cohort	**1929-31 Cohort**	**1939-41 Cohort**
Years of interview	1985-88	1981-83	1981-83
N=	*1,412*	*708*	*730*
Men	*559*	*347*	*375*
Women	*853*	*361*	*355*
Age at the time of interview (Mean, SD)	67.0 (1.4)	51.5 (0.9)	41.7 (0.9)
Number of children (Mean, SD)			
Men – Low education	2.22 (1.43)	2.27 (1.60)	1.89 (1.34)
Medium education	1.88 (1.24)	1.95 (1.26)	1.65 (1.02)
High educstion	2.03 (1.25)	1.92 (1.32)	1.62 (1.24)
Women – Low education	2.09 (1.46)	2.27 (1.52)	2.15 (1.37)
Medium education	1.68 (1.48)	2.20 (1.53)	1.74 (0.99)
High education	1.84 (1.27)	2.14 (1.68)	1.77 (1.21)
Proportion of childless			
Men – Low education	7.6%	11.4%	12.8%
Medium education	8.0%	9.8%	18.3%
High educstion	10.9%	11.5%	26.9%
Women – Low education	10.5%	9.3%	9.0%
Medium education	23.6%	10.0%	12.5%
High education	17.7%	19.9%	19.2%
Average age at childbirth (all children; Mean, SD)	29.8 (6.5)	29.3 (5.4)	27.2 (4.8)
Men	32.3 (6.4)	30.2 (5.4)	28.3 (4.6)
Women	28.1 (6.0)	28.4 (5.2)	26.0 (4.8)

Data: West German Life History Study

Table A2: Ordinal probit models of school attainment (childrens‘ generation)

	Mod. 1		**Mod. 2**		**Mod. 3**	
	Coeff.	***S.E.***	**Coeff.**	***S.E.***	**Coeff.**	***S.E.***
Threshold values						
Low / Medium school educ.	0.31	*0.05*	0.30	*0.05*	0.08	*0.06*
Medium / High school educ.	1.15	*0.05*	1.14	*0.05*	0.94	*0.06*
Effect coefficients						
Cohort 1929-31	0.22**	*0.07*	0.21**	*0.07*	0.22**	*0.07*
Cohort 1939-41	0.37**	*0.07*	0.35**	*0.07*	0.37**	*0.07*
Female	0.26**	*0.07*	0.26**	*0.07*	0.26**	*0.07*
Female*Cohort 1929-31	-0.08	*0.08*	-0.07	*0.08*	-0.08	*0.08*
Female*Cohort 1939-41	-0.27**	*0.09*	-0.27**	*0.09*	-0.27**	*0.09*
Father : medium educ.	0.53**	*0.08*	0.50**	*0.08*	0.53**	*0.08*
Father : high educ.	1.08**	*0.10*	1.05**	*0.10*	1.08**	*0.10*
Mother: medium educ.	0.54**	*0.08*	0.50**	*0.08*	0.54**	*0.08*
Mother: high educ.	0.98**	*0.13*	0.90**	*0.14*	0.98**	*0.13*
Parent unmarried	-0.19**	*0.06*	-0.18**	*0.06*	-0.19**	*0.06*
Female*Father medium			0.05	*0.10*	0.03	*0.10*
Female*Father high			-0.22+	*0.12*	-0.21+	*0.12*
Female*Mother medium			0.15	*0.10*	0.14	*0.10*
Female*Mother high			0.31	*0.20*	0.29	*0.19*
No. of siblings					-0.11**	*0.02*
Female*No. of siblings					-0.05*	*0.02*
Chi²	693.05		695.13		693.05	
Pseudo-R^2 (McFadden)	0.12		0.12		0.12	
N=	*4,793*		*4,793*		*4,793*	

** $p \leq 0.01$ * $p \leq 0.05$ + $p \leq 0.1$
Robust standard errors for clustered observations (children in families)
Children of parents of birth cohorts 1919-21, 1929-31 and 1939-41

Table A3: Educational combinations of (married) couples (percentages)

	Cohort 1919-21	**Cohort 1929-31**	**Cohort 1939-41**
Educational combinations Men /Women			
Low / Low	59.1	72.2	67.2
Low / Medium	6.9	6.3	8.8
Low / High	1.0	0.9	-
Medium / Low	8.8	8.0	7.1
Medium /Medium	6.0	2.8	6.0
Medium / High	1.9	0.5	1.7
High / Low	5.5	2.8	2.6
High / Medium	6.6	3.8	2.8
High / High	4.2	2.8	3.9
	100.0	100.0	100.0
N=	*1129*	*640*	*649*

Table A4: Ordinal probit models of partner choice: Education of the (male) partner

	Model 1		**Model 2**	
	Coeff.	***S.E.***	**Coeff.**	***S.E.***
Thresholds				
Low / Medium educ.	0.80	*0.06*	0.82	*0.06*
Medium / High educ.	1.41	*0.07*	1.43	*0.07*
Effect coefficients				
Cohort 1929-31	-0.31**	*0.10*	-0.34**	*0.10*
Cohort 1939-41	-0.28**	*0.09*	-0.32**	*0.10*
Woman's education: medium	1.14**	*0.86*	1.03**	*0.09*
Woman's education: high	2.05**	*0.15*	1.83**	*0.16*
Father: medium educ.			0.34*	*0.14*
Father: high educ.			0.28+	*0.16*
Mother: medium educ.			0.26+	*0.15*
Mother: high educ.			0.24	*0.29*
2*diff(LL) (Chi^2)	350.93		366.67	
Pseudo-R^2 (McFadden)	0.17		0.17	
N=	*1,290*		*1,290*	

** $p \leq 0.01$ * $p \leq 0.05$ + $p \leq 0.1$
Birth cohorts 1919-21, 1929-31 and 1939-41

Table A5: Number of children in the parents‘ generation: Poisson regressions

	Mod. 1		**Mod. 2**		**Mod. 3**		**Mod. 4**	
	Coeff.	***S.E.***	**Coeff.**	***S.E.***	**Coeff.**	***S.E.***	**Coeff.**	***S.E***
Constant	0.80**	*0.03*	0.82**	*0.03*	0.83**	*0.03*	0.83**	*0.03*
Cohort 1929-31	0.02	*0.05*	0.03	*0.05*	0.03	*0.05*	0.03	*0.05*
Cohort 1939-41	-0.16**	*0.05*	-0.12**	*0.05*	-0.12*	*0.05*	-0.11*	*0.05*
Female	-0.07+	*0.04*	-0.02	*0.04*	-0.03	*0.04*	-0.03	*0.04*
Female* Cohort 1929-31	0.09	*0.06*	0.03	*0.06*	0.04	*0.06*	0.04	*0.06*
Female* Cohort 1939-41	0.19**	*0.07*	0.10	*0.07*	0.09	*0.07*	0.09	*0.07*
Own education: medium	-0.15**	*0.06*	-0.15**	*0.06*	-0.14**	*0.06*	-0.12*	*0.06*
Own education: high	-0.12+	*0.07*	-0.09	*0.07*	-0.07	*0.08*	-0.05	*0.08*
Female*medium educ.	-0.03	*0.07*	-0.00	*0.07*	-0.02	*0.08*	-0.02	*0.08*
Female*high educ.	-0.01	*0.10*	0.04	*0.10*	0.02	*0.11*	0.01	*0.11*
Unmarried			-1.71**	*0.20*	-1.72**	*0.20*	-1.72**	*0.20*
Female*Unmarried			0.04	*0.25*	0.05	*0.25*	0.05	*0.25*
Partner medium educ.					-0.09	*0.06*	-0.09	*0.06*
Partner high educ.					-0.02	*0.10*	-0.02	*0.10*
Female*Partner medium					0.10	*0.08*	0.10	*0.09*
Female*Partner high					0.02	*0.12*	0.02	*0.12*
Father: medium educ.							-0.12*	*0.06*
Father: high educ.							-0.03	*0.07*
Mother: medium educ.							0.04	*0.06*
Mother: high educ.							-0.02	*0.11*
2*diff(LL) (chi²)	51.26		415.48		417.68		422.31	
Pseudo R^2	0.01		0.04		0.04		0.04	
N=	*2,850*		*2,850*		*2,850*		*2,850*	

** $p \leq 0.01$ * $p \leq 0.05$ + $p \leq 0.1$
Birth cohorts 1919-21, 1929-31 and 1939-41 (here censored observations can be expected)