The Proximate Determinants of Educational Homogamy

(Updated "The Effects of Marriage, Marital Dissolution, and Educational Upgrading on Educational Assortative Mating")

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ABSTRACT

This paper adapts the population balancing equation to develop a framework for studying the proximate determinants of educational homogamy. Using data from the National Longitudinal Survey of Youth on a cohort of women born between 1957 and 1965, we decompose the odds of homogamy in prevailing marriages into four proximate determinants: (1) first marriages, (2) first and later marital dissolutions, (3) remarriages, and (4) educational attainment after marriage. The odds of homogamy among new first marriages are lower than among prevailing marriages, but not because of selective marital dissolution, remarriage, and educational attainment after marriage, as has been speculated. Prevailing marriages are more likely to be educationally homogamous than new first marriages because of the accumulation of homogamous first marriages in the stock of marriages. First marriages overwhelmingly account for the odds of homogamy in prevailing marriages in this cohort. Marital dissolutions, remarriages, and educational upgrades after marriage have relatively small and offsetting effects. Our results suggest that, despite the high prevalence of divorce, remarriage, and continued schooling after marriage in the United States, the key to understanding trends in educational homogamy lies primarily in variation in assortative mating into first marriage.

INTRODUCTION

Unions between men and women with varying social and biological characteristics establish the families that bear and raise the next generation of children. Thus assortative mating, the patterns of resemblance of marital partners and parents, is of central interest to demographers and other scientists. Because marriage creates intimate ties between individuals and families, intermarriage across social boundaries is a measure of the social distance between groups and the "openness" of societies more generally (Kalmijn 1998). Moreover, the extent to which husbands and wives resemble one another on traits such as educational attainment, family wealth, and earnings may be a key component of inequality among families (Fernández and Rogerson 2001; Schwartz and Mare 2005; Smits, Ultee, and Lammers 1998). Given the importance of assortative mating patterns, a key question is how and why they vary across populations and over time.

To investigate this question, many scholars have examined the extent to which variation in broad social and economic forces, including cultural mores, the roles and statuses of women, macroeconomic conditions, and patterns of social inequality can explain variation in spousal resemblance (e.g., Fernández, Guner, and Knowles 2005; Raymo and Xie 2000; Smits et al. 1998; Smits and Park 2009; Torche forthcoming). Demographers and other social scientists have yet to perform a more basic exercise, however; they have yet to understand the mechanics behind how spousal resemblance in populations is generated. With respect to fertility, Bongaarts (1978) showed that all social and economic factors must work through one or more "proximate determinants." For example, for economic change to influence fertility it must affect one of its proximate determinants, such as the proportion of women who marry or have sexual partners, the proportion of couples using contraception, the prevalence of abortion, or the length of postpartum infecundability.

In this paper, we adapt the population balancing equation to develop a framework for studying the proximate determinants of the educational resemblance of spouses. Although the framework we develop here could be applied to assortative mating on any characteristic, we focus on education this measure dominates studies concerned with the connection between assortative mating and the distribution of resources in societies (e.g., Blau and Duncan 1967; Kalmijn 1991a, 1991b; Mare 1991; Smits et al. 1998; Ultee and Luijkx 1990). We use this framework to decompose the extent to which changes in the association between spouses' education among all married couples, or in the stock of marriages, arise from four flows: (1) entry into first marriages, (2) first and later marital dissolutions, (3) remarriages, and (4) postmarital educational upgrades.

Differences in educational *homogamy*—or the tendency for spouses to resemble one another on education—across times and places can always be traced to one of these components. For example, the liberalization of divorce laws may have made it less costly for mismatched couples to divorce (Weiss and Willis 1997), but this would be reflected in an increase in the numbers of heterogamous couples who dissolve their marriages. In this sense, the four flows identified above can be viewed as the proximate determinants of changes in spousal resemblance whereas the social and economic forces behind these changes can be viewed as indirect determinants. We apply our framework to the marriage patterns of a single cohort of American women born between 1957 and 1965 using data from the National Longitudinal Survey of Youth.

This paper contributes to the literature in several ways. First, past research has recognized the contributions first marriages, marital dissolutions, remarriages, and postmarital educational upgrades to spousal resemblance (Raymo and Xie 2000; Kalmijn 1991a; Schwartz and Mare

2005), but no study quantified their effects. In so doing, our paper integrates a series of disconnected yet intimately related literatures on factors affecting spousal resemblance (e.g., Clarkwest 2007; Jacobs and Furstenberg 1986; Lichter 1990; Weiss and Willis 1997), and formalizes past work examining couple resemblance from a stock and flow perspective (Schwartz forthcoming). Second, our findings have practical implications for researchers who are interested in studying *entry* into first marriages but only have data on existing marriages, and for those who compare spousal resemblance across countries or groups with different divorce, remarriage, and postmarital educational upgrading rates. Third, our study sets the stage for future research on how changes in marriage timing, remarriage, and divorce have affected trends in the resemblance between spouses. Once we understand the dynamics of assortative mating across one cohort's life, we can show how these demographic changes have contributed to changes in assortative mating across time and space and what basic demographic trends may portend for the future.

EDUCATIONAL HOMOGAMY AS A DYNAMIC PROCESS

Assortative mating has largely been conceptualized as a process of sorting into marriage (e.g., Becker 1974, 1981; Mortensen 1988; Oppenheimer 1988; Kalmijn 1998). The mechanism is one in which men and women have preferences for mates of a particular type, but may be constrained from fulfilling their preferences by the availability of potential spouses in their marriage markets, by the preferences of their potential mates, and by the costs of the search process. The interplay between individuals' preferences and their constraints generates observed patterns of sorting into marriage. However, changes that occur at multiple points in individuals' lives may affect the resemblance of spouses in the population. Couples who have made a "bad match" may offset this

via "postmarital adaptive socialization" (Oppenheimer 1988), or may be more weakly attached to marriage and thus more likely to divorce (Becker, Landes, and Michael 1977; Weiss and Willis 1997).

If educational homogamy is a dynamic process that changes over people's lives as individuals make decisions about marriage, education, and divorce, how should we measure spousal resemblance? The answer to this depends on the question of interest. If we are interested in how marriage markets or particular historical or national contexts influence whom one marries, examining assortative mating among recently wed couples, or *newlyweds*, is appropriate. However, if we are interested in the implications of spousal resemblance for the intergenerational transmission of inequality or the distribution of resources across families, it may be preferable to examine a wide cross-section of marriages, or *prevailing marriages*, as they are representative of all marriages in the population at a given time (Schwartz and Mare 2005). This approach is used by studies that examine the impact of changes in marriage patterns on increases in economic inequality in the United States (e.g., Cancian and Reed 1999; Hyslop 2001; Karoly and Burtless 1995).

This discussion assumes, however, that it is necessary to pick one cross-section of the data to examine assortative mating. Past research has primarily relied on cross-sectional data to examine trends and thus cannot assess the extent to which the resemblance of spouses is due to the way in which people sort into marriage, out of marriage, or change their characteristics within marriage. The typical response to these issues has been to control for the effects of changes that occur after marriage by examining the educational characteristics of spouses as closely as possible to the time of their weddings, that is, among newlyweds (e.g., Kalmijn 1994; Mare 1991; Qian 1998; Qian and Preston 1993). The farther couples' educational characteristics

are measured from the date of their first marriages, the more likely it is that divorce, remarriage, and educational changes will affect measures of spousal resemblance. When data on newlyweds are not available, researchers often restrict their samples to young couples to avoid these effects (Blackwell and Lichter 2000; Qian 1997; Qian and Lichter 2007; Rosenfeld 2008; Schwartz and Graf 2009) or use data on wide cross-sections of marriages (Jepsen and Jepsen 2002; Schwartz and Mare 2005; Smits et al. 1998; Torche forthcoming; Ultee and Luijkx 1990).

Researchers who use cross-sectional data on prevailing marriages, however, are often interested in making inferences about sorting into unions (e.g., Blackwell and Lichter 2000; Qian 1997; Rosenfeld 2008; Schwartz and Graf 2009; Smits et al. 1998). Thus, determining how well samples of prevailing marriages reflect patterns of entry into marriage is of crucial interest to many assortative mating scholars. By examining assortative mating as a dynamic process that does not end upon entry into first marriage, this paper shows how newlyweds become prevailing marriages, thus providing an empirical link between studies that use data on prevailing marriages and those that use data on newlyweds. Given the high incidence of divorce, remarriage, and educational attainment after marriage in the U.S. (Bumpass and Call 1989; Bumpass, Sweet, and Castro Martin 1990; Goldstein 1999), homogamy among new first marriages may be quite different than among prevailing marriages. These factors may also affect scholars' interpretations of differences in assortative mating across countries or groups (Blossfeld 2009).

Other scholars have advocated a life course approach to the study of assortative mating for different, but complementary reasons. Blossfeld and colleagues (Blossfeld 2009; Blossfeld and Timm 2003) have criticized the use of cross-sectional marriage data to study assortative mating and advocate analyzing the process by which singles enter marriage. We study the "other

side" of this process, that is, how the resemblance of spouses changes after entry into first marriage.

STOCKS AND FLOWS OF EDUCATIONAL HOMOGAMY

How might the proximate determinants of educational homogamy, that is, first marriages, marital dissolutions, remarriages, and educational upgrading after marriage (the flows) affect the resemblance of prevailing marriages (the stock)? Previous research offers clues about their likely effects, but none has quantified the contribution of each to the resemblance of spouses. In this section, we bring together a series of relatively disconnected literatures that speak to the proximate determinants of spousal educational resemblance. We use these findings to form expectations for our empirical results.

First marriage. Prior theory and evidence suggests that age patterns of educational homogamy follow an inverted "U" in which the odds are low among those who marry early, high among those who marry in their mid-20s, and low among those who marry late.

On the one hand, empirical evidence strongly suggests that educational homogamy declines at older ages. For example, Lichter (1990) shows that women who marry over the age of 30 are more likely to marry less educated men, perhaps because there are fewer potential partners from which to choose (Lewis and Oppenheimer 2000). It may also be that men and women are more likely to meet people with different educational attainments as they age if marriage markets are more structured by educationally heterogeneous environments, such as work, and less structured by educationally homogenous environments, such as schools (Mare 1991).

On the other hand, the odds of homogamy among those who marry at younger ages may be lower than among those who marry at older ages if young people are more likely match on

expected rather than *completed* education. For example, college sweethearts who marry after one partner has graduated while the other is still in school differ in their educational attainment at marriage but become educationally homogamous once the other partner graduates. Pre-marital assortative mating on education may also be less important for young people as they are less established in their careers and identities than older adults (Oppenheimer 1988).

A potential reconciliation of these hypotheses, which is consistent with empirical research (Weiss and Willis 1997:318), is that age patterns of educational homogamy follow an inverted "U" pattern, with lower odds of homogamy among those who marry young, higher odds of homogamy at the ages at which most people have recently completed their education, and lower odds of homogamy among those who marry relatively late. Given these hypotheses and findings, we expect that first marriages increase the odds of homogamy in the stock of marriages at young ages, but reduce the odds of homogamy at older ages.

Marital dissolution. Results from studies of the effects of educational heterogamy on the likelihood of marital disruption are mixed, although the balance of the evidence suggests that heterogamous marriages are more likely to dissolve especially when wives have more education than their husbands (Bumpass and Sweet 1972; Bumpass, Castro Martin, and Sweet 1991; Clarkwest 2007; Kalmijn 2003; Schwartz forthcoming; Tzeng and Mare 1995). These findings suggest that couples leaving the stock of marriages are less alike than couples who remain, and thus that marital dissolutions *increase* the odds of homogamy in the stock of marriages.

Remarriage. Remarriages tend to be less educationally homogamous than first marriages (Dean and Gurak 1978; Jacobs and Furstenberg 1986). These findings may partially be the result of selection whereby women who have had only one marriage have higher odds of homogamy than do remarried women in either their first or second marriages (Dean and Gurak 1978). This

interpretation is consistent with other studies that find little difference in educational homogamy between women's first and second marriages (Gelissen 2004). However, given that remarriages tend to be less likely to be homogamous than first marriages on average, we expect that remarriage has a negative impact on educational homogamy.

Postmarital educational upgrading. Although previous research has examined the potential convergence of spouses' attitudes, values, and personality traits (see Caspi and Herbener 1993 for a review; Clarkwest 2007), no study to our knowledge has examined whether spouses' educational characteristics tend to converge or diverge. Educational changes may result in greater homogamy if people who marry before completing their education match on expected rather than completed education. These couples may be heterogamous at the time of marriage but may become homogamous as the result of continued schooling. By contrast, educational changes may result in lower levels of homogamy if initially homogamous couples pursue a specialization strategy in which one partner returns to school to increase the family's earnings.

These strands of research suggest that opposing forces may be at work in the assortative mating process. The effects of first marriages on the similarity of prevailing marriages may be non-linear, increasing the odds of homogamy at younger ages and decreasing them at older ages. Marital dissolutions may increase the odds of educational homogamy in prevailing marriages as the result of selective marital dissolution, but remarriages may have the opposite effect. Finally, empirical research to guide hypotheses about the impact of educational changes is absent. Educational upgrades may increase the odds of homogamy in prevailing marriages if couples that intermarry become homogamous after they complete their education, or they may decrease the odds of homogamy if the bulk of educational upgrades occur among couples who are already homogamous.

DATA AND MEASUREMENT

We use the National Longitudinal Survey of Youth (NLSY79), a panel study of 12,686 men and women aged 14 to 21 as of December 31, 1978, to conduct our analysis. We restrict our analysis to the cross-sectional sample and the Hispanic and black oversamples, which consist of 9,763 respondents. Men and women in this cohort were first interviewed in 1979 and were re-interviewed yearly through 1994 and then biennially. We use interviews conducted from 1979 to 2002. The NLSY79 provides detailed histories of respondent's marital status and the educational characteristics of both partners. These data make it possible to decompose observed levels of educational homogamy into flows due to new marriages, marital dissolutions, and postmarital educational changes.

Important asymmetries exist in the NLSY79 that affect our analysis. Although it is possible to think about assortative mating as a function of "cohort age" because of the relatively high correlation between spouses' ages, in reality, spouses' ages are likely to differ. Because the spouses of NLSY79 respondents may not be part of the cohort of youth aged 14 to 21 as of December 31, 1978, we follow female respondents (n = 4,926), which preserves the cohort interpretation of the analysis. We follow female respondents from age 16 to 41 (n = 4,922), regardless of their husbands' age. This age range roughly correspondents to the ranges used in past research on educational homogamy among prevailing marriages (Schwartz and Mare 2005; Smits et al. 1998). Women aged 16 to 41 in the cross-sectional and Hispanic and black oversamples contribute 87,004 person-years to the analysis.

Our data are structured such that we know the exact ages of women at the time of their interviews, but do not know the exact timing of all marital and educational transitions. Thus, we only consistently know whether an event occurred between interviews. Because we are

examining status changes between interviews at ages x and x+1, the last interview year does not inform our analysis on its own. Dropping the last interview year reduces the number of person-years to 86,312. Moreover, a small number of women had large time gaps between interviews which makes determining the precise timing of events difficult. To reduce error introduced by these gaps, we restrict the sample to those person-years in which the next interview occurred within 3 years of the current interview (n = 82,670). In addition, a small percentage of marital status transitions (about 5% of all transitions) were illogical or inconsistent, such as moving from married to never married. We limit our analysis to person-years between which illogical transitions did not occur (n = 82,222)

We classify education into four categories based on number of years of schooling completed: less than 12, 12, 13 to 15, and 16 or more years of schooling. Missing or invalid data on women's or spouses' education were imputed from adjacent years where possible. We drop person-years in which either respondents' or spouses' education characteristics are missing (n = 81,685) or when either respondents' or spouses' education category declines, for a final sample size of 81,671 person-years.

METHODS

Balancing Equation

We formalize how the proximate determinants of educational homogamy affect homogamy in the stock of marriages by adapting the population balancing equation. The population balancing equation states that the population in year t + 1 is equal to the previous year's population, plus births, minus deaths, plus in-migration, and minus out-migration (Preston, Heuveline, Guillot 2001). Similarly, as a cohort ages, there are two ways in which the number of marriages between

husbands of education category *i* and wives of education category *j* can increase. Couples can either be "born" into the category, that is, they can enter the category by forming a new first or later marriage, or they can "in-migrate" to the category through continuing their schooling. Likewise, there are two ways in which the number marriages between husbands of education category *i* and wives of education category *j* can decrease. Couples can either exit the category through the "death" of a first or later marriage via separation, divorce, or widowhood, or through "out-migration" via postmarital educational attainment. This can be represented formally as:

$$l^{M}_{x+1ij} = l^{M}_{xij} + {}_1d^{F}_{xij} - {}_1d^{D1}_{xij} + {}_1d^{R}_{xij} - {}_1d^{D2}_{xij} + {}_1d^{I}_{xij} - {}_1d^{O}_{xij} \quad (1)$$

where,

i = husband's education category (i = <12, 12, 13-15, 16+),

j = wife's education category (j = <12, 12, 13-15, 16+),

x = wife's age (x = 16,…,41),

l^{M}_{xij} = the number of prevailing marriages at age x between husbands of education i and wives of education j,

${}_1d^{F}_{xij}$ = the number of new first marriages between ages x and $x + 1$ between husbands of education i and wives of education j,

${}_1d^{D1}_{xij}$ = the number of dissolutions from first marriages (divorce, separation, or widowhood) between ages x and $x + 1$ between husbands of education i and wives of education j,

${}_1d^{R}_{xij}$ = the number of new remarriages between ages x and $x + 1$ between husbands of education i and wives of education j,

${}_1d^{D2}_{xij}$ = the number of dissolutions from remarriages (divorce, separation, or widowhood) between ages x and $x + 1$ between husbands of education i and wives of education j,

${}_1d^{I}_{xij}$ = the number of couples between ages x and $x + 1$ who enter the ijth educational category as a result of an educational upgrade (in-migration), and

${}_1d^{O}_{xij}$ = the number of couples between ages x and $x + 1$ who exit the ijth educational category as a result of an educational upgrade (out-migration).

Thus, the number of marriages between husbands of education *i* and wives of education *j* at wife's exact age *x* + 1 (l^M_{x+1ij}) is made up of those marriages that existed at exact age *x* (l^M_{xij}), plus the number of new first marriages between ages *x* and *x*+1 ($_1d^F_{xij}$), minus the number of marital dissolutions ($_1d^{D1}_{xij}+_1d^{D2}_{xij}$), plus the number of remarriages ($_1d^R_{xij}$), plus the in-migration of couples to joint education category *ij* ($_1d^I_{xij}$), minus the out-migration of couples from joint education category *ij* ($_1d^O_{xij}$).

The balancing equation provides the conceptual basis for our analysis, but the numbers of marriages at exact age *x* +1 (l^M_{x+1ij}) are not analogous to stock measures of marriage from survey data. Cross-sectional data on the stocks of marriages contain information on marriages in a given age range, say, those who are at least 18 years old but younger than 19 years old whereas l^M_{xij} refers to the number of marriages at exact age *x*. For comparability with data used in previous empirical research, we decompose changes in the stocks, that is, the number of married person-years spent in education category *ij* between ages *x* and *x*+1. This quantity is estimated as $_1L^M_{xij}$ where $_1L^M_{xij} = (l^M_{x+1ij} + l^M_{xij})/2$ (Preston et al. 2001:261).

Multistate Life Tables

We estimate the stocks and flows into and out of marriage shown in equation (1) using multistate life tables. The building blocks of the multistate life tables are transition rates into and out of marriage and education categories. To estimate the rates, we first classify women into one of four marital states as shown in Figure 1: [1] never married, [2] married, [3] separated, divorced, or widowed, or [4] remarried. Women have education *i* and couples have joint education *ij*. We

calculate the age- and education-specific rates with which women transition (a) from singlehood to first marriage (λ_{ij}^{F}), (b) from first marriage to separated, divorced, or widowed (λ_{ij}^{D1}), (c) from separated, divorced, or widowed to remarriage (λ_{ij}^{R}), and (d) from remarriage to separated, divorced, or widowed (λ_{ij}^{D2}). (See Appendix Table A for details and sample sizes.) Within each of these states, we also calculate education category upgrading rates.[1] The numerators for the rates are the numbers of events between exact ages *x* and *x*+*n* and the denominators are the numbers of person-years at risk. Separate rates are calculated for observations separated by one, two, and three years and are weighted using the 1979 sampling weights. These rates are averaged proportionate to the number of person-years they contribute to produce a single set of transition rates by female respondent's age. Because few marital events occur before age 18, we present results for female respondents between the ages of 18 and 41 (*n* = 78,219), but the radix for our multistate life table is the weighted distribution of women in the each of the states shown in Figure 1 at age 16.

The multistate life table uses the transition rates to produce implied marital status and joint education distributions by age. There are two main advantages of using the multistate life table rather than the observed frequencies. First, when using the distribution estimated from the multistate life table, the balancing equation adds up exactly. By contrast, if we were to use the observed data, the numbers of prevailing marriages observed from one age to the next would not only be a function of new marriages, marital dissolutions, and educational upgrades, but would also be affected by censoring and survey attrition. Second, because the multistate life table

[1] Figure 1 summarizes women's states at exact ages, but because we are interested in couples' joint marital and educational characteristics, women may be in 1 of 40 states at any given time. When respondents are single (or divorced, separated, or widowed) they may be in 1 of 4 education categories and when they are first married (or remarried) they may be in 1 of 16 joint education categories. Thus, there are 40 (4*2 + 16 *2) possible states and the transition matrix is 40 by 40, although not all transitions are possible, e.g., educational downgrades.

represents a complete and interrelated system of states and transitions, counterfactual rates can easily be substituted for the observed rates to perform simulations and decompositions (discussed further below).

Log-Linear Models

To summarize patterns of educational homogamy we use data from our multistate life table and log-linear models for contingency tables. Our contingency table is produced by cross-classifying female respondent's education by spouse's education and respondent's age. We use log-linear models because they allow us to examine the association between couples' education while controlling for changes in the age distribution of education. This feature is particularly important for this analysis because there are large shifts in the education distribution of married couples across the age range we examine.

We use homogamy models, which describe the association between spouses' education in terms of the odds that husbands and wives have the same rather than different levels of education, to summarize the association. These models allow us to describe and decompose trends in assortative mating by age using a single intuitive measure. Homogamy models represent a convenient way of summarizing a potentially complex process of age variation in assortative mating. Other single parameter models, such as association or distance models are not as readily interpretable. More complex models that use multiple parameters to describe assortative mating patterns may provide a better fit to the data, but are cumbersome for the illustration our decomposition technique and are heavily affected by changes in the age composition of the education distribution.

We use two types of homogamy models. The first allows the odds of homogamy to vary by wife's age:

$$\log(\mu_{ijk}) = \lambda + \lambda_i^H + \lambda_j^W + \lambda_k^A + \lambda_{ik}^{HA} + \lambda_{jk}^{WA} + \delta_1 d^O + \delta_2 d^O A + \delta_3 d^O A^2 \quad (2)$$

where H denotes husbands' education (i = 1,…,4), W is wives' education (j = 1,…,4), A is wives' age category (k = 18-21, …, 38-41), and d^O is a dummy variable for homogamy that equals 1 where $i = j$ and 0 otherwise. This model parameterizes changes in the log odds of homogamy by age with a quadratic function, which describes the age pattern of homogamy well, controlling for changes in the marginal distributions of husbands' and wives' educational attainment ($\lambda_{ik}^{HA}, \lambda_{jk}^{WA}$).[2]

The second homogamy model estimates the "average" odds of homogamy across wife's age by omitting the interaction terms between homogamy and wife's age ($\delta_2 d^O A, \delta_3 d^O A^2$). We present estimates from these models for consistency with prior research as most prior studies estimate their association parameters across a relatively wide age range (e.g., Schwartz and Mare 2005; Kalmijn 1991b; Qian 1998; Smits et al. 1998) and because sample sizes by age for some transitions are small.

Simulation and Decomposition

We estimate the contribution of marital and educational transitions to educational homogamy in prevailing marriages by successively increasing the number of flows that may affect the stock of

[2] If we were interested in changes in homogamy that *included* variation in the marginal distributions of spouse's educational attainments, we could apply the same methods as outlined here, but decompose changes in the percentage homogamous or the correlations between spouses' educations instead.

marriages. We perform a series of simulations to conduct the decomposition using the accounting equation (equation (1)).

$$l^{M}_{x+1ij} = l^{M}_{xij} + {}_1d^{F}_{xij} \qquad \text{(S1: First marriages only)}$$

$$l^{M}_{x+1ij} = l^{M}_{xij} + {}_1d^{F}_{xij} - {}_1d^{D1}_{xij} \qquad \text{(S2: + First dissolutions)}$$

$$l^{M}_{x+1ij} = l^{M}_{xij} + {}_1d^{F}_{xij} - {}_1d^{D1}_{xij} + {}_1d^{R}_{xij} \qquad \text{(S3: + Remarriages)}$$

$$l^{M}_{x+1ij} = l^{M}_{xij} + {}_1d^{F}_{xij} - {}_1d^{D1}_{xij} + {}_1d^{R}_{xij} - {}_1d^{D2}_{xij} \qquad \text{(S4: + Later dissolutions)}$$

$$l^{M}_{x+1ij} = l^{M}_{xij} + {}_1d^{F}_{xij} - {}_1d^{D1}_{xij} + {}_1d^{R}_{xij} - {}_1d^{D2}_{xij} + {}_1d^{I}_{xij} - {}_1d^{O}_{xij} \qquad \text{(S5: + Educational upgrades)}$$

In S1, the expected stock of marriages among spouses with joint education *ij* at wife's age *x* + 1 is the sum of the number of existing marriages with joint education *ij* at age *x* and the number of new first marriages among spouses with joint education *ij* ($_1d^{F}_{xij}$). This creates a new distribution of marriages under the counterfactual that the stock of marriages is affected only by new first marriages. The quantities in S1 are estimated using a multistate life table in which all of the transition rates shown in Figure 1 are "turned off" (set to zero) after age 18 except for transition rates into first marriage (λ^{F}_{ij}). We then estimate log-linear homogamy models using the simulated data from S1. The coefficients from these models give the odds of homogamy if first marriages were the only flow to have affected the stock of marriages.

In S2, the stock of marriages is affected by both first marriages ($_1d^{F}_{xij}$) and dissolutions from first marriages ($_1d^{D1}_{xij}$). To estimate these quantities, we use a multistate life table in which all of the rates shown in Figure 1 are set to zero after age 18 except for transitions to first marriages and first marital dissolutions (λ^{F}_{ij} and λ^{D1}_{ij}). As in the first simulation, we estimate log-linear homogamy models using the simulated data. The difference in the log odds of homogamy estimated from S2 and S1 is an estimate of the impact of first marital dissolutions on educational homogamy.

S3 to S5 proceed in an analogous manner; each simulation adds a new marital or educational transition and the difference between the odds of homogamy between successive simulations is an estimate of the impact of the added component. An additional feature to note is that the difference between the odds of homogamy estimated from S5 and S4 is an estimate of the impact of educational changes on the odds of homogamy in the stock of marriages, but S5 also contains all of the flows that contribute to the stock of marriages and therefore is equal to the multistate life table quantities for observed prevailing marriages.

RESULTS

Marital and Educational Status Transitions

The relative impact of first marriages, marital dissolutions, remarriages, and postmarital educational upgrading on spousal resemblance is determined by two components: (1) how selective the transition is of homogamous couples and (2) the frequency with which these events occur. For example, even if divorce is highly selective of heterogamous couples, divorce will have little impact on homogamy in the stock of marriages if it is very rare. Thus, to provide context for the log-linear model results to come, we use life tables to describe the marital and education experiences and characteristics of women in the NLSY79 cohort.

Table 1 shows that the vast majority of women in the NLSY79 cohort married before the age of 41 (88%). The median age of first marriage for women was 23.7, which is consistent with other estimates from around this period (U.S. Census Bureau 2006). During this cohort's prime marrying years, divorce rates were at near all time highs in the United States, peaking in 1979 and declining somewhat over subsequent decades (Goldstein 1999). The high rate of marital dissolution is reflected in the NLSY79—about 37% of first marriages in this cohort had

dissolved after 10 years of marriage, an estimate similar to past research using other data from around this time (Martin 2006). Although remarriage rates after divorce declined somewhat over the 1980s and 1990s, Table 1 also shows that over two-thirds of women remarried after a marital dissolution within 10 years (69%). Finally, a non-trivial percentage of couples increased their education after marriage. Bumpass and Call (1989:10, Table 4) estimate that over 40% of married men and women who turned 30 in the late 1980s had been enrolled in school at some point after marriage. Our measure differs somewhat from theirs in that we measure education transitions from one category to the next rather than in single years, but we nevertheless find that in about 24% of marriages at least one spouse experienced an educational transition within 10 years of marriage. Husbands and wives had relatively similar chances of increasing their education after marriage.

Table 1 also shows husbands' and wives' educational attainment at the time of wives' first marriages. The modal category for both sexes is 12 years of schooling, but substantial fractions had also completed either "some college" or college. These education distributions are quite similar to those estimated for newlyweds from June Current Population Survey (CPS) data between 1980 and the mid-1990s (authors' calculations from the June CPS). Moreover, consistent with other work on marriages formed around this time (Schwartz and Mare 2005), Table 1 shows that newlywed wives' average educational attainment exceeded husbands'.

Figure 2 shows the frequency distribution of these events by wife's age estimated from multistate life tables (beginning with 1,345 16-year-old female respondents (l_0)). Figure 2 is useful in that it illustrates which flows have the most potential to affect the stock of marriage and how this varies by age. It shows that first marriages are by far the most common transition up through women's late 20s. Marital dissolution, remarriages, and educational changes after

marriage are comparably less common, although their numbers exceed the numbers of new first marriages after women's mid-30s. Educational upgrades after marriage are more common at younger than older ages. Overall, the prevalence of these events suggests that marital dissolution, remarriage, and educational upgrading may substantially affect the resemblance of spouses in this cohort.

Educational Homogamy in the Stocks and Flows

Figure 3 presents the results of our log-linear homogamy models by age (equation 2) for prevailing marriages, for new first marriages, and for a simulated distribution of prevailing marriages. We focus on the odds of homogamy among prevailing and new first marriages here and discuss the simulated age pattern in the next section. Figure 3 shows that the odds of homogamy range from about 2:1 to 3:1 depending on wife's age and the sample. In other words, for every educationally dissimilar union, there are between two and three homogamous unions, controlling for shifts in the marginal distributions of spouses' education by wife's age. Figure 3 also shows that the odds of educational homogamy among prevailing marriages vary somewhat by wife's age, with younger and older wives having somewhat lower odds of homogamy. Although the odds of homogamy among prevailing marriages only vary slightly by wife's age, large shifts in these odds may still be generated by the flows into and out of marriage.

The inverted "U" shape of the relationship between the odds of homogamy and age is more pronounced for newly married women in their first marriages, consistent with our expectations based on past research (Lewis and Oppenheimer 2000; Lichter 1990; Weiss and Willis 1997).[3] The shape of the pattern suggests that new first marriages increase the odds of

[3] Our log-linear models are not estimated using a sample in the usual sense. Rather, they use data from multistate life tables. Scholars have developed methods for estimating confidence intervals for life table quantities (see Lynch

homogamy in the stock of marriages at young ages but decrease them at older ages. Another notable feature of Figure 3 is that at every age, the odds of homogamy among new first marriages are lower than they are for prevailing marriages. Our decomposition, discussed below, reveals the reasons for these differences.

Because of the relatively small sample sizes by age for the other transitions, Figure 4 summarizes the odds of homogamy across wife's age for remarriages, first and later marital dissolutions, and postmarital educational upgrades across the 18 to 41 age span. For comparison, we also show the odds of homogamy pooled across wife's age for prevailing marriages and new first marriages. Consistent with the Figure 3, Figure 4 shows that prevailing marriages are more likely to be educationally homogamous than new first marriages. Couples who dissolve their first marriages are somewhat less likely to be homogamous than prevailing and new first marriages, consistent with past findings (Clarkwest 2007; Kalmijn 2003; Schwartz forthcoming). This implies that first marital dissolutions increase the likelihood of homogamy in the stock of marriages as dissimilar couples exit marriage. Remarriages are also less likely to be homogamous than new first marriages and prevailing marriages. This implies that remarriages contribute to a decline in the odds of homogamy among prevailing marriages as these couples enter the stock of marriages. By contrast to dissolutions from first marriages, couples who dissolve their remarriages are more likely to be homogamous than those who enter, suggesting that later marital dissolutions may reduce the odds of homogamy in the stock. There are relatively few dissolutions from remarriages, however, and thus we expect the positive impact of dissolutions from first marriages to dominate the negative impact of dissolutions from remarriage

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and Brown 2005 for a review), but producing confidence intervals for coefficients estimated using models from multistate life table data is more complex. We view our results as descriptive, and thus largely do not test the significance of our results. To get a sense for whether the patterns in Figure 3 are statistically significant, however, we estimated observed patterns using the raw sample data, which are very similar to those presented here.

on the odds of homogamy in the stock. Finally, couples in which one or both spouses change their education are less likely to be homogamous before their educational transitions (education out-migration) than after (education in-migration), suggesting that educational changes increase the odds of homogamy in the stock of marriages. To summarize, our results thus far suggest that remarriages decrease the resemblance of the stock of marriages, but marital dissolutions and educational upgrades increase its resemblance. In the next section we show the extent to which each of these flows affects homogamy in the stock of marriages.

Simulation and Decomposition

First Marriages. In addition to age patterns of educational homogamy for prevailing and new first marriages, Figure 3 shows age patterns of homogamy using a simulated distribution of prevailing marriages generated under the assumption that first marriages were the only marital or educational transition to have occurred after age 18 (S1). Figure 3 shows that, if first marriages were the only flow to have affected the stock of marriages, the level and age pattern of educational homogamy in prevailing marriages would have been very similar to that observed, with the exception of somewhat higher odds of homogamy at older ages. This simulation reveals an important finding: marital dissolutions, remarriages, and educational upgrades are *unnecessary* to produce higher odds of educational homogamy in the stock of marriages than among newlyweds. The accumulation of first marriages alone can account for the higher odds of homogamy among prevailing marriages than among new first marriages.

Why does the accumulation of first marriages produce higher odds of homogamy among prevailing marriages than new first marriages? To understand this, we turn to age patterns of

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Correcting for the clustering of observations within respondents and applying sample weights, age patterns of homogamy in prevailing marriages are not statistically significant but are among new first marriages.

homogamy among new first marriages and entry into first marriage. Most first marriages in this cohort took place before women were about 27 years old (Figure 2). At these ages, the odds of homogamy among new first marriages trends upward (Figure 3). In S1, once women marry for the first time, they do not divorce, change their education, or remarry, but remain in their first marriages through age 41. Because relatively few new first marriages occur in the downward portion of the trend and many homogamous marriages have already accumulated in the stock of marriages, the downward trend among newlyweds has little effect on the odds of homogamy in the stock. By contrast, because every new first marriage is weighted equally in the cross-section, the odds of homogamy among new first marriages are lower than among prevailing marriages. Therefore, even if there were no educational changes, remarriages, or marital dissolutions, the odds of homogamy would still be higher in the stock of marriages than among new first marriages.

Marital Dissolutions, Remarriages, and Educational Upgrades. Table 2 shows the odds and log odds of homogamy in observed prevailing marriages and using data from each of the five simulated marriage distributions. We use the counterfactual log odds to decompose the impact of first marriages, marital dissolutions, remarriages, and educational upgrades on the log odds of homogamy in the stock of marriages among wives aged 18 to 41. We decompose the log odds of homogamy rather than the odds because the decomposition is additive in the log-odds scale but multiplicative in the odds scale.

As was evident in Figure 3, Table 2 shows that the odds of homogamy for observed prevailing marriages are slightly lower than the odds if first marriages were only flow to have affected the stock (S1). Under this counterfactual, the log odds of homogamy would have been 1.058, rather than 1.007 as observed. Thus, first marriages explain 105% (1.058/1.007*100) of

the observed log odds of homogamy in prevailing marriages. Allowing female respondents to dissolve their first marriages increases the odds of homogamy in the stock of marriages somewhat. The contribution of first marital dissolutions to the log odds of homogamy in the stock of marriages can be calculated by subtracting S1 from S2, or 1.079-1.058 = 0.021. Thus, first marital dissolutions increase the log odds of homogamy in the stock of marriages by about 2% (0.021/1.007*100). By comparison, remarriages and later marital dissolutions decrease the odds of homogamy in the stock. Of these flows, remarriage has the largest impact, contributing to a 6% reduction in the log odds. The impact of later marital dissolutions and educational upgrading are both quite small (< 1%) and negative.[4] Thus, taken together, marital dissolutions, remarriages, and educational upgrades have relatively small and offsetting effects on homogamy in the stock of marriages. Overall, their joint impact is negative—the odds of homogamy are reduced by about 5% as a result of these transitions. First marriages have by far the largest impact on the odds of homogamy in the stock of marriages.

Newlyweds versus Prevailing Marriages. Samples of newlyweds in their first marriages are often viewed as the gold standard in assortative mating research, but scholars who do not have information on newlyweds or who are interested in overall patterns of resemblance use data on prevailing marriages, either using a wide age range of couples (e.g., Schwartz and Mare 2005; Smits et al. 1998; Torche forthcoming) or younger couples, e.g., those 20 to 29 years old (Blackwell and Lichter 2000; Qian 1997; Rosenfeld 2008). The methods developed here can be used to assess by how much and why educational homogamy among new first marriages differs from homogamy among prevailing marriages in the NLSY79 cohort.

[4] Based on the results shown in Figure 4, we expected the impact of educational upgrades to be positive. The decomposition results with respect to educational upgrades, however, are sensitive to model specifications. If we omit the controls for changes in the distribution of educational attainment by wife's age from equation (2), the

Panel A of Table 3 decomposes the difference in the log odds of educational homogamy among prevailing and new first marriages in which wives are between 18 and 41 years of age into parts due to (a) age patterns of homogamy into new first marriages and age patterns of entry into first marriages and (b) marital dissolutions, remarriages, and educational upgrades. The first row shows the observed difference in the log odds among prevailing and new first marriages. These results indicate that researchers who use samples of prevailing marriages across a wide age range to make inferences about sorting into first marriages overestimate the odds of homogamy by about 15% ($e^{0.139}$). The portion of the difference in the log odds between these two samples that is due to age patterns of homogamy and entry into first marriage alone can be estimated by subtracting the log odds of homogamy among new first marriages from the log odds of homogamy among prevailing marriages under the counterfactual that first marriages are the only flow to contribute to the stock (S1). Row 2 of Panel A shows that if first marriages were the only flow to have affected the stock of marriages, we would overestimate the odds of homogamy among new first marriages by an even larger amount, i.e., by 21%. Thus, changes that occur after first marriages (remarriages, marital dissolutions, and educational changes) actually reduce the difference in homogamy between new first marriages and prevailing marriages (Row 3). In terms of the percentage contributions, age patterns of homogamy and entry into first marriage are responsible for all of the higher odds of homogamy among prevailing marriages (137%).

Does restricting the sample to young couples reduce the discrepancy between the odds of homogamy among prevailing and new first marriages? Panel B of Table 3 performs a similar exercise for couples in which wives are between the ages of 18 to 29, following previous

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impact of educational upgrades is positive and small. We take this as evidence that the impact of educational upgrades is essentially fluctuating around zero.

research lacking information on newlyweds. Row 1 of Panel B shows that restricting the sample to relatively young couples does not substantially reduce the difference. For young couples, the odds of homogamy in prevailing marriages are about 13% higher than among new first marriages compared with 15% for a wider age range. Again, age patterns of sorting into first marriages and age patterns of entry into first marriage are responsible for this difference.

DISCUSSION

Despite the high incidence of divorce, remarriage, and continued schooling after marriage in the U.S., we find that these factors have small and offsetting impacts on the odds of educational homogamy in prevailing marriages among women in the NLSY79 cohort (age 14 to 22 in 1979). Consistent with most other work, we find that marital dissolutions increase educational resemblance, and remarriages decrease resemblance (e.g., Clarkwest 2007; Jacobs and Furstenberg 1986; Lichter 1990; Weiss and Willis 1997). Educational upgrades after marriage have virtually no impact on educational homogamy. Our contribution has been to show how these components work together to make up the observed odds of homogamy in prevailing marriages.

Our primary finding is that the odds of homogamy in prevailing marriages are overwhelmingly attributable to new first marriages. This suggests that the key to understanding between-cohort trends in educational homogamy in the U.S. lies in changes in assortative mating into first marriage, rather than changes in divorce, remarriage, or continued schooling after marriage, but research using data on more than one cohort is needed to fully investigate this claim. Although the odds of homogamy in prevailing marriages in the NLSY79 cohort are mainly due to new first marriages, this does not mean that samples of newlyweds and prevailing

marriages are interchangeable. We find that the odds of homogamy among prevailing marriages in which wives are between the ages of 18 to 41 are 15% higher than the odds of homogamy among new first marriages in the same age range. Restricting the sample to younger couples does not substantially increase the comparability of the two samples. Unlike what has been speculated (Kalmijn 1991a; Schwartz and Mare 2005), differences in the odds of homogamy between these samples do not reflect selective marital dissolution, remarriage, and educational changes after marriage, at least in the NLSY79 cohort. Rather, they are a product of the accumulation of homogamous first marriages in the stock of marriages.

This accumulation occurs because of age patterns of homogamy into first marriages and age patterns of entry into marriage. We find that age patterns of homogamy among new first marriages follow an inverted "U" shape, with higher odds of homogamy among new wives aged 26 to 29 than among younger and older wives. These results are consistent with the hypothesis that homogamy is highest upon school completion and declines thereafter as the pool of eligible mates becomes scarcer and as people are more likely meet outside educational institutions (Lichter 1990; Mare 1991). Because relatively few new first marriages occur in the downward portion of the trend (after age 30) and many homogamous marriages had already accumulated in the stock of marriages, the downward trend among newlyweds has little effect on the odds of homogamy in prevailing marriages. By contrast, because every new first marriage is weighted equally in the cross-section, the odds of homogamy among newlyweds are lower than among prevailing marriages. These findings have (non-)implications for our interpretation of the social distance between educational groups across samples. The higher odds of homogamy among prevailing marriages than among newlyweds do *not* reflect meaningful differences in the social

distance between educational groups as they are almost entirely a product of entry into first marriages.

We can use our understanding of the relationship between age patterns of homogamy into new first marriages and age patterns of first marriage to think about the implications of shifts in these patterns for future trends in educational homogamy. Suppose that the inverted "U" shape of the odds of homogamy among first-married newlyweds has remained constant over time. Then an increase in the average age at marriage for women from 22 to 27 (which was roughly the shift from 1970 to 1995 (Schoen and Standish 2001)) would result in an increase in the odds of homogamy among prevailing marriages. If the average age at marriage increases beyond age 30, then the odds of homogamy in prevailing marriages will begin to decline. At present, the average age at first marriage is moving toward the downward slope of the inverted "U" observed for the NLSY79 cohort. This suggests that spouses' educational resemblance may decrease among cohorts to come if the shape of age patterns of homogamy remains stable.

A more likely scenario, however, is that the shape of the inverted "U" is not constant over time, but is affected by changes in marriage timing. This could occur if the number of eligible partners of a given age affects the odds of homogamy. For example, if the observed odds of homogamy decline once women are older than about 30 because the pool of eligible mates is increasingly sparse (Lichter 1990), we would expect that as the number of eligible mates increase at older ages, so would the odds of homogamy. This would shift the peak of the inverted "U" to the right. The shape of the inverted "U" could also be affected by the timing of educational completion. For example, if the observed odds of homogamy are low when respondents are young because they are more likely to be in school than older respondents, then a continued expansion of education will also shift the peak of the inverted "U" to the right.

Future research could examine how shifts in age patterns of homogamy and marriage timing have affected past trends in spousal resemblance and simulate how different changes may affect future trends.

Although their impacts are small, selective marital dissolutions, remarriages, and educational upgrades may affect comparisons between groups or countries where differences in homogamy are also relatively small. For example, differences in educational homogamy between cohabitors and married couples are relatively modest in the U.S. and marital dissolutions have been found to play a role in accentuating these differences (Schwartz forthcoming). Differences in the educational resemblance of spouses across countries tend to be large (e.g., Smits et al. 1998; Smits and Park 2009; Torche forthcoming), and thus, if the effects of marital dissolution, remarriage, and educational changes after marriage are similar to those in the U.S., many cross-national comparisons will not be affected. Of course, the impact of these demographic factors may vary considerably from context to context. For instance, divorce is more prevalent in the U.S. than in most other countries (OECD 2008), suggesting that its effects on homogamy should be larger in the U.S. than elsewhere, but if divorce is more selective of heterogamous couples in other countries then its effects on homogamy could be just as large.

The lesson we draw from this analysis is that assortative mating researchers should exercise considerable caution when drawing conclusions about the mechanisms that generate differences in spousal resemblance when using data on prevailing marriages. We have shown that the proximate determinants of educational homogamy work in relatively complex ways using data from one cohort in the U.S. Future research should examine how these factors vary across times and places, and how variation in the indirect determinants of educational homogamy—that is, variation in broad social and economic factors—affect not only sorting into

first marriages but also selective marital dissolution, remarriage, and continued schooling after marriage.

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Table 1. Life Table Estimates of Women's Marriage and Education Transitions and Characteristics

Percent First Married by Age 41 (%)	87.5
Median Age at First Marriage	23.7
Percent of First Marriages Dissolved within 10 Years of Marriage (%)	37.2
Percent Remarried within 10 Years of a Marital Dissolution (%)	68.9
Percent of Marriages with an Education Category Upgrade within 10 Years of Marriage (%)	
Either Upgrades	24.2
Wife Upgrades	13.6
Husband Upgrades	14.0
Wife's Years of Schooling at First Marriage (%)	
< 12	6.8
12	37.2
13-15	28.5
≥ 16	27.5
Husband's Years of Schooling at First Marriage (%)	
< 12	10.3
12	40.5
13-15	21.7
≥ 16	27.5

Note: Data are weighted using 1979 sampling weights.
Source: National Longitudinal Survey of Youth (NLSY79), 1979-2002. Female respondents aged 16 to 41.

Table 2. Decomposition of the Log Odds of Educational Homogamy in Prevailing Marriages

Sample or Simulation	Odds	Log Odds	Contribution to Log Odds	Percentage Contribution (%)
Observed Prevailing Marriages	2.737	1.007	--	--
First Marriages (S1)	2.881	1.058	1.058	105.11
+ First Dissolutions (S2)	2.942	1.079	0.021	2.07
+ Remarriages (S3)	2.772	1.020	-0.059	-5.90
+ Later Dissolutions (S4)	2.760	1.015	-0.004	-0.43
+ Educational Upgrades (S5)	2.737	1.007	-0.009	-0.85
Total			1.007	100.00

Note: Data are weighted using 1979 sampling weights.
Source: National Longitudinal Survey of Youth (NLSY79), 1979-2002. Wives aged 18 to 41.

Table 3. Decomposition of the Difference in the Log Odds of Educational Homogamy in Prevailing and New First Marriages

				Difference in Log Odds	Odds Ratio	Percentage Contribution (%)[a]
Panel A. Wives Aged 18 to 41						
(1) Total Difference in Log Odds Observed Prevailing Marriages - Observed New First Marriages	1.007	- 0.868	=	0.139	1.149	--
(2) Portion Due to Age Patterns of Homogamy and First Marriage First Marriages (S1) - Observed New First Marriages	1.058	- 0.868	=	0.190	1.210	137.0
(3) Portion Due to Marital Dissolutions, Remarriages, Educational Upgrades Observed Prevailing Marriages - First Marriages (S1)	1.007	- 1.058	=	-0.051	0.950	-37.0
Panel B. Wives Aged 18 to 29						
(1) Total Difference in Log Odds Observed Prevailing Marriages - Observed New First Marriages	1.006	- 0.885	=	0.121	1.129	--
(2) Portion Due to Age Patterns of Homogamy and First Marriage First Marriages (S1) - Observed New First Marriages	1.014	- 0.885	=	0.129	1.137	106.5
(3) Portion Due to Marital Dissolutions, Remarriages, Educational Upgrades Observed Prevailing Marriages - First Marriages (S1)	1.006	- 1.014	=	-0.008	0.992	-6.5

Notes: [a]Estimated using the difference in log odds. Data are weighted using 1979 sampling weights.
Source: National Longitudinal Survey of Youth (NLSY79), 1979-2002.

Figure 1. Multistate Representation of Transitions into and out of Marriage

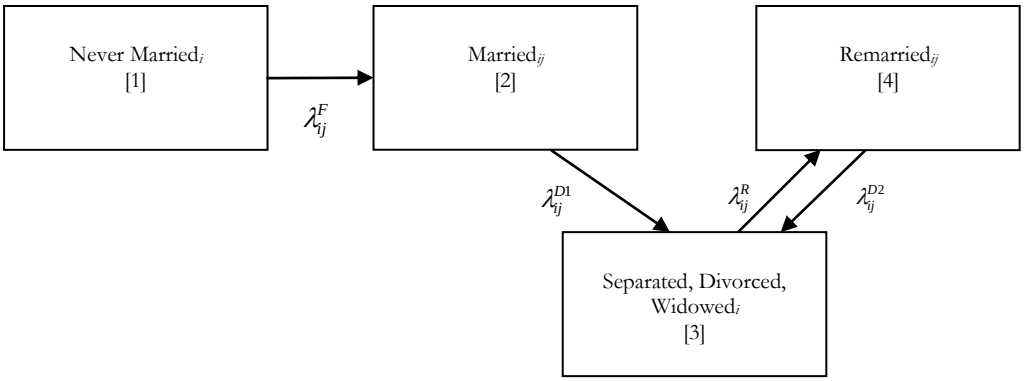
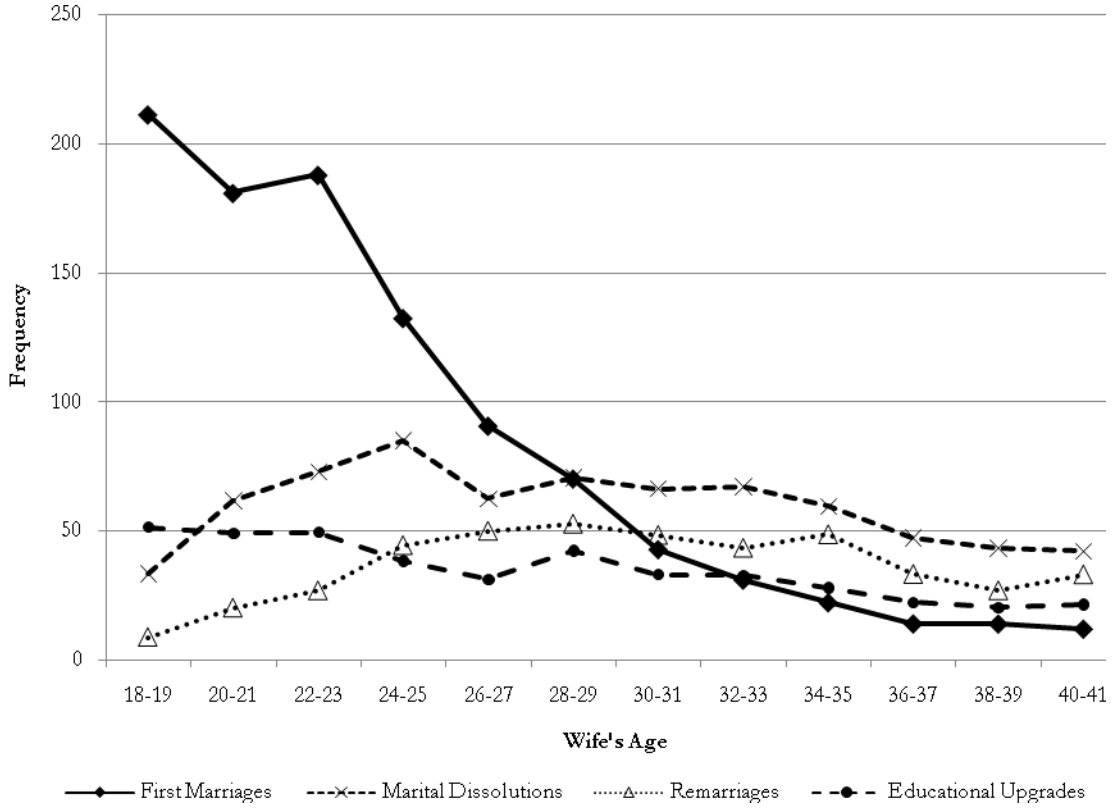
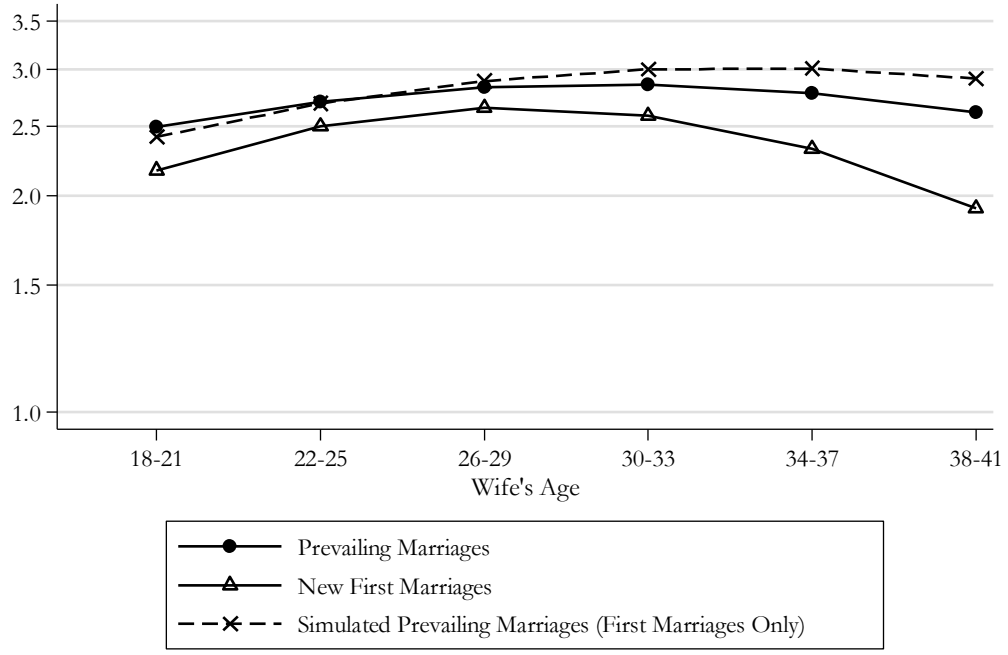


Figure 2. Multistate Life Table Estimates of Numbers of Marital and Educational Transitions



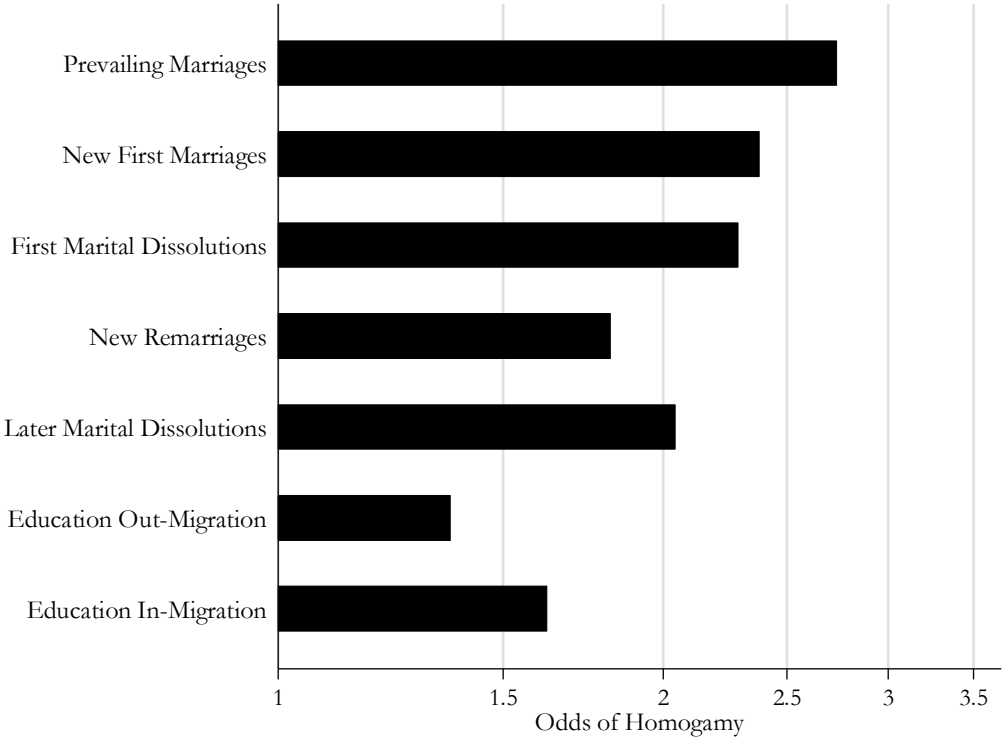
Notes: Data are weighted using 1979 sampling weights. l_0 = 1,345 16-year-old female respondents.
Source: National Longitudinal Survey of Youth (NLSY79), 1979-2002.

Figure 3. Odds of Educational Homogamy in Prevailing Marriages, New First Marriages, and Simulated Prevailing Marriages



Notes: Data are weighted using 1979 sampling weights. Estimates are from log-linear models using data from multistate life tables.
Source: National Longitudinal Survey of Youth (NLSY79), 1979-2002.

Figure 4. Odds of Educational Homogamy in the Stocks and Flows of Marriages



Notes: Data are weighted using 1979 sampling weights. Estimates of are from log-linear models using data from multistate life tables.
Source: National Longitudinal Survey of Youth (NLSY79), 1979-2002.

Appendix Table 1. Transition Measures and Sample Sizes

Measure	Definition	*n*
New First Marriage	Respondent transitions from single (never married) to married between interview years separated by no more than three years.	3,057
First Marital Dissolution	Respondent transitions from first marriage to separation, divorce, or widowhood between interview years separated by no more than three years.[a]	1,664
New Remarriage	Respondent transitions from separated, divorced, or widowed to married or reunited between interview years separated by no more than three years.[b]	1,186
Later Marital Dissolution	Respondent transitions from remarriage to separation, divorce, or widowhood between interview years separated by no more than three years.[a]	555
Educational Upgrade	Either partner in a marriage or remarriage increases their educational attainment by one category between interview years separated by no more than three years.	1,160

Notes: [a]3% of first marital dissolutions and 2% of later marital dissolutions were due to widowhood. [b]18% of new remarriages were reunions with a former spouse after a separation or divorce.
Source: National Longitudinal Survey of Youth (NLSY79), 1979-2000. Female respondents aged 16 to 41.