(February 8, 2013)

Transitions within and from first unions:

Educational effects in an extended winnowing model[*]

Jan Saarela[†] *& Fjalar Finnäs*[‡]

Abstract

This paper studies 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 behaviour 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 categorising couples.

[*] Comments from anonymous referees are gratefully acknowledged.

[†] Corresponding author, Åbo Akademi University and University of Helsinki. Contact information: Åbo Akademi University, P.O. Box 311, 65101 Vasa, Finland, e-mail jan.saarela@abo.fi, phone +35863247476.

[‡] Åbo Akademi University, P.O. Box 311, 65101 Vasa, Finland, e-mail fjalar.finnas@abo.fi, phone +35863247151.

1. Introduction

The decline in marriage rates and the emergence of cohabitation, together with an increasing proportion of children born outside marriage, have evidently resulted in a multifaceted complex of problems for the scientific study of family formation and family composition (Bachrach et al., 2000). This paper 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 and White, 1993; White and Klein, 2002), we study stages in a relationship, starting with entry into the first union, and 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, the paper also proposes a novel empirical strategy for analysing and understanding educational homogamy, using detailed longitudinal data from Finland.

The behaviour 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, since education determines long-term occupational prestige and cultural resources that influence individual tastes and preferences (Jepsen and Jepsen, 2002; Schwartz and Mare, 2005; Hamplova, 2009; Rosenfeld, 2008).

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 (Michielutte, 1972; Kalmijn, 1994). Consistent with economic theories and ideas about cultural forces (Thomson 2005; Waite et al., 2000), the rates of marriage, cohabitation, non-marital childbearing and separation are strongly dependent 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 (Manning and Smock, 1995; Willis and Haaga, 1996; Jalovaara, 2003), 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 will therefore enhance 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 socialisation and attitudes. Lower socioeconomic background leads to lower education, which leads to a lower marriage propensity. In Finland and Sweden, daughters of manual workers tend to have particularly high cohabitation rates, and they also started the trend of cohabitation (Finnäs, 1995; Bracher and Santow, 1998). 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 avoid it.

In the paper, 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, since data from the country's registers offer unusually rich opportunities for detailed longitudinal analyses of the family formation process. Since the country is one of the few where cohabiting unions can be explicitly observed in population registers, the paper 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.

2. 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, emphasising specialisation and trade within unions (Becker, 1974; 1981; Becker et al., 1977; Brines and Joyner, 1999). The approach sees the bond between partners as a function of interdependence, meaning that they become increasingly dependent on one another as the gain from the current relationship exceeds prospective gains from any alternative. Specialisation in the division of labour is considered the best strategy for maximising the potential for rewards within the relationship. Couples that are less specialised would consequently be more likely to split up. Since cohabitation lacks the long-term commitment of marriage, cohabiters are supposed to be less likely to specialise than married couples are, and thus more likely to be educationally homogamous than married couples (Schoen and Weinick, 1993).

The other approach sees education as a multifaceted device, signalling not only economic potential but also largely the relevance of couples' matching on shared lifestyles and cultural backgrounds (DiMaggio and Mohr, 1985; Kalmijn, 1994). These aspects include a variety of values and behaviours, such as child-rearing preferences, political attitudes, tastes in art, music and literature, ethical norms, etc. 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 and 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, since 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 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 and 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 specialisation (Schoen and Weinick, 1993; Smock and Manning, 1997), some are more consistent with the ideas of cultural matching and a winnowing process (Casper and Bianchi, 2002; Hamplova and Le Bourdais, 2008), whereas others are indifferent (Qian, 1998; Oppenheimer, 2003; Goldstein and Harknett, 2006). 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 equally well educated as men (Hamplova, 2009).

3. 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.

(Figure 1 here)

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 nowadays it is more of a rule than an exception that almost all couples who move in together begin with a period of informal cohabitation. Only one fifth of the Finnish females born in the late 1950s married at start of their first union (Nikander, 1992). The trend evidently continued. Less than ten per cent of all Finnish women born in the 1960s, 1970s, and 1980s who entered a union went directly into marriage (Nikander, 1996; Jalovaara, 2012). In our setting, the transition directly into marriage is therefore rare and a distinction between family types at the onset of a union is not in our focus. Recent aggregate statistics for the year 2010 further say that over 40 per cent 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 categorising 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 the formation of cohabiting unions and marriages only. An additional dimension is therefore warranted in the model presented above, namely parenthood. Figure 2 illustrates the extended model. If the couples in our framework enter the process through a childless consensual union (state A), they progress towards marriage with children (state D) unless they separate or remain in one of the intermediate states. Since 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.

(Figure 2 here)

Based on previous research (see e.g. Finnäs, 1995), we know that the transition to marriage is positively correlated with educational level, and the transition to unmarried parenthood negatively correlated. 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, effects of educational levels are still likely to dominate the effects of educational homogamy/heterogamy.

4. Data and methods

The data used (permission TK-53-186-09) come from the population register files known as 'Palapeli' (Statistics Finland, 2011c). These files are at Statistics Finland 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. The registers make it possible to construct families for all individuals and their family members from 1972 onwards. At the time data were obtained for this study, the registers had been updated up to and including the year 2003. The authorities do not register cohabiting unions, but Statistics Finland produce statistics on them based on persons living in the same dwelling. A cohabiting union consists of a co-residential 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 paper, 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 eight per cent 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, i.e., cohabiting union formation, potential dissolution, marriages, divorces, the birth of children, as well as 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 prior to observation. We have therefore restricted the data to unions where both partners were childless (based on longitudinal information), the woman was aged 18-40 years, and the man was aged 20-42 years at the time of union formation. This procedure resulted in 65,946 unions. In addition, we have an identically constructed 50 per cent sample with 21,991 unions, representing the Swedish-speaking population group. The Swedish speakers amount to barely six per cent 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 categorisation corresponding to Figure 2.

(Table 1 here)

In order to technically distinguish the various transitions in Figure 2 one would need the exact dates of all events required. In the present case, we cannot determine the order of marriage and birth of a child if they took place during the same calendar year. We therefore had to modify the definition of the states in the following manner. Partners who married and

became parents during the same year were classified as childless marriages, implying that cohabitation with children (state C) includes only unions where the partners were cohabitants with children over the turn of a calendar year. Another consequence is that all unions start as cohabiting unions without children (state A). In the data at hand only 3.2% of all unions lacked information about the start of cohabitation. We assigned these unions a value for the start of cohabitation to be the same as the year of the marriage, meaning that in the study, all unions are analysed as starting from cohabitation without children. 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).

Each change of state is analysed 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 one-year level, all events were supposed to have taken place in the middle of the observation year. Control variables used are age, period (four-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. Since age is categorised into five (3-5 years) categories for each partner, the combined variable has 25 categories.

Educational level is the key variable of interest. It refers to the highest level of completed education observed for an individual in the data, which might be considered as leading to endogeneity problems if family formation affects educational careers. A time-varying variable, however, would not be capable of reflecting that partners in unions might already be on educational trajectories that eventually will lead to a degree, if they for instance study at a university. Our goal is consequently to attempt distinguishing people on basis of long-term

occupational prestige and cultural resources, rather than on the actual achieved education level at any particular point in time. The education variable used separates primary, secondary and tertiary levels of education. Primary level refers to basic education only, which is nine years of mandatory schooling. Secondary level is two to three 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.

Table 2 gives the joint educational distribution of the partners in all the unions studied at entry into cohabiting union. Analysing 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 per cent of the unions, the partners have the same educational level, in comparison with a proportion of barely 40 per cent in the case of random mating, as given by the expected distribution in the right-hand part of the table. One can also see that the women are higher educated than the men. Throughout the paper, we apply the joint three-level categorisation of education.

(Table 2 here)

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

$$\lambda(t) = \lambda_0(t)\exp\left(\beta_1 x + \beta_2 eduman\_eduwoman\right) \quad (1)$$

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 β_1. Educational level is represented by a variable (with nine categories) for the joint education of the man and the woman, *eduman_eduwoman*. Its associated vector of parameters is β_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

would yield identical results. Dividing both sides of the expression by $\lambda_0(t)$ gives the hazard ratio, or the relative risk of making a transition:

$$\frac{\lambda(t)}{\lambda_0(t)} = \exp\left(\beta_1 x + \beta_2 eduman \_ eduwoman\right) \quad (2)$$

where the estimates for β_2 are of primary interest to us and reported in the results section.

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:

$$\frac{\sum \hat{\lambda}(t)^{ij}}{\sum \hat{\tilde{\lambda}}(t)^{ij}} \quad (3)$$

where

$$\tilde{\lambda}(t) = \tilde{\lambda}_0(t)\exp\left(\tilde{\beta}_1 x + \beta_3 eduman + \beta_4 eduwoman\right) \quad (4)$$

is the main effects model corresponding to (1), and $\sum \hat{\lambda}(t)^{ij}$ and $\sum \hat{\tilde{\lambda}}(t)^{ij}$ 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 Equation (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.

5. Results

Table 3 summarises the results of Cox regressions for each of the transitions 3-10 outlined in Figure 2. The control variables have consistently been 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 the table give hazard ratios of making a transition by different combinations of the partners' educational levels, i.e., β_2 in Equation (2). Couples in which both the man and the woman have 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 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 the table is the joint effects net of the main effects, i.e., the ratio of the estimated cumulative hazards of joint effects models and main effects models, corresponding to Equation (3). The value 1.07 in the upper panel, for instance, indicates that, due to an effect of educational homogamy/heterogamy, unions in which both partners are primary level educated have a seven per cent 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 tertiary level education and the woman has primary level education have a 17% lower marriage risk than they would have in the absence of any homogamy/heterogamy effect.

(Table 3 here)

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 tertiary level education and the woman primary level education have approximately 17 per cent lower risks of marriage or childbearing and 27 per cent higher risks of separation than would be the case in the absence of any educational composition effects. If the man has primary level and the woman tertiary level education, the risk of marriage is 7 per cent lower, the risk of parenthood 6 per cent lower, and the risk of separation 11 per cent 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 once being

parents (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, i.e., 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.

(Figure 3 here)

The results of hazard models that adopt this taxonomy are summarised in Table 4. The upper panel refers to the transition from childless cohabitation to marriage with children, irrespective of the route taken. It shows that the risk of making the aggregate shift increases with education. Couples in which both the partners are tertiary-level educated have almost 50 per cent 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 per cent higher if both partners have tertiary level of education than if they have primary level of education, whereas the risk of parenthood before marriage is 55 per cent 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 to people in lower-educated unions.

Conclusions about composition effects are consistent with those depicted earlier (for transitions 3, 4, 6 and 7), although being somewhat more pronounced for the transition that goes via marriage than for the transition that goes via parenthood.

(Table 4 here)

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

We have computed the corresponding proportion for each educational combination. To account for effects of the control variables, the proportions have been standardised using multinomial regression models. Table 5 summarises 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 the table quantifies the composition effect by giving the difference in percentage units in the standardised proportion between models with interaction between man's education and woman's education and models without interaction.

(Table 5 here)

There is hardly any difference across educational levels in the proportion of couples in childless cohabitation, but 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 per cent (23.3 + 1.7) of the couples in which both partners were primary-level educated were married eight years after entry into cohabiting union, and as much as 56 per cent had separated. For couples where both partners were secondary-level educated, the corresponding proportions were 41 and 40 per cent, respectively, and for couples where both were tertiary-level educated, 58 and 32 per cent, respectively.

The relevance of education for the family type couples end up in (after eight 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 per cent, were cohabiting unions (11.9/(11.9+23.3)). The corresponding number for unions where both partners were secondary-level educated was 24.0 per cent, and for unions where both partners had tertiary level of education only 9.2 per cent.

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 tertiary level education and the women 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 consequently 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 eight years, for instance, the proportion homogamous was 51 per cent at entry into cohabiting union (not shown in table). Among those who married it was 56 per cent, 49 per cent for couples who remained as cohabiters, and 47 per cent for those who separated. For lower-educated men, on the other hand, the corresponding proportions are 21, 15, 21, and 24 per cent, 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.

6. Conclusion

The main conclusions of the paper are threefold. First, in a highly secularised society with high rates of cohabitation, union dissolution and births outside marriage it is hardly motivated to draw conclusions about status homogamy by simply distinguishing couples according to whether they are married or cohabit. Marital status although remains an important way of categorising couples subject to that also parenthood is taken into account. Second, educational composition effects on transitions within and from first unions exist, but they are of clearly subordinate nature 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 ought to be studied as the dynamic process it is.

The data used here, which come from detailed longitudinal population registers in Finland, indicate that almost one third of the newly formed first-time cohabiting unions split within three 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 that reminds of 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 behaviour 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 to this, the overall influence of educational composition on family formation behaviour turns out to be small.

It is predominantly in terms of higher separation risks 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, the 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

Bachrach, C., Hindin, M. J. & Thomson, E. (2000). The changing shape of ties that bind: An overview and synthesis. In Waite, L. J., Bachrach, C., Hindin, M., Thomson, E. & Thornton, A. (eds.) (2000). *The ties that bind: Perspectives on marriage and cohabitation*. Hawthorne, NY: Walter de Gruyter, 3-16.

Becker, G. (1974). A theory of marriage: Part II. *Journal of Political Economy*, **82**, 511-526.

Becker, G. (1981). *A Treatise on the Family*. Cambridge, MA: Harvard University Press.

Becker, G., Landis, E. & Michael, R. (1977). An economic analysis of marital instability. *Journal of Political Economy*, **85**, 1141-1188.

Blackwell, D. L. & Lichter, D. T. (2000). Mate selection among married and cohabiting couples. *Journal of Family Issues*, **21**, 275-302.

Blackwell, D. L. & Lichter, D. T. (2004). Homogamy among dating, cohabiting, and married couples. *Sociological Quarterly*, **45**, 719-737.

Bracher, M. & Santow, G. (1998). Economic independence and union formation in Sweden. *Population Studies*, **52**, 275-294.

Brines, J. & Joyner, K. (1999). The ties that bind: Principles of cohesion in cohabitation and marriage. *American Sociological Review*, **64**, 333-355.

Casper, L. M. & Bianchi, S. M. (2002). *Continuity and Change in the American Family*. Thousand Oaks, CA: Sage.

DiMaggio, P. & Mohr, J. (1985). Cultural capital, educational attainment, and marital selection. *American Journal of Sociology*, **90**, 1231-1261.

Duvander, A.-Z. E. (1999). The transition from cohabitation to marriage: A longitudinal study of the propensity to marry in Sweden in the early 1990s. *Journal of Family Issues*, **20**, 698-717.

Finnäs, F. (1995). Entry into consensual unions and marriages among Finnish women born between 1938 and 1967. *Population Studies*, **49**, 57-70.

Goldstein, J. R. & Harknett, K. (2006). Parenting across racial and class lines: Assortative mating patterns of new parents who are married, cohabiting, dating, and no longer romantically involved. *Social Forces*, **85**, 121-143.

Hamplova, D. (2009). Educational homogamy among married and unmarried couples in Europe. Does context matter?. *Journal of Family Issues*, **30**, 28-52.

Hamplova, D. & Le Bourdais, C. (2008). Educational homogamy of married and unmarried couples in English and French Canada. *Canadian Journal of Sociology*, **33**, 845-872.

Jalovaara, M. (2003). The joint effects of marriage partners' socioeconomic positions on the risk of divorce. *Demography*, **40**, 67-81.

Jalovaara, M. (2012). Socio-economic resources and first-union formation in Finland, cohorts born 1969-81. *Population Studies*, **66**, 69-85.

Jepsen, L. K. & Jepsen, C. A. (2002). An empirical analysis of the matching patterns of same-sex and opposite-sex couples. *Demography*, **39**, 435-453.

Kalmijn, M. (1994). Assortative mating by cultural and economic occupational status. *American Journal of Sociology*, **100**, 422-452.

Kiernan, K. (2000). European perspectives on union formation. In Waite, L. J., Bachrach, C., Hindin, M., Thomson, E. & Thornton, A. (eds.) (2000). *The ties that bind: Perspectives on marriage and cohabitation*. Hawthorne, NY: Walter de Gruyter, 40-58.

Manning, W. D. & Smock, P. J. (1995). Why marry? Race and the transition to marriage among cohabitors. *Demography*, **32**, 509-520.

Michielutte, R. (1972). Trends in educational homogamy. *Sociology of Education*, **45**, 288-302.

Nikander, T. (1992). Suomalaisnaisen perheellistyminen. Population 1992:10. Statistics Finland, Helsinki.

Nikander, T. (1996). Perheiden muodostuminen ja hajoaminen. Avo- ja avioparien yhteen ja erilleen muutto. Population 1996:17. Statistics Finland, Helsinki.

Oppenheimer, V. K. (1988). A theory of marriage timing: Assortative mating under varying degrees of uncertainty. *American Journal of Sociology*, **94**, 563-591.

Oppenheimer, V. K. (2003). Cohabiting and marriage during young men's career-development process. *Demography*, **40**, 127-149.

Rodgers, R. H. & White, J. M. (1993). Family development theory. In Boss, P. G., Doherty, W. J., LaRossa, R., Schumm, W. R. & Steinmetz, S. K., *Sourcebook of family theories and methods: A contextual approach*. NY: Springer, 225-254.

Rosenfeld, M. (2008). Racial, educational, and religious endogamy in comparative historical perspective. *Social Forces*, **87**, 1-32.

Schoen, R. & Weinick, R. M. (1993). Partner choice in marriages and cohabitations. *Journal of Marriage and the Family*, **55**, 408-414.

Schwartz, C. R. (2010). Pathways to educational homogamy in marital and cohabiting unions. *Demography*, **47**, 735-753.

Schwartz, C. R. & Mare, R. D. (2005). Trends in educational assortative marriage from 1940 to 2003. *Demography*, **42**, 621-646.

Smock, P. J. & Manning, W. D. (1997). Cohabiting partners' economic circumstances and marriage. *Demography*, **34**, 331-341.

Statistics Finland (2011a). Live births by gender and marital status of mother 1761-2010. http://pxweb2.stat.fi/database/StatFin/vrm/synt/synt_en.asp

Statistics Finland (2011b). Families by type, age of spouses/parents and number of children aged 6 or under in family 2006-2010. http://pxweb2.stat.fi/database/StatFin/vrm/perh/perh_en.asp

Statistics Finland (2011c). Register data related to persons and housing. http://www.stat.fi/tup/rekisteriaineistot/aineistot_en.html

Thomson, E. (2005). Partnership and parenthood: A comparative view of cohabitation, marriage and childbearing. In Booth, A. & Crouter, N. (eds.), *The new population problem: Why families in developed countries are shrinking and what it means*. Lawrence Erlbaum, Mahwah, NJ, 129-149.

Waite, L. J., Bachrach, C., Hindin, M., Thomson, E. & Thornton, A. (eds.) (2000). *The ties that bind: Perspectives on marriage and cohabitation*. Hawthorne, NY: Walter de Gruyter.

White, J. M. & Klein, D. M. (2002). *Family theories*. Thousand Oaks, CA: Sage.

Willis, R. J. & Haaga, J. G. (1996). Economic approaches to understanding nonmarital fertility. *Population and Development Review*, **22**(S), 67-86.

Qian, Z. (1998). Changes in assortative mating: The impact of age and education, 1970-1990. *Demography*, **35**, 279-292.

Table 1. Unweighted number of different transitions in the data

#1: Total number of couples entering cohabiting union	87,937
#3: From cohabitation without children to marriage without children	30,589
#4: From cohabitation without children to cohabitation with children	15,910
#5: From cohabitation without children to separation	25,299
#6: From marriage without children to marriage with children	24,144
#7: From cohabitation with children to marriage with children	5,140
#8: From cohabitation with children to separation	3,551
#9: From marriage without children to separation	1,768
#10: From marriage with children to separation	4,258

Table 2. Joint educational distribution at entry into cohabitation union, man's education in rows and woman's education in columns

	Observed			Expected		
	Pri-mary	Secon-dary	Ter-tiary	Pri-mary	Secon-dary	Ter-tiary
Primary	4.0	8.7	3.9	1.8	7.9	7.0
Secondary	5.8	29.6	17.7	5.7	25.1	22.2
Tertiary	1.0	9.0	20.3	3.3	14.4	12.7

Expected refers to the expected proportion if there was no correlation between man's education and woman's education.

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		
		Pri-mary	Secon-dary	Ter-tiary	Pri-mary	Secon-dary	Ter-tiary
#3: From cohabitation without children to marriage without children†	Primary	1	1.06	1.14*	1.07	1.02	0.93
	Secondary	1.11*	1.23*	1.39*	1.01	1.01	0.98
	Tertiary	1.20*	1.52*	1.92*	0.83	0.95	1.02
#4: From cohabitation without children to cohabitation with children†	Primary	1	0.62*	0.35*	1.00	1.02	0.94
	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
#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	1	0.92	0.77*	0.94	1.04	1.05
	Secondary	0.82*	0.64*	0.50*	1.07	0.99	0.95
	Tertiary	0.72	0.57*	0.51*	1.02	0.95	1.05
#9: From marriage without children to separation†	Primary	1	0.67*	0.49*	1.08	1.08	0.87
	Secondary	0.64*	0.43*	0.46*	0.94	0.94	1.11
	Tertiary	0.69	0.46*	0.37*	1.12	1.12	0.98
#10: From marriage with children to separation	Primary	1	0.66*	0.57*	0.99	1.02	0.96
	Secondary	0.78*	0.48*	0.45*	1.02	0.99	1.00
	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 hazardz 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.

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

		Risk ratio			Composition effect		
		Pri-mary	Secon-dary	Ter-tiary	Pri-mary	Secon-dary	Ter-tiary
From cohabitation without children to marriage with children[†]	Primary	1	0.97	0.96	1.07	1.04	0.99
	Secondary	1.07	1.12*	1.15*	1.00	1.04	1.04
	Tertiary	1.09	1.30*	1.47*	0.83	0.99	1.08
- via marriage[†]	Primary	1	1.05	1.18*	1.08	0.99	0.97
	Secondary	1.10	1.28*	1.43*	0.99	1.02	0.98
	Tertiary	1.25*	1.57*	1.91*	0.87	0.96	1.01
- via parenthood	Primary	1	0.80*	0.47*	1.00	1.04	0.89
	Secondary	1.02	0.75*	0.54*	1.02	0.97	1.04
	Tertiary	0.77	0.70*	0.45*	0.88	1.05	0.98
Separation before marriage with children[†]	Primary	1	0.89*	0.89*	0.94	0.99	1.10
	Secondary	0.86*	0.70*	0.67*	1.01	0.98	1.04
	Tertiary	0.93	0.68*	0.52*	1.27	1.10	0.94

Estimates for risk ratios are from joint effects models.

Composition effect refers to the ratio of the estimated cumulative hazardz 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.

Table 5. Standardised proportion of couples in the five possible states eight years after entry into cohabitation union by man's education (in rows) and woman's education (in columns), and effect of educational composition

		Standardised proportion			Composition effect		
		Pri-mary	Secon-dary	Ter-tiary	Pri-mary	Secon-dary	Ter-tiary
[A]: Cohabitation without children	Primary	7.3	6.7	7.4	-0.1	-0.1	0.3
	Secondary	7.1	6.8	6.8	-0.3	0.1	0.0
	Tertiary	7.9	5.5	5.4	1.5	0.0	-0.1
[B]: Marriage without children	Primary	1.7	3.3	4.6	-0.4	0.2	0.0
	Secondary	3.1	4.0	5.8	0.2	0.0	0.0
	Tertiary	4.2	5.2	7.4	0.3	-0.1	0.0
[C]: Cohabitation with children	Primary	11.9	11.7	9.8	-1.0	-0.3	1.2
	Secondary	14.0	11.8	8.3	0.7	-0.1	-0.1
	Tertiary	8.5	8.1	5.1	-0.4	0.5	-0.2
[D]: Marriage with children	Primary	23.3	28.8	28.7	2.3	0.5	-2.5
	Secondary	28.1	37.3	38.3	0.1	1.0	-1.2
	Tertiary	30.3	43.2	50.4	-6.9	-3.0	1.6
[E]: Separated	Primary	55.8	49.5	49.5	-0.8	-0.3	1.0
	Secondary	47.7	40.1	40.8	-0.7	-0.9	1.3
	Tertiary	49.1	38.0	31.7	5.5	2.6	-1.4

The proportions have been estimated at the means of the other variables.
Composition effect refers to the difference in the standardised proportion, in percentage units, between models with interaction between man's education and woman's education and models without interaction.

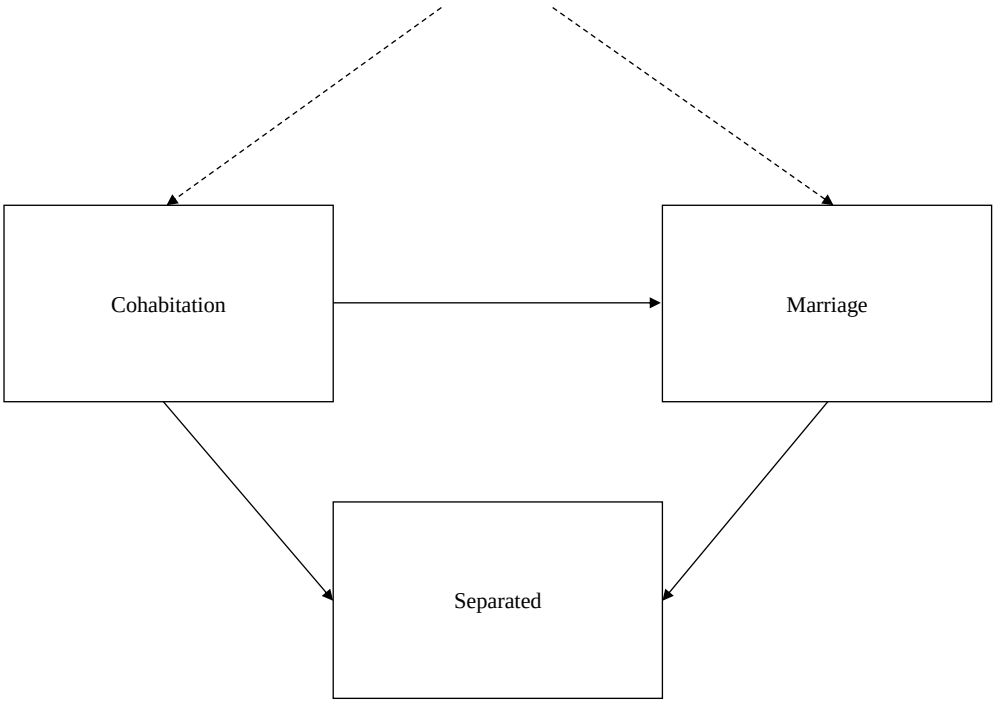

Figure 1. Stock and flow diagram of transitions into and out of cohabitation and marriage in the standard setting

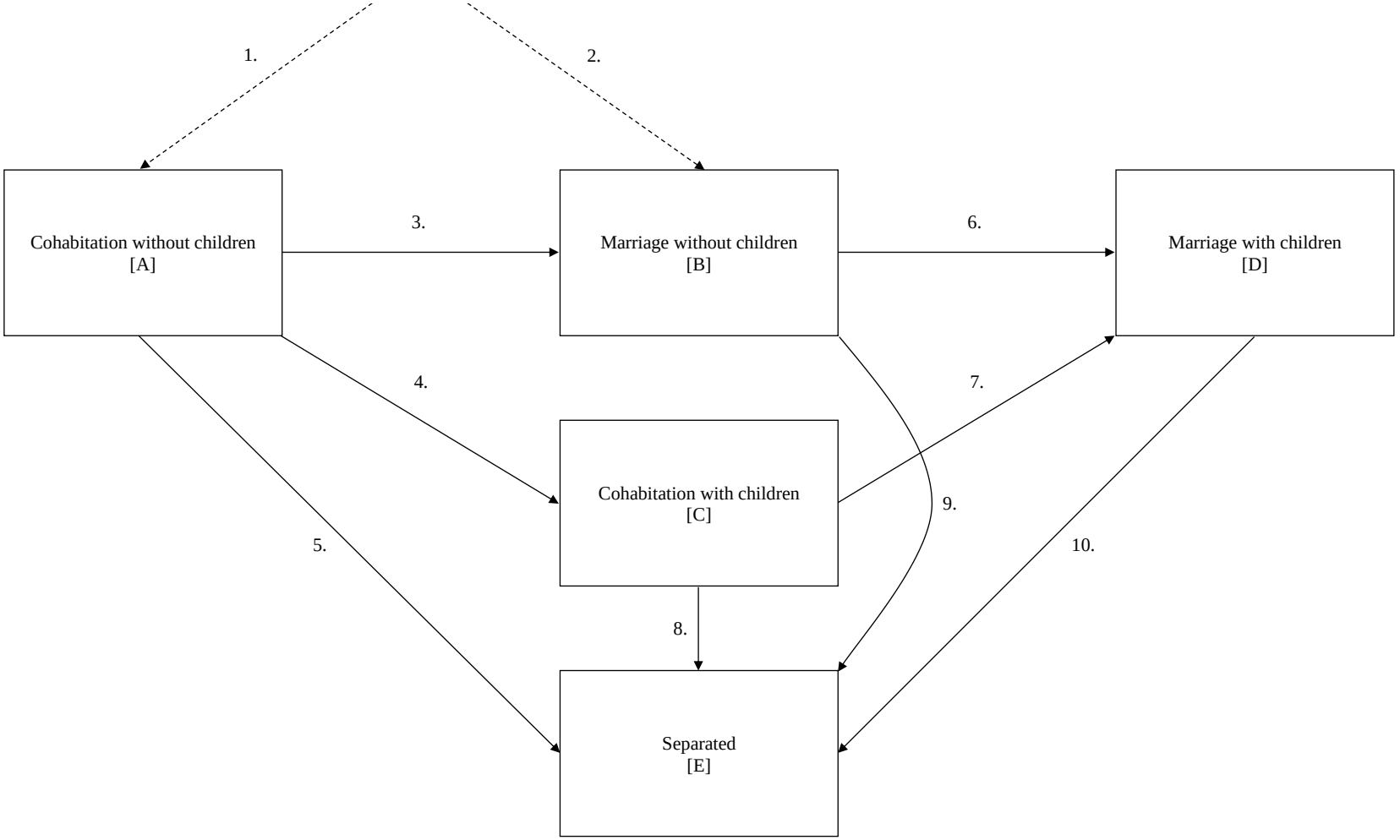

Figure 2. Stock and flow diagram of transitions into and out of cohabitation and marriage in an extended model

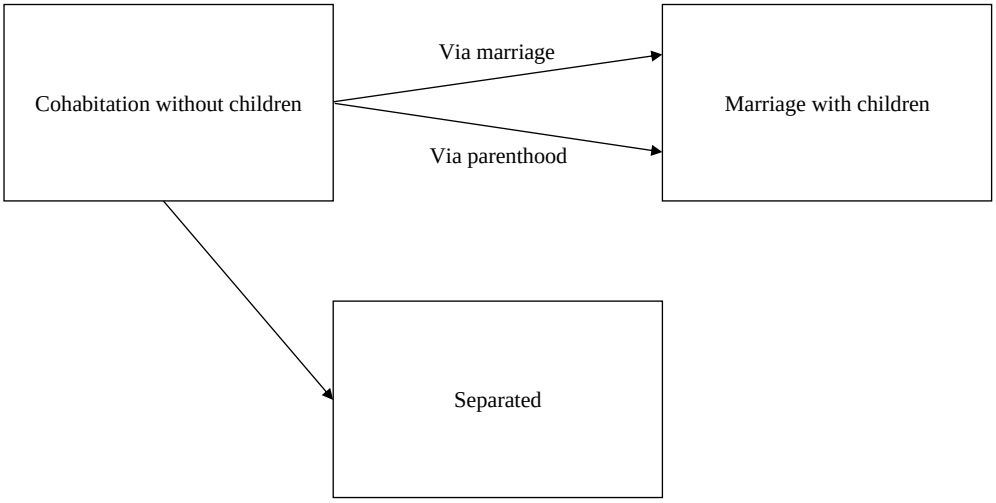

Figure 3. Stock and flow diagram incorporating the aggregate shift into marriage with children