Transitions Within and From First Unions: Educational Effects in an Extended Winnowing Model

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In this article, we study how different transitional phases from childless cohabitation relate to education and educational resemblance of the partners. Using longitudinal population register data from Finland, we extend analyses of previous research to suit the conditions in societies where almost all unions begin before marriage and much childbearing takes place outside marriage. Educationally heterogamous couples are found to have higher separation risks than homogamous ones and a somewhat smaller tendency to marry or become parents. Winnowing consequently takes place also after parenthood, but the strongest effect is recently after couples have entered a cohabiting union. Traditional family formation behavior in terms of marriage before children is nevertheless much more common among higher-educated people. The share of unmarried parents is notably higher among lower educated, and they are much more likely to remain as unmarried parents. Hence, if parenthood is taken into account, marital status remains an important device for categorizing couples.

KEYWORDS cohabitation, divorce, family life cycle, marriage, mate selection, separation, stability of relationships

INTRODUCTION

The decline in marriage rates and the emergence of cohabitation, together with an increasing proportion of children born outside marriage, have resulted in a multifaceted complex of problems for the scientific study of
family formation and family composition (Bachrach, Hindin, & Thomson, 2000; Hovde Lyngstad & Jalovaara, 2010). This article builds on the intuition that in many modern societies, and particularly in the Nordic countries, entry into cohabitation, marriage, parenthood, and union dissolution all reflect stages in the courtship process. In the spirit of a larger theory of family development (Rodgers & White, 1993; White & Klein, 2002), we study stages in a relationship after entry into the first union, specifically how long-term prestige in terms of educational levels and educational resemblance of the partners interrelate with transitions between the different stages. In doing so, we also propose a novel empirical strategy for analyzing and understanding educational homogamy, using detailed longitudinal data from Finland.

The behavior where people tend to form families with partners of similar status positions is known as assortative mating or status homogamy. It is usually explained in terms of individual preferences, opportunities, and the influence of others (Kalmijn, 1994). Of particular interest has been educational resemblance, because education determines long-term occupational prestige and cultural resources that influence individual tastes and preferences (Hamplova, 2009; Jepsen & Jepsen, 2002; Rosenfeld, 2008; Schwartz & Mare, 2005).

Educational homogamy is yet not only a result of personal desires to mate assortatively but related also to the educational distribution and the relative size of educational groups in society (Kalmijn, 1994; Michielutte, 1972). Consistent with economic theories and ideas about cultural forces (Thomson, 2005; Waite, Bachrach, Hindin, Thomson, & Thornton, 2000), the rates of marriage, cohabitation, nonmarital childbearing, and separation strongly depend on people’s level of education. Higher educated people are more likely to marry but less likely to divorce and to become parents outside marriage (Jalovaara, 2003; Manning & Smock, 1995; Willis & Haaga, 1996), whereas the proportion of cohabitants who remain unmarried is substantially higher in lower educated people (Finnäs, 1995). Individuals with higher income will have more to gain by marriage than those with lower income. The attraction of marriage as a clearly defined and regulated union therefore enhances couples with economic resources and those who pool resources to marry, even when there is a lack of strong gender specialization or if there is a conflict between what is expected in marriage and career aspirations of women (Duvander, 1999). Differences across social groups might additionally be due to socialization and attitudes. Lower socioeconomic background leads to lower education, which leads to a lower marriage propensity. In Finland and Sweden, daughters of manual workers, who started the trend of cohabitation, tend to have particularly high cohabitation rates (Bracher & Santow, 1998; Finnäs, 1995). Marriage might additionally be seen as a traditional institution and cohabitation as a less conservative form of living. Persons with traditional family attitudes would then enter marriage, whereas persons with more liberal attitudes would avoid it.
In this article, we extend the model and seminal work of Schwartz (2010) to better suit the actual conditions in countries such as Finland where consensual unions are very common. The purpose is to study how different transitional phases from cohabitation—encompassing marriage, childbirth, and separation—depend on educational levels and educational resemblance of the partners. Finland is an illustrative case, because data from the country’s registers offer unusually rich opportunities for detailed longitudinal analyses of the family formation process. Because the country is one of few where cohabiting unions can be explicitly observed in population registers, this article also serves to illustrate the possibilities and challenges of using extensive register based data of this kind. There is an extensive literature on how educational homogamy in marriage and cohabiting unions can be understood in theory and empirical research, which we briefly discuss next. Thereafter, we describe the framework and context, followed by a presentation of the data and analytical methods used.

Educational Homogamy in Theory and Previous Research

Two views dominate the literature on status homogamy in marriages and cohabiting unions, which is predominantly from the United States. One is based on economic theory and a utilitarian perspective, emphasizing specialization and trade within unions (Becker, 1974; 1981; Becker, Landis, & Michael, 1977; Brines & Joyner, 1999). The approach sees the bond between partners as a function of interdependence, meaning they become increasingly dependent on one another as the gain from the current relationship exceeds prospective gains from any alternative. Specialization in the division of labor is considered the best strategy for maximizing the potential for rewards within the relationship. Couples that are less specialized would consequently be more likely to split up. Because cohabitation lacks the long-term commitment of marriage, cohabiters are supposed to be less likely to specialize than are married couples and thus more likely to be educationally homogamous than married couples (Schoen & Weinick, 1993).

The other approach sees education as a multifaceted device, signaling not only economic potential but also largely the relevance of couples’ matching on shared lifestyles and cultural backgrounds (DiMaggio & Mohr, 1985; Kalmijn, 1994). These aspects include a variety of values and behaviors, such as child-rearing preferences; political attitudes; tastes in art, music, and literature; ethical norms; and so on. Uncertainty about a prospective partner’s long-term characteristics needs to be attenuated before committing to marriage. Cohabitation is therefore supposed to reduce uncertainties involved in spouse selection as partners test for compatibility and strengthen their emotional bonds (Oppenheimer, 1988).

Consistent with this approach of cultural matching, which sees stages in the process of partner selection as a social filter, is the idea of a winnowing
process (Blackwell & Lichter, 2000, 2004). It states that cohabitation provides a staging ground for evaluating potential marital partners and fostering better matches in marriage. The criteria for selection into cohabitation can be assumed less stringent than for marriage, because it involves fewer and more short-term commitments. Individuals entering cohabiting unions should consequently be less selective of partner characteristics, such as education or enrolment in education, at the outset of the union than individuals entering marriage. Homogamy then increases as couples progress along the dating–cohabiting–married continuum, meaning that the spouse selection process is double selected. First, young adults select a cohabiting partner. Second, the cohabiting partner may become the future spouse.

The opposite predictions apparently stem from the different assumptions about the meaning and role of cohabitation in the two approaches (Hamplova & Le Bourdais, 2008). The economic or utilitarian approach sees cohabitation mainly as an alternative to marriage and explains under which conditions couples stay together in the absence of a marriage contract. Cultural matching or winnowing, on the other hand, assumes that cohabitation serves as a trial arrangement before marriage, in which the good matches marry and mismatches separate.

Empirical studies of status homogamy in marriages and cohabiting unions have produced mixed results. Some support the theory of the gains of specialization (Schoen & Weinick, 1993; Smock & Manning, 1997), some are more consistent with the ideas of cultural matching and a winnowing process (Casper & Bianchi, 2002; Hamplova & Le Bourdais, 2008), whereas others are indifferent (Goldstein & Harknett, 2006; Oppenheimer, 2003; Qian, 1998). The study by Schwartz (2010) reveals that the disparate findings of previous research are because cross-sectional data had been used and new unions could not be observed over their life course. Using longitudinal data, Schwartz finds that differences in educational homogamy between cohabiters and spouses are a result of selective exits from marriage and cohabitation rather than differences in partner choice at the outset of unions. A small tendency for educationally homogamous cohabiters to exit their unions, combined with a more pronounced tendency for dissimilar married couples to split up, largely account for observed differences in the likelihood of homogamy by union type. These findings correspond with the notion that in many countries, cohabitation has become the norm before marriage, numerous children are born within consensual unions, and women are as equally well educated as men (Hamplova, 2009).

In Finland, Jalovaara has extensively studied how socioeconomic indicators, such as education, influence union formation, union dissolution, and entry into parenthood (Jalovaara, 2001, 2002, 2003, 2012, 2013; Jalovaara & Miettinen, 2013). The results generally suggest that high education promotes union formation and entry into parenthood and discourages separation. The effect of educational heterogamy, in which we are particularly interested,
has been sparsely studied, however. The only previous Finnish study explicitly concerned with this issue is a recent article by Mäenpää and Jalovaara (2013). They found that educational homogamy increases the marriage rate among cohabiters with basic education and reduces it among those with upper tertiary education.

Framework and Context

The standard setting applied by Schwartz (2010) describes flows into and out of cohabitation and marriage as illustrated by Figure 1. Educational differences between cohabiters and spouses can be generated in a variety of ways. The inflows to cohabitation and to marriage and the flow from cohabitation into marriage might differ with respect to educational homogamy. The interrelation between education and separation might additionally vary between union types. All these transitions affect what is observed at the cross-sectional level in the stock of cohabiting unions and the stock of marriages. As noted by Schwartz (2010), the overall impact is a function of the extent to which entries and exits from cohabitation and marriage are selective of homogamous couples and the likelihood that couples make the transitions. The same is of course true for effects associated to the level of education.

The decline in marriage rates began in Sweden and Denmark in the late 1960s and spread through most of Western Europe in the early 1970s (Kiernan, 2000). The first signs of an emergence of cohabitation happened in the early 1960s in Sweden, or among the cohorts born in the 1940s. In Finland, this type of living arrangement did not increase in vast popularity until the later part of the 1980s, but today it is more of a rule than an exception.

FIGURE 1 Stock and flow diagram of transitions into and out of cohabitation and marriage in the standard setting.
that almost all couples who move in together begin with a period of informal cohabitation. Only one-fifth of Finnish women born in the late 1950s married at start of their first union (Nikander, 1992). The trend evidently continued. Less than 10% of all Finnish women born in the 1960s, 1970s, and 1980s who entered a union went directly into marriage (Nikander, 1996; Jalovaara, 2012). Furthermore, aggregate statistics for the year 2010 state that over 40% of all children were born outside marriage (Statistics Finland, 2011a). For an increasing proportion of the couples, cohabitation seems to have become a permanent family type also after childbearing. About one-third of the Finnish mothers aged 25–29 years live in consensual unions, and in ages 40–49 years the proportion exceeds one-fifth (Statistics Finland, 2011b).

Hence, during the past two decades, family type at union entry does not function as a device for categorizing couples. At the same time as cohabitation became common and marriage stability declined, a significant proportion of all cohabiting unions split before having entered the next step of the process in terms of marriage or parenthood. To understand the choice between cohabitation and marriage in this context, one needs to look at family formation that includes the birth of the first child rather than to merely distinguish cohabitation and marriage (for such an approach, see e.g. Jalovaara, 2013). We therefore include parenthood as an additional dimension, as opposed to the more customary procedure of accounting for parental status only as a time-varying covariate (for such an approach see e.g. Mäenpää & Jalovaara, 2013). Figure 2 illustrates the extended model. If the couples in our framework enter the process through a childless consensual

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**FIGURE 2** Stock and flow diagram of transitions into and out of cohabitation and marriage in an extended model.
union (state A), they progress toward marriage with children (state D) unless they separate or remain in one of the intermediate states. Because marriage and parenthood both indicate tighter bonds between the partners, transitions 3 and 4 represent a second step in the family formation process (subsequent to union initiation), whereas transitions 6 and 7 represent a third step.

Based on previous research, we know the transition to marriage is positively correlated with educational level (see e.g. Jalovaara, 2012) and the transition to unmarried parenthood negatively correlated (see e.g. Finnäs, 1995). It is not known, however, how education affects the transition into marital parenthood (state D) from childless marriage (state B) and from a consensual union with children (state C). If the hypothesis about a winnowing process is correct, the risk of separation should be higher for heterogamous unions than for homogamous ones, and assuming that both marriage and parenthood signal a step forward in the family formation process, homogamous couples should marry or enter parenthood to a greater extent than heterogamous ones. At each stage, the effect of educational level is still likely to dominate the effect of educational homogamy/heterogamy.

METHODS

Data are from the population register files known as “Palapeli” (permission TK-53-186-09; Statistics Finland, 2011c). These files are formed by combining information from the longitudinal population census file, the longitudinal employment statistics file, the register of completed education and degrees, marriages and divorces, entry into cohabiting unions, dissolved cohabiting unions, and persons’ children (Statistics Finland, 2011c). The registers make it possible to construct families for all individuals and their family members from 1972 onward. At the time data were obtained for this study, the registers had been updated up to and including the year 2003. Authorities do not register cohabiting unions, but Statistics Finland produce statistics on them based on persons permanently living in the same dwelling. A cohabiting union consists of a coresidential couple of opposite sex, who are not close relatives or married to each other, and whose age difference is no more than 20 years. Information about cohabiting unions is available since 1987. In this article, we therefore study unions that were initiated during the period 1987–2003 and observe them until the end of 2003.

The basis of our data is an 8% random sample of all individuals who were living in Finland at some of the population censuses 1970, 1975, 1980, 1985, 1990, 1995, 2000, or 2003. For all these individuals, there is information from the different censuses and about all unions initiated. For the partner there is corresponding longitudinal information. We also know the calendar year of all events, that is, the move into or out of a common dwelling, marriages, divorces, the birth of children, potential migration abroad, immigration, and death.
We focus on first unions, meaning that both the reference person and the partner studied had not been cohabiting or married before observation. We have therefore restricted the data to unions where both partners were childless (based on longitudinal information), women were aged 18–40 years, and men were aged 20–42 years at the time of union formation. Both partners were unmarried and had not (according to census data) lived in a cohabiting union before 1987. This procedure resulted in 65,946 unions. In addition, we have an identically constructed 50% sample with 21,991 unions, representing the Swedish-speaking population group. The Swedish speakers amount to barely 6% of the country’s total population. In the analyses, each sample is weighted according to its sampling proportion. Table 1 gives the number of different transitions in the data, with a categorization corresponding to Figure 2.

Technically distinguishing the various transitions in Figure 2 demands the exact dates of each event. In the present case, we cannot determine the order of events if they took place during the same calendar year. This taxonomy has some important consequences. If marriage and entry into the union took place during the same calendar year, which was the case for about one-tenth of all unions, it is impossible to know whether people started as cohabiters without children (transition 1) or if they went directly into marriage (transition 2). There is no unambiguous decision rule for how these unions should be treated. In addition, 3.2% of all unions lacked information about the start of the union. We included them by assigning a value for the start of the union to be the same as the year of the marriage. Excluding them from analysis would have no impact on the estimates, however (results are available upon request). In the present setting, the distinction between transition 1 and transition 2 is although of subordinate relevance because we do not study them at all. In our analyses, all unions start as cohabiting unions without children (state A), meaning that everyone who married moved in together with the partner before marriage. This approach also allows us to study the aggregate shift into marriage with children (see Figure 3), which otherwise would not have been directly possible. Partners who married and became parents during the same year were classified as childless marriages,

### Table 1 Unweighted Number of Different Transitions in the Data

<table>
<thead>
<tr>
<th>Transition Description</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: Total number of couples entering cohabiting union</td>
<td>87,937</td>
</tr>
<tr>
<td>3: From cohabitation without children to marriage without children</td>
<td>30,589</td>
</tr>
<tr>
<td>4: From cohabitation without children to cohabitation with children</td>
<td>15,910</td>
</tr>
<tr>
<td>5: From cohabitation without children to separation</td>
<td>25,299</td>
</tr>
<tr>
<td>6: From marriage without children to marriage with children</td>
<td>24,144</td>
</tr>
<tr>
<td>7: From cohabitation with children to marriage with children</td>
<td>5,140</td>
</tr>
<tr>
<td>8: From cohabitation with children to separation</td>
<td>3,551</td>
</tr>
<tr>
<td>9: From marriage without children to separation</td>
<td>1,768</td>
</tr>
<tr>
<td>10: From marriage with children to separation</td>
<td>4,258</td>
</tr>
</tbody>
</table>

Numbers 1–10 refer to the transitions noted in Figure 2.
implying that cohabitation with children (state C) includes only unions where the partners were cohabitants with children over the turn of a calendar year. For couples who married, became parents, or separated during the same year as they became cohabiters, duration was set to half a year (implicating that the contribution to total risk time is relatively small). Independent of which procedure is used, there are shortcomings induced by the inaccuracy of the timing of events. Because our focus is on the family formation process in a broader perspective, and not only on singular types of events, this issue should nevertheless be considered of marginal nature.

It also should be stressed that even if the timing of events were known with great precision, there are inherent problems. Marriage and cohabitation entry might seem to be two well-defined and easily separable events. Yet it is not obvious whether they are valid measures, because the decision to marry precedes the wedding, likely so with many months. For instance, approximately half of all Finnish weddings take place during the three summer months June, July, and August (Statistics Finland, 2012). In a secularized society like Finland, it is hard to claim that couples postpone union entry until after the wedding if they already have decided to marry. In the early 1970s, as another example, as much as 15% of all weddings took place in December, which largely can be attributed to the prevailing taxation system at that time. It is consequently the situation at the time of the decision to marry that should be incorporated into models of family formation behaviors rather than the situation at the time of the wedding. An even more severe deficit of all studies using Finnish population statistics is that couples might live together without appearing as cohabitants in the registers (i.e., without having the same permanent dwelling address). In practice, and particularly for students, cohabitation might be commenced in a gradual manner so the two partners share the residence but one of them still has his or her registered dwelling elsewhere. Before 1994 it was not even possible for students (who were not locals) to be officially registered at the place where they studied, meaning that in most of these cases the dwelling was the same as that of the parents.

In the article, each change of state is analyzed as the risk of making a transition using Cox regressions. Duration is time since entry into the current state. The maximum period of follow-up was 15 years. Follow-up was until censoring through a competing event or at the end of 2003 or until potential death or migration abroad. Because time was measured at the 1-year level, all events were supposed to have taken place in the middle of the observation year. Control variables used are age, period (4-year categories), province of residence (21 categories), and population group (Finnish speaker or Swedish speaker). All these variables refer to the situation at entry into the current family state. Age measures the joint age distribution of the partners. Because age is categorized into five (3–5 years) categories for each partner, the combined variable has 25 categories.
Educational level is the key variable of interest and refers to the highest level of completed education observed for an individual in the data. This “final” education separates primary, secondary, and tertiary levels of education. Primary level refers to basic education only, which is 9 years of mandatory schooling. Secondary level is 2 to 3 additional years of education and roughly corresponds to high school education in the United States. Tertiary level is all formal schooling above the secondary level. A time-invariant measure is used with the motivation that it distinguishes people on basis of long-term occupational prestige, cultural resources, and ambition (cf. Kalmijn, 1994). Transitions between different stages in the family formation process are hereby considered influenced by latent traits or personal characteristics as reflected by final education rather than by specific changes in the education level at any points in time, which is the idea behind a time-varying measure. The variable used reflects that people can be on educational trajectories that eventually lead to a degree and avoids equalizing people who eventually will graduate with a university exam with, for instance, those who never begin or finish any university studies. Yet if family formation affects educational careers, it suffers from endogeneity problems. A time-varying education variable was nevertheless no option here, because that information was available only for reference persons in the data but not for their partners.

Table 2 gives the joint educational distribution of the partners in all the unions studied at entry into cohabiting union. Analyzing the process that leads to the first union is beyond the scope of the study, but it is evident that assortative mating has taken place at this first stage of the process. In almost 54% of the unions, the partners have the same educational level, in comparison with a proportion of barely 40% in the case of random mating, as given by the expected distribution in the right-hand part of Table 2. One can also see that women are more educated than the men. Throughout the article, we apply the joint three-level categorization of education.

A simplified description of the Cox regression used to estimate the risk of making a specific transition can be defined as

\[
\text{TABLE 2} \quad \text{Joint Educational Distribution at Entry Into Cohabitation Union, Man's Education in Rows and Woman's Education in Columns}
\]

<table>
<thead>
<tr>
<th></th>
<th>Observed</th>
<th>Expected</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Primary</td>
<td>Secondary</td>
</tr>
<tr>
<td>Primary</td>
<td>4.0</td>
<td>8.7</td>
</tr>
<tr>
<td>Secondary</td>
<td>5.8</td>
<td>29.6</td>
</tr>
<tr>
<td>Tertiary</td>
<td>1.0</td>
<td>9.0</td>
</tr>
</tbody>
</table>

Expected refers to the expected proportion if there was no correlation between man's education and woman's education.
Educational Effects in an Extended Winnowing Model

\[ \lambda(t) = \lambda_0(t) \exp(\beta_1 x + \beta_2 \text{eduman}_\text{eduwoman}) \]  

(1)

where \( \lambda(t) \) represents the risk, or hazard of making a transition, at time \( t \). The baseline hazard is represented by \( \lambda_0(t) \). It gives the hazard for a person with the reference characteristic on each of the explanatory variables. The control variables are represented by \( x \) and its associated vector of parameters \( \beta_1 \). Educational level is represented by a variable (with nine categories) for the joint education of the man and the woman, \( \text{eduman}_\text{eduwoman} \). Its associated vector of parameters is \( \beta_2 \). Replacing this variable with a variable for man’s education, a variable for woman’s education, and an interaction between man’s education and woman’s education yields identical results. Dividing both sides of the expression by \( \lambda_0(t) \) gives the hazard ratio, or the relative risk of making a transition:

\[ \frac{\lambda(t)}{\lambda_0(t)} = \exp(\beta_1 x + \beta_2 \text{eduman}_\text{eduwoman}) \]  

(2)

where the estimates for \( \beta_2 \) are of primary interest to us and reported in Results.

Instead of presenting explicit estimates of the interaction effect, which are difficult to interpret, we quantify the influence of the educational composition of unions (types of heterogamous or homogamous unions) by the following ratio:

\[ \frac{\sum \hat{\lambda}(t)^{ij}}{\sum \hat{\lambda}_0(t)^{ij}} \]  

(3)

where

\[ \hat{\lambda}(t) = \hat{\lambda}_0(t) \exp(\beta_1 x + \beta_2 \text{eduman}_\text{eduwoman}) \]  

(4)

is the main effects model corresponding to (1), and \( \sum \hat{\lambda}(t)^{ij} \) and \( \sum \hat{\lambda}_0(t)^{ij} \) are the estimated cumulative hazards of the joint effects model and the main effects model, respectively, for each combination of man’s education \( i \) and woman’s education \( j \). The ratio in Eq. (3) consequently illustrates how the inclusion of the interaction between man’s education and woman’s education affects the hazard rate as compared with a situation without educational composition effects. The statistical significance of the interaction is obtained by comparing goodness-of-fit statistics from a specification with interaction and main effects to a specification with main effects only.

RESULTS

Table 3 summarizes the results of Cox regressions for each of the transitions 3–10 outlined in Figure 2. The control variables have consistently been
J. Saarela and F. Finnäs

included into the analyses. They generally improve the fit of the models, although their estimated effects vary across models. For the sake of brevity, we report only the estimates for the education variables. The numbers in the left-hand part of Table 3 give hazard ratios of making a transition by different combinations of the partners’ educational levels, that is, $\beta_2$ in Eq. (2). Couples in which both the man and the woman have a primary level of education serve as the reference category. As an example, the value 1.92 in the upper panel says that unions in which both partners have a tertiary-level education have a 92% higher risk of marriage than those in the reference category.

The composition effect in the right-hand part of Table 3 is the joint effects net of the main effects, that is, the ratio of the estimated cumulative

| TABLE 3 Risk Ratios Of Different Transitions by Man’s Education (in Rows) and Woman’s Education (in Columns) and Effect of Educational Composition |
|---------------------------------|-----------------|-----------------|-----------------|
|                                | Risk ratio       | Composition effect |
|                                | Primary | Secondary | Tertiary | Primary | Secondary | Tertiary |
| 3: From cohabitation without children to marriage without children† | Primary 1.11* | 1.23* | 1.39* | 1.07 | 1.02 | 0.93 |
|                                | Secondary 0.79* | 0.46* | 0.29* | 1.02 | 0.99 | 1.01 |
|                                | Tertiary 0.47* | 0.35* | 0.22* | 0.83 | 1.01 | 1.01 |
| 4: From cohabitation without children to cohabitation with children† | Primary 0.79* | 0.46* | 0.29* | 1.02 | 0.99 | 1.01 |
|                                | Secondary 0.98 | 0.91 | 0.80* | 1.00 | 1.01 | 0.99 |
|                                | Tertiary 0.90 | 0.85* | 0.78* | 0.95 | 0.98 | 1.00 |
| 5: From cohabitation without children to separation† | Primary 1 | 0.93* | 0.96 | 0.92 | 0.99 | 1.11 |
|                                | Secondary 0.92 | 0.77* | 0.74* | 1.02 | 0.98 | 1.03 |
|                                | Tertiary 1.00 | 0.75* | 0.59* | 1.27 | 1.10 | 0.94 |
| 6: From marriage without children to marriage with children | Primary 1 | 0.89 | 0.79* | 1.02 | 1.00 | 0.98 |
|                                | Secondary 0.98 | 0.91 | 0.80* | 1.00 | 1.01 | 0.99 |
|                                | Tertiary 0.90 | 0.85* | 0.78* | 0.95 | 0.98 | 1.00 |
| 7: From cohabitation with children to marriage with children | Primary 1 | 1.16 | 1.22 | 1.03 | 1.03 | 0.87 |
|                                | Secondary 1.18 | 1.35* | 1.77* | 0.99 | 0.98 | 1.03 |
|                                | Tertiary 1.40* | 1.86* | 2.24* | 0.89 | 1.02 | 0.99 |
| 8: From cohabitation with children to separation | Primary 0.82* | 0.64* | 0.50* | 1.07 | 0.99 | 0.95 |
|                                | Secondary 0.72 | 0.57* | 0.51* | 1.02 | 0.95 | 1.05 |
|                                | Tertiary 0.69 | 0.46* | 0.37* | 1.12 | 1.12 | 0.98 |
| 9: From marriage without children to separation† | Primary 0.64* | 0.43* | 0.46* | 0.94 | 0.94 | 1.11 |
|                                | Secondary 0.69 | 0.46* | 0.37* | 1.12 | 1.12 | 0.98 |
|                                | Tertiary 0.57* | 0.41* | 0.38* | 0.90 | 1.00 | 1.00 |

Estimates for risk ratios are from joint effects models. Composition effect refers to the ratio of the estimated cumulative hazards of the joint effects models and the main effects models.

†Interaction between man’s education and woman’s education is statistically significant at the 5% level.

*Estimate is statistically significant at the 5% level.
hazards of joint effects models and main effects models, corresponding to Eq. (3). The value 1.07 in the upper panel, for instance, indicates that because of an effect of educational homogamy/heterogamy, unions in which both partners are primary-level educated have a 7% higher risk of marriage than they would have in the absence of any such effect. Likewise, the value 0.83 suggests that unions in which the man has a tertiary-level education and the woman has a primary-level education have a 17% lower marriage risk than they would have in the absence of any homogamy/heterogamy effect.

Beginning with the diagonal elements in the left-hand matrices, we see that education has an increasing effect on the transition from cohabitation to marriage (transition 3) and a decreasing effect on the transition to parenthood (transition 4) and separation (transition 5). As compared with couples where both the man and the woman are primary-level educated, tertiary-level educated childless cohabiters have almost twice the risk of marriage, whereas their relative risk of having children within the consensual union is only 0.22, and their relative risk of separation is 0.59.

The relation is reversed for the next step of the process. For childless married couples, education has a negative effect on the transition to parenthood (transition 6), whereas for cohabiters who are parents, education has a strong positive effect on the transition to marriage (transition 7). The risk of separation is consistently lower among higher educated couples than among lower educated ones, independent of whether the transition is from childless cohabitation (transition 5), cohabitation with children (transition 8), marriage without children (transition 9), or marriage with children (transition 10). Educational level also tends to have a stronger negative effect on the separation risk subsequent to marriage and subsequent to parenthood than on the separation risk from childless cohabitation.

Composition effects (effects of homogamy/heterogamy) can be seen for transitions 3–5. Homogamy increases the marriage risk and decreases the separation risk, whereas heterogamy, especially for very dissimilar couples (combinations of primary and tertiary levels of education), decreases the risk of becoming parents. For instance, childless cohabiting couples in which the man has a tertiary-level education and the woman a primary-level education have approximately 17% lower risks of marriage or childbearing and 27% higher risks of separation than would be the case in the absence of any educational composition effects. If the man has a primary-level and the woman a tertiary-level education, the risk of marriage is 7% lower, the risk of parenthood 6% lower, and the risk of separation 11% higher. For transitions 6–10, which represent the next stage of the family formation process, composition effects are generally less pronounced, except perhaps for separation from childless marriage (transition 9).

Positive effects of the educational level on the marriage risk (transition 3) are evidently counteracted by strong negative effects on the risk of parenthood once being married (transition 6). Likewise, negative effects of the
educational level on the risk of parenthood (transition 4) are counteracted by strong positive effects on the marriage risk when becoming parent (transition 7). These estimates cannot consequently tell us how the aggregate shift from childless cohabitation to marriage with children relates to education. Neither can they say anything about the potential importance of education on the specific route taken, that is, whether educational effects differ between those who marry before they become parents and those who become parents before they marry. One possibility for studying these issues is to adopt the framework illustrated in Figure 3, where the event of interest is the combination of marriage and parenthood. All separations (transitions 5, 8, and 9 in Figure 2) are then treated as censored observations.

The results of hazard models that adopt this taxonomy are summarized in Table 4. The upper panel refers to the transition from childless cohabitation to marriage with children, irrespective of the route taken. It shows the risk of making the aggregate shift increases with education. Couples in which both partners are tertiary-level educated have almost 50% higher risks of entering the state of marriage with children than couples where both partners are primary-level educated. There is only a slight composition effect.

From the lower panel we see that higher education is strongly associated with a lower separation risk and that there is a notable composition effect. Couples in which the partners have different educational levels have notably higher separation risks than partners in homogamous unions.

As illustrated by the second and third panels, education effects differ across the two alternative routes. The risk of marriage before parenthood is 91% higher if both partners have a tertiary level of education than if they have a primary level of education, whereas the risk of parenthood before marriage is 55% lower. Hence, in higher educated unions, people are much more likely to marry before they become parents and thus substantially less likely to become parents before they marry, as compared with people in

![Figure 3](Image)

**FIGURE 3** Stock and flow diagram incorporating the aggregate shift into marriage with children.
lower educated unions. Conclusions about composition effects are consistent with those depicted earlier (for transitions 3, 4, 6, and 7), although are somewhat more pronounced for the transition that goes via marriage than for the transition that goes via parenthood.

A final question is who remains in the intermediate states (see Figure 2). Of particular interest are cohabiters who become parents but do not marry, because childlessness among married spouses might be unintended. We depict the situation 8 years after entry into cohabiting union, because approximately half of the unions in the data can be observed for that long. Of all couples who entered a cohabiting union, 15.3% were still living as cohabiters after 8 years, but only 6.4% were childless cohabiters (not shown). Almost half, or 44.2%, were married, but only 5.1% were childless spouses. The proportion separated was 40.5%.

We have computed the corresponding proportion for each educational combination. To account for effects of the control variables, the proportions have been standardized using multinomial regression models. Table 5 summarizes the results in terms of the proportion of the couples in each of the five possible states by educational combination. The sum of elements from each of the five matrices consequently adds to 100. The right-hand part of Table 5 quantifies the composition effect by giving the difference in percentage units in the standardized proportion between models with

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**TABLE 4** Risk Ratios of Different Transitions By Man’s Education (in rows) and woman’s Education (in columns) Based on the Diagram in Figure 3, and Effect of Educational Composition

<table>
<thead>
<tr>
<th>Risk ratio</th>
<th>Composition effect</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Primary</td>
</tr>
<tr>
<td>From cohabitation without children to marriage with children†</td>
<td></td>
</tr>
<tr>
<td>Primary</td>
<td>1</td>
</tr>
<tr>
<td>Secondary</td>
<td>1.07</td>
</tr>
<tr>
<td>Tertiary</td>
<td>1.09</td>
</tr>
<tr>
<td>- via marriage†</td>
<td></td>
</tr>
<tr>
<td>Primary</td>
<td>1</td>
</tr>
<tr>
<td>Secondary</td>
<td>1.10</td>
</tr>
<tr>
<td>Tertiary</td>
<td>1.25*</td>
</tr>
<tr>
<td>- via parenthood</td>
<td></td>
</tr>
<tr>
<td>Primary</td>
<td>1</td>
</tr>
<tr>
<td>Secondary</td>
<td>1.02</td>
</tr>
<tr>
<td>Tertiary</td>
<td>0.77</td>
</tr>
<tr>
<td>Separation before marriage with children†</td>
<td></td>
</tr>
<tr>
<td>Primary</td>
<td>1</td>
</tr>
<tr>
<td>Secondary</td>
<td>0.86*</td>
</tr>
<tr>
<td>Tertiary</td>
<td>0.93</td>
</tr>
</tbody>
</table>

Estimates for risk ratios are from joint effects models. Composition effect refers to the ratio of the estimated cumulative hazard of the joint effects models and the main effects models.

†the interaction between man’s education and woman’s education is statistically significant at the 5% level.

*the estimate is statistically significant at the 5% level.
interaction between man's education and woman's education and models without interaction.

There is hardly any difference across educational levels in the proportion of couples in childless cohabitation but a large variation for all other states. Traditional family types (i.e., marriage with or without children) are strongly associated with higher education, whereas cohabitation with children and separation are particularly common among lower educated people. For instance, only 25% (23.3+1.7) of the couples in which both partners were primary-level educated were married 8 years after entry into cohabiting union and as much as 56% had separated. For couples where both partners were secondary-level educated, the corresponding proportions were 41% and 40%, respectively, and for couples where both were tertiary-level educated, 58% and 32%, respectively.

The relevance of education for the family type couples end up in (after 8 years) can be illustrated also by the fact that for intact unions with children where both partners were primary-level educated, as much as one-third, or 33.8%, were cohabiting unions (11.9/(11.9+23.3)). The corresponding number for unions where both partners were secondary-level educated was 24.0% and for unions where both partners had tertiary level of education only 9.2%.

The overall influence of educational composition is modest. For the states separated and married with children there are some composition
effects, but the largest numbers concern rare combinations, such as couples where the man has a tertiary-level education and the women a primary-level education (cf. Table 1). Persons’ educational levels have therefore substantial effects on the risk of making different transitions within and from cohabitating unions, but the importance of educational composition is marginal.

Assessing the relevance of educational composition on transition risks is problematic from the viewpoint that it can be offset by strong effects of the educational level. For the couples who could be observed for at least 8 years, for instance, the proportion homogamous was 51% at entry into cohabiting union (not shown in Table 5). Among those who married it was 56%, 49% for couples who remained as cohabiters, and 47% for those who separated. For lower educated men, on the other hand, the corresponding proportions were 21%, 15%, 21%, and 24%, respectively. In this case, a heterogamous union implies that the partner had a higher educational level. This raises the marriage risk and lowers the separation risk and, hence, offsets any effect of educational heterogamy.

**CONCLUSION**

We identify three main conclusions from this article. First, in a highly secularized society with high rates of cohabitation, union dissolution, and births outside marriage, it is hard to draw conclusions about status homogamy by simply distinguishing couples according to whether they are married or cohabit. Marital status, however, remains an important way of categorizing couples if parenthood is also taken into account. Second, educational composition effects on transitions within and from first unions exist, but they are clearly subordinate to effects of the educational level. Third, like Schwartz (2010), and in line with the general ideas of family development theory, our findings illuminate that family formation should be studied as the dynamic process it is.

The data used here, from detailed longitudinal population registers in Finland, indicate that almost one-third of the newly formed first-time cohabiting unions split within 3 years’ time. Almost half of the women in present-day Finland are unmarried when they give birth to their first child, and a growing share chooses cohabitation as a permanent way of living. A consequence is that by considering marital status at the time when the first child is born, one obtains a classification like the situation at union entry in countries where cohabitation is less common. Our analyses show that even if the couple has pursued the process to marriage with children, the specific route taken is relevant. Traditional behavior in terms of marriage before children is much more common among higher educated couples, whereas the share of unmarried parents is notably higher among lower educated. People in the latter group are also much more likely to remain as unmarried parents.
All transitions studied are heavily dependent of the level of education. Higher education is associated with a more conservative way of family formation and more stable relationships, independent of whether they are marriages or cohabiting unions. As compared with this, the overall influence of educational composition on family formation behavior turns out to be small.

It is predominantly in terms of higher separation risk that differences between educationally heterogamous and homogamous couples stand out, and this is not the case only for childless couples but also for those with children. Hence, winnowing takes place also subsequent to having entered parenthood, meaning that less successful matches in terms of educationally heterogamous partner constellations are sorted out before proceeding into marriage. The strongest effect of winnowing still occurs in the short term, or recently after having entered a cohabiting union, whereas its practical consequences are small at later stages of the family formation process.

During the past decades, Nordic countries can be considered forerunners when it comes to implementing new forms of relationships. The present-day situation in Finland is therefore naturally quite different from the traditional models of family development, and it might well be incorporated into future extensions of the theory and its empirical applications.

REFERENCES


