Inequality, Gender Parity, and Modernization: Testing Three Theories of Cross-National Variation in Educational Assortative Mating

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Abstract

Educational homogamy and its counterpart, educational intermarriage, have long been studied, but less attention has been paid to what factors might influence relative levels of intermarriage across countries and within countries over time. This study investigates the thesis that educational intermarriage may be rarer in more unequal societies, and in particular in societies in which there exist greater economic differences between people at different levels of educational credentialing. The pattern and prevalence of educational intermarriage are established for twenty-six industrialized and newly industrializing countries at multiple time points, and the relationship between the likelihood of intermarriage between educational strata and their economic distance is probed. Two competing theories explaining the prevalence of educational intermarriage are also tested: Oppenheimer's theory of "preference convergence" between males and females, and Smits et al's modernization theory of openness. Moderate evidence is found to support each of these theories, but none is conclusively demonstrated by the data.

Social scientists have long recognized that the seemingly prosaic matter of who people choose to partner with and/or marry is of profound societal importance. First of all, union formation is the most obvious and integral vector of social reproduction, for it is in and through such unions that the next generation is produced and molded. The distribution of household types formed through partnering thus produces the size and distribution of future generations. But additionally, researchers have considered marriage patterns as proxy measures or rather symptoms of social "openness" and egalitarianism (Blau & Duncan 1967, Lipset & Bendix 1959). The more likely people are to partner across a given social boundary, the logic goes, the more permeable and therefore less consequential this boundary is likely to be. Selective marriage – the partnering of "like with like", is thus seen as an

indicator of rigidity or stratification; by contrast high rates of intermarriage are said to signify a more fluid society.

Research has also established that educational credentialing has become increasingly important in the modern world, and in particular as a predictor of earnings and therefore socioeconomic status (Fischer & Hout 2006). Mid-century functionalists hailed the rising importance of education as a triumph of democratization, an indication of the eclipse of ascribed by achieved characteristics in the determination of life-chances (Parsons 1951) characteristic of a properly fluid meritocracy. Others, however, have interpreted education's ascendance as evidence of a shift in the logic of the reproduction of inequality, postulating that educational credentialing itself may be becoming the chief axis along which stratification occurs in advanced industrial societies (Collins 1979). Indeed, for Pierre Bourdieu (1977) the reproduction of social inequality, and the legitimation of this reproduction, are the principal products and raison d'être of modern educational systems.

The study of educational assortative marriage, or educational homogamy, takes place at the intersection of these two stands of inquiry. The reason is clear: education is increasingly the mechanism through which inequality is realized in the present generation, and households are the venues through which relative privilege or disadvantage are conveyed from one generation to the next. It stands to reason, then, that the pairing of husbands and wives who are similar in terms of educational credentialing would compound at the level of households the social inequities which prevail at the individual level, and that it is this compounded advantage that would be reproduced into the next generation.

Empirical studies have confirmed this intuition, demonstrating that the correlation between spouses' incomes has increased in the United States, and that assortative marriage has contributed substantially to increases in inequality between married-couple households (Schwartz 2010, Fernandez

& Rogerson 2001, Hyslop 2001, Harkness 2010, Juhn & Murphy 1997). This has led some researchers to argue that while education itself remains an important avenue of socioeconomic mobility, educational homogamy could be working at cross-purposes, reducing mobility and increasing intergenerational class persistence (Fernandez and Rogerson 2001, Fernandez et al 2005, Blackwell 1998, Juhn & Murphy 1997; see Mare 2000 for a skeptical analysis of this perspective).

Most studies of educational assortative mating have focused on a single nation or a small group of nations. However, it is likely that important determinants of the overall prevalence of marital sorting could occur at the aggregate level, that of the society or nation-state. Investigating this possibility requires comparative cross-national research, which I undertake in this paper. I use microdata from cross-sectional surveys to estimate the odds of educational intermarriage in twenty-six countries across multiple time points. Subsequently I systematically explore and test three hypotheses which purport to account for the prevalence of assortative marriage: 1) that educational intermarriage will be more rare in countries in which the economic distance separating those with different educational credentialing is greater; 2) that women's improved position in the educational and labor markets brings about greater homogamy through the mechanism of a "preference convergence" between men and women in terms of the desired traits of partners, and 3) that economic development results intrinsically in greater "societal openness", leading to more educational intermarriage. Modest support is found for each of these theories, conclusive proof for none.

Prevalence of and Theories Explaining Educational Assortative Mating

Studies of educational homogamy in the United States have generally found it to be on the rise since about 1965, after falling previously. Michielutte (1972) found that educational sorting began to

intensify as early as 1956 among whites after declining over the previous decades. More recently, Mare (1991) found that educational homogamy among newlyweds in America had declined over 1940-70, but has increased significantly afterwards, particularly among college graduates. Mare and Schwartz (2005) replicated this finding among prevailing marriages, as have Qian and Preston (1993; see also Qian 1998). Hou and Miles (2008) compared educational homogamy in the United States and Canada, finding rising homogamy in both countries during the last few decades. Esteve (2006), studying Spain, found declines in "global homogamy" but increases in homogamy among college graduates. Park and Smits' (2006) study of South Korea finds substantial increases in intermarriage for the college-educated as well as a general increase in correlation between spouses' education. Significant exceptions to this pattern of findings exist, though, most notably the work of Jeroen Smits and colleagues (discussed below).

Educational homogamy is increasingly important at a time when other forms of homogamy appear to be on the decline. Fu and Heaton (2008), for example, find educational homogamy to be rising over the same period that racial homogamy has declined (see also Lee and Bean 2004). Kalmijn (1991) finds a striking rise in the propensity of Protestants and Catholics to intermarry, leading him to speculate that perhaps education has replaced religion in determining marital patterns. Qian finds increases in interracial marriage in the latter part of the 20th century (Qian 1997, 1999). In fact, couples which are racially heterogamous tend on the whole to be educationally homogamous (Qian 1997). It appears, then, that marriage selection is becoming less determined by ascriptive categories, and more by economic prospects. Educational seems to be more significant to partner choice than family socioeconomic background (Kalmijn 1998). However, Blackwell (1998) finds that high paternal education increases the likelihood of marriage to a college-educated partner.

Most theories of assortative marriage predict that there would be more of it in societies with more inequality. Rational choice theories of marriage (e.g. Becker 1981) posit men and women as

seeking to maximize their returns to marriage by mating with the highest status partner available to them. Though this theory presumes widespread educational homogamy resulting as a baseline, especially where education is highly valued in itself and as signifying other positive things, this theory additionally argues that there will be even less intermarriage the greater the economic cost of marrying down educationally (i.e. where the wage difference between people at different levels of credentialing is higher.

But a rational-choice model need not be presumed in order to expect intermarriage to be rarer where there is greater inequality. Cultural matching models assume that people tend to mate with those who are more similar to them, both this facilitates an initial rapport permitting the establishment of intimacy, and because the similarities in worldview, ethical orientation, and taste reduce the potential for conflict over significant life-decisions (Byrne 1971, DiMaggio & Mohr 1985, Roest et al 2006, Lam 1988). Greater economic distance between people of differing educational attainment can lead to a divergence in life experiences and thus in taste culture and outlook, effectively making these people less "attractive" to each other (Kalmijn 1994). And as Bourdieu (1984) makes clear, "taste" and "outlook" are never simply themselves, but serve as subtle codes through which people can distinguish between "us" and "them", permitting class distinctions to be made and at the same time ensuring that they are misrecognized.

Finally, it is has been found that greater inequality overall produces more social segregation (Massey 1996), leading to decreased opportunities for interaction between strata and in fact to barriers to this interaction (Blau 1977, Kalmijn & Flap 2001). And if educational credentialing is one of the major axes of economic differentiation, we would expect that this would lead to less interaction between people of different levels of credentialing and thus fewer opportunities for partnering. Studies have found that college graduates are increasingly concentrated in particular metropolitan areas (Costa and

Kahn, 2000), as well as particular municipalities and neighborhoods within these metropolitan areas (Jagorowsky 1996, Fischer et al 2004). At the other end of the spectrum, Wilson (1987, 1994) has documented the increasing spatial concentration of the economically and educationally disadvantaged. Thus, "local marriage markets" (Lichter et al 1991) are becoming increasingly educationally homogenous, further reducing the likelihood of marriages that cross educational boundaries even for those who do not meet their mate in school.

Some empirical support for this theory has been forthcoming. Schwartz and Mare (2005), examining homogamy trends in the United States since 1940, find that homogamy rose and fell along with changes in income inequality over the same period. Torche (2010) studied homogamy patterns in Mexico, Chile and Brazil, and found that the odds of crossing a given educational barrier correlate closely with the economic distance separating educational groups separated by those barriers. And finally, Fernandez, et al (2005) found marital sorting to be positively correlated with income differences between educational groups in a survey of 34 countries.

Increased economic distance between educational groups is likely the dominant or even default theory explaining cross-national variance in homogamy, but it has competitors. Oppenheimer (1988, 1994) has articulated a theory which gives pride of place to women's economic standing in the labor and educational markets in bringing about increased marital sorting. The theory builds on Becker (1981) in that it presumes that patterns of marriage are a result of the underlying preferences of men and women for certain attributes in partners, and that these preferences have historically differed by gender. Over recent decades, women have dramatically increased their educational attainment (in many countries reaching and surpassing parity with men) and labor market participation. It has been postulated that this has led to a "preference-convergence" between the genders, leading both to seek out partners who have high earning potential. Corroborating this theory, Sweeny and Cancian (2004) find that wives' pre-

marital wage is increasingly predictive of their husbands' wages and projected earnings, demonstrating that a woman's position in the labor market is increasingly important in positioning her in the marriage market. Qian (1998) also finds evidence in support of this theory, but interestingly also finds that by 1990 it had become more common for women to marry educationally "down" with men than vice versa, speaking not to preference convergence but to some other pattern.

Finally, there is the updated "modernization" theory of Jeroen Smits. Smits and colleagues, in a series of international analyses, have found that countries become educationally less homogamous as they enter the latter stages of industrialization (Smits 2003, Smits & Park 2009, Smits, Ultee & Lammers 1998), contrasting with increased homogamy during early stages. The relationship, he argues, can be summarized and represented by an "inverted U curve". Smits attributes this pattern to increasing "social openness" accompanying advanced industrialization.

In its theoretical underpinnings and in empirical findings, Smits' work recalls that of midcentury modernization theorists (i.e. Marshall 1950), presumed there to exist something of an inherent logic or teleology of the development of industrialism which would lead it to gradually engender greater democracy, egalitarianism and societal openness. Specifically, industrialization was thought to initially bring about an exacerbation of inequality in its early phases; however, the maturation of industrialism was seen as eroding social boundaries and attenuating inequality substantially. This "U-shaped" relationship between industrial modernization and inequality over time was formalized as the ""Kuznetz curve" (Kuznetz 1955). It is interesting that Smits is propounding these views given the general abandonment of modernization theory in sociology as untenable (Giddens 1979), and given the unmistakable evidence that inequality has been increasing steadily in many countries since the early 1970s (Harrison & Bluestone 1988).

This study will build on the existing literature by systematic testing each of these three hypotheses on a set of wealthy and middle-income countries observed repeatedly over the past three decades.

Data and Study Universe

In this study, I use data from the Luxembourg Income Study (LIS), an archive of representative cross-sectional surveys from high- and middle-income nations. LIS was primarily designed to enable cross-national comparative research on household-level inequality, and so the surveys collected in it focus on household income and expenditure, but contain also a wealth of demographic variables, including marital status of a household and, within households, the educational level of both head and spouse. LIS has collected data from countries repeatedly over the period from 1980-2004, in roughly five-year intervals (called "waves" by LIS), permitting researchers to study changes in the countries over time. The number of observations in LIS varies by country, presenting a researcher with an unbalanced panel. My sample includes 26 separate countries each observed between one and five times - a total of ninety-six country/year observations. The specific countries and the years in which they are observed in this analysis are displayed in Table 1.

I identify and study *prevailing unions* – the stock of unions existing and captured by a survey at a given time-point - rather than new unions, because LIS does make it possible to identify new unions. Though this exposes the study to a bias due to the fact that educational similarity may be heightened by selective union dissolution (Kalmijn 1998), research has shown that the patterns for newlyweds and for prevailing marriages tend to be broadly similar (Schwartz & Mare 2005). Indeed, by far the most important contribution to the variance in homogamy in prevailing marriages *within cohorts* over time is

the homogamy pattern of new unions (Schwartz & Mare 2003), though selective dissolution does make a contribution as well.

(Table 1 about here)

I examine all married or cohabiting couples in which the head is a working-age adult (25-54 years of age), restricted to heterosexual couples only. This latter choice was made for two reasons. First, it enables an investigation of the possibility that gender-specific hypergamy could be significant in accounting for the pattern of marriages by partner educational levels. Second, it is clear that in every country same sex couples would be captured consistently by surveys. It is possible that large numbers of same sex couples would identify themselves as something other than "head" and "spouse", and this tendency is likely to be more pronounced in countries where homosexuals encounter worse discrimination.

Included cases needed to be classified in terms of educational credentialing. Cross-national educational research presents any researcher with particularly thorny problems (Blossfeld 2009). On the one hand, educational systems vary significantly between countries, even in the developed world, and are quite complicated nearly everywhere. Within each country, a complex array of certifications are available for acquisition, and it is difficult to determine with real certitude what certifications in one country ought to be considered equivalent to which certifications in the next. On the other hand, each country does in the last analysis present its populace with a somewhat clear hierarchy of educational credentialing, and the categories which result are roughly comparable between countries.

The educational categories which can obtain cross-nationally, with any degree of traction on reality, must of necessity be somewhat broad and crude. LIS employs harmonization guidelines put forth in the ISCED-97, and recodes education into a tripartite variable: low (no secondary credentialing; ISCED categories 0-2), medium (secondary but no significant tertiary credentialing; ISCED 3 & 4), and

high (significant tertiary credentialing; ISCED 5 &6). In the United States, the category of low corresponds to those with less than a high school degree (low), those with a secondary degree, vocational certification and perhaps some college but no degree (medium), and those with an Associate's Degree, B.A., or higher (high). I use LIS's recodes here, for the most part without alteration[1].

It is important to recognize, though, that using broad categories of educational attainment, of indeed using *any* categories of educational attainment by themselves, overlooks important variation in each country *within* levels of credentialing. In the United States, for example, high schools vary drastically in terms of their composition of their student bodies, levels of per-student funding, and the rigor of education they deliver. The situation is possibly even more pronounced in post-secondary education, where a world of difference separates the Yales and MITs of the world from community colleges and non-selective public four-year schools. Considering how people mate only at the very general level of their educational credentialing may ignore important dimensions of homogamy that are occurring within levels of educational attainment, and in particular "hyper-homogamy" of those who attended elite baccalaureate institutions. Still, it is reasonable to suspect that in countries where people are more willing to marry across the stark boundaries marked off my credentialing levels, they are also likely to engage in more heterogamous partnering *within* educational level by quality or prestige of institution.

Log-Linear Models

In each country/year, I ran weighted cross-tabulations of wife's education by husband's education to produce 3x3 contingency tables in which each cell contained a count of couples, describing

[1] Where LIS expressed less than full confidence in its recoding procedure, usually because of ambiguous educational categories in the received education question, I compared resulting distributions against OECD figures and against validated distributions from adjacent observations in the same country where available. Information on total years of education, age when leaving education, and occupation was employed to produce more acceptable distributions. If this was not possible, the county/year observation was dropped from analysis.

the commonality of each particular type of pairing was in each country in the given year. The contributor surveys had widely varying sample sizes, and so each cell was multiplied by a country/year specific constant which normalized the total number of unions in each country/year observation at 10,000. This ensured that the variations in cell counts derive solely from variation in estimated union-type frequencies and not from variation in survey sample sizes.

I used log-linear models to calculate the relative frequency of different types of unions, homogamous and non-homogamous, in each observation. Log-linear models are able to adjust for the fact that husbands and wives may not be equally represented in various educational categories. Without this adjustment, gender imbalances in educational categories would result in an overestimation of the commonality of non-homogamous unions, as certain amount of heterogamy would resulting from pure mathematical necessity would be included. Loglinear models are able to estimate heterogamy and homogamy net of these differences in marginal distributions.

Loglinear models use Poisson regression to estimate cell counts in contingency tables; here the number of cell counts in a given model is equal to X*Y*Z, where X and Y are the number of educational categories for husbands and wives, and Z is the number of countries. The basic form of a loglinear model is the "independence model", which predicts cell counts as resulting purely from marginal distributions:

$$u_{ijk} = \lambda\lambda_i^X\lambda_j^Y\lambda_k^Z$$

where u_{ijk} represents the count of unions between men of educational level i and women of educational level j in country k. This is linearized by taking the log of both sides:

$$\log \mu_{ijk} = \lambda + \lambda_i^X + \lambda_j^Y + \lambda_k^Z$$

If this model produces predicted cell counts which come close to those in the actual data, it would mean that the frequencies of different union types are purely the result of the number of husbands and wives of varying educational levels, and therefore that partnering is independent of educational attainment. If it does not, it would suggest that educational sorting is indeed occurring. Additional parameters can then be introduced which would permit the estimation of particular models of educationally-specific marital sorting.

(Table 2 about here)

Because LIS presents users with an unbalanced panel, I was not able to estimate a single set of loglinear models for all 96 country years. Instead, I first estimated one set of models a dataset consisting of cell counts drawn the most recent observation from each of the 26 countries (which I will call the "cross-sectional" data). For most countries, this data came from Wave 6 (2004/5), but for the few countries which did not have data from this wave the previous wave was used. For all countries, the cross-sectional data comes from the early 2000s. I then separately estimated five separate sets of models for each of the five LIS "waves" used.

I present, in table 2, results for models used to estimate the distribution of marriages in cross-sectional data. Four goodness-of-fit statistics are reported for each model to demonstrate how well the models are able to predict the actual data – the Log Likelihood, the Aikake Information Criterion (AIC), the Bayesian Information Criterion (BIC), and the Dissimilarity Index. AIC and BIC are relative goodness of fit statistics; both are calculated from the Log Likelihood but penalize models for each parameter, and for both a smaller number reflects a relatively better fit. But AIC and BIC statistics in and of themselves have no direct interpretation; rather they permit comparisons within a set of related models. The Dissimilarity Index, on the other hand, does have a direct interpretation. It is calculated by:

$$DI = \frac{\sum |u_i - u_{i(pred)}|}{2 \sum u_i}$$

Where u_i represents a given cell count in the actual data, and $u_{i(pred)}$ is the count of the corresponding cell from a predictive model. The index thus shows the proportion of cases which would have to be moved between cells in the predicted model in order to recreate the empirical data.

Models 1 through 4 are basic loglinear models. The first, the independence model, fits the data quite poorly, leaving about 30% of cases mis-categorized. The next permits husbands' and wives' educational levels to be related, but does not specify the form of this relation and constrains it to be the same across countries. It also constrains proportions of men and women in educational groups in various countries to be determined only by total population of men and women in the country in question and by the average educational distribution in the twenty-six countries combined. This also fits the data poorly. In model 3, all marginals are permitted to interact; this allows men's and women's educational levels to be associated with each other, and to let the proportion of men and women in educational groups to vary across countries. The association between husbands' and wives educational levels is, however, still constrained to be constant across countries. The fit has improved dramatically, but is still not satisfactory.

In models 5 through 13, I introduce parameters which specify the *form* of husband-wife educational association. The "Homogamy parameter" estimates a single additional parameter for educationally homogamous unions; all others are defined as the reference group. The "Female Hypergamy" model estimates a separate parameter for cells where the educational level of the husband exceeds that of the wife; the "male hypergamy" model does precisely the opposite. The "differential hypergamy" model estimates these two parameters simultaneously against the reference category of homogamous unions. *Distance* models consider educational groups to be separated by some degree of

social distance. Given three categories, distance can at most be equal to 2. This distance model has two parameters, d=1 and d=2, and a marriage is coded 1 if it contains within it the degree of distance appropriate to the given parameter. *Crossings* parameters consider there to exist *barriers* to marriage between different educational levels. Since we have only three educational groups, in this model we have only two boundaries that can be crossed – the 1/2 boundary and the 2/3 boundary. Accordingly, in crossings models we have a parameter for each boundary; marriages in which the boundary is "crossed" are given a value of 1 for that parameter and 0 if not. The quasi-symmetry model, which follows, estimates a separate parameter for each of three different types of off-diagonal unions: secondary/primary, tertiary/secondary, and tertiary/primary. It is important to note, though, that in each of the last three model types is agnostic to the gender of the spouses. Finally, I estimate "Low Closure" and "High Closure" models. The "high closure" model estimates one parameter for homogamous unions of the highly educated, and another for heterogamous unions in which one partner has a tertiary education; all other union types are left as the reference category. This model investigates the possibility that the pattern of educationally selective marriage is formed primarily by the highly educated, who through selecting each other would be "closing themselves off" from the less educated. The "low closure" model is the analogous model for those with low levels of education; if it described the data this would imply that the predominant pattern of assortative marriage was avoidance of those with less education by all other educational groups, who would intermarry at roughly similar rates.

Of these models, the distance, crossings, and quasi-symmetry models are most effective at reproducing the data. The High- and Low-Closure models are particularly inefficient, suggesting that marital sorting patterns are more complicated than social closure by the highly educated or closure against the less-educated. The hypergamy/hypogamy models are not much of an improvement, which would imply that educational boundary-crossing is not characterized by particularly gendered patterns, that it is not simply the case that "men marry less educated women" or vice versa. Rather, the models

which best describe the data are all gender-neutral, and all point to complex patterns of marital sorting by educational level. It is important to note that these homogamy parameters are estimated for the entire population of countries simultaneously; that is, the pattern of educationally selective mating is constrained to be the same across countries.

(Table 3 about here)

Models 14 through 22 move beyond this by interacting the sorting parameters with country dummies, permitting the patterns of assortative marriage specified in the various models to differ across countries. Permitting this variation improves the fit of the hypergamy/hypogamy models only slightly, suggesting that gendered crossing does not describe intermarriage patterns in the 26 countries in question well at all. The fit of the closure models also does not improve drastically. The models which best describe the data are the crossings, distance, and quasi-symmetry models, all of which are gender neutral and which emphasize divergence from homogamy. The quasi-symmetry model describes the data particularly well; it misplaces less than 1% of the cases in the data. This would imply that different types of off-diagonal unions have very different frequencies of occurrence relative to homogamy in the countries in question.

I estimated similar models for each of the five separate waves of data. For each, the quasi-symmetry parameter had the most efficient performance. I present the fit of the quasi-symmetry models for each wave in table 3.

The loglinear models result in the estimation, for each country-year, of three "quasi-symmetry" effects. These assume their significance against the reference category of homogamous unions; each shows the commonality of the particular type of union relative to homogamous unions in the country-year in question. An estimation of 1 would mean that the type of union is exactly as common as

homogamy; values greater than one indicate that they are more common, and values less than one that they are less common.

Each of the three quasi-symmetry effect estimates relate to a the frequencies of different types of unions: 1) unions between people of the "middle" and "low" educational strata, 2) unions between people of the "high" and "medium" strata, and 3) unions between people in the "high" and "low" strata. The quasi-symmetry effects this describe the relative *likelihood* of intermarriage between particular educational strata in a given country and year. The estimated likelihood of intermarriage of all types, in all countries and in all years is less than one, indicating that educational homogamy is the norm in all countries in this study, and in all periods. What can be said to vary by country (and within countries, by year) is the *degree to which* such unions are uncommon. In some nations non-homogamous unions are very uncommon, whereas in others they are much less so.

Independent Variables

The first hypothesis, that the probability of homogamy is related to the economic distance separating educational strata, requires an estimation of intergroup income inequality. I calculate, for each country-year, the median income for each educational strata, and taking the ratio of these median incomes, and logging this ratio. *Net income* rather than gross income (or earnings) is used to account for the important role of state social welfare policy in mitigating income inequality (Esping-Andersen 1999, Rainwater & Smeeding 2003). Indeed, there is some evidence that less selective marriage occurs in societies with more generous welfare regimes (Domanski & Przybysz 2007). Person-level, rather than household-level, income data is used, because as observed above assortative marriage is a significant

contributor to inter-household inequality, and thus measuring income distance at the household level would introduce tremendous problems of endogeneity.

The second hypothesis predicts greater homogamy in countries in which females have come closer to parity with men in the educational and labor markets. To test this hypothesis, I constructed a summated rating scale of four variables related to female labor market position and educational attainment relative to men. These variables are (each measured for the adult working aged population): 1) the ratio of the proportion of males with "low" educational attainment to the proportion of females with "low" attainment; 2) the ratio of the proportions of females and males with "high" educational attainment; 3) the ratio of women's to men's median incomes (for people with non-zero incomes); and 4) the ratio of women's to men's labor force participation rates. This scale was fairly consistent, with a Cronbach's alpha of .585.

The third (modernization) hypothesis was investigated by introducing a continuous variable for economic development, the United Nations' Human Development Index. The only difficulty with the use of this variable is that it was not calculated for Taiwan (as it does not have UN representation), nor were values calculated for Poland prior to 1995. These country/year cases were subject to listwise deletion from models which used this variable.

Cross-Sectional Analysis

Estimated intermarriage likelihoods from the loglinear models described above constitute the three outcome variables whose variance we desire to explain. I proceed first to describe the relationships between educational intermarriage and intergroup inequality in cross-sectional data, engaging with the first hypothesis. I then move to multivariate analysis in which the two competitor

hypotheses are taken under consideration. In figures 1-3, intermarriage likelihoods are graphed against the corresponding logged ration of median incomes for the groups in question.

(Figure 1 about here)

(Figure 2 about here)

(Figure 3 about here)

Figure 1 presents intermarriage between people of medium and low educational credentialing. The relative commonality of this type of boundary-crossing union varies dramatically, ranging from nearly as common as homogamous unions in Russia to very uncommon (.20-.25) in Mexico, South Korea and the United States. It also appears that this relationship depicted is quite linear. Intermarriages between members of these groups were far more common in countries where the economic distance separating these groups was smaller. The bivariate correlation in this data was -.67, demonstrating a strong negative relationship.

The situation is less clear in the case of intermarriage between people of high and medium educational attainment (Fig. 2). It should be noted that the variance in intermarriage likelihood is somewhat smaller, with most countries falling between .3 and .5. Secondly, overall the distance between the median incomes of the groups was smaller; excepting Brazil, the largest ratio of median incomes was around 1.6. Thirdly, there is far less variance in the ratio of median incomes (again, especially if we exclude Brazil). The relationship between economic distance and intermarriage between these groups is negative here as well, but the relationship is far less steep and certainly less consistent than that seen above (the bivariate correlation is only -.31). Brazil is clearly an outlier in this relationship; removing it makes the relationship slightly steeper and increases the correlation, but only incrementally.

Finally, we come to intermarriage between those with tertiary education and those with less than secondary education. Marriages of this type, between people who are quite educationally dissimilar, are quite infrequent in nearly all countries in this sample; indeed everywhere but Russia, such marriages were less than a third as common as homogamous marriages after controlling for marginal distributions. The relationship between intermarriage likelihood and economic distance is again negative; it is more consistent than this relationship in the case of high/medium unions but not as consistent as within medium/low unions.

It would appear, thus far, that the predicted negative relationship between intergroup inequality and the probability of intermarriage does indeed hold in this data. This relationship, however, seems to depend on the type of intermarriage under consideration. Intermarriage between those with the least education and those with a moderate level of education seems to be far more closely related to intergroup inequality than are intermarriages which involve those with higher levels of education.

I continue this exploration by estimating OLS regression models predicting the likelihood of intermarriage. Separate sets of models are estimated for the likelihood or commonality of each type of heterogamous marriage. Because the data is quite sparse, I estimate robust standard errors to reign in the likely effects of heteroskedasticity. However, as the countries in my sample do not derive in any way from a random sample, the precise meaning of standard errors and significance tests here is rather obscure. It is best, in my view, to consider them as heuristics, as indicators of the relative consistency of the relationships displayed, rather than as a true measure of how confident we can be that the effects observed are not a result of chance.

In the regressions, I test each of the hypotheses described above. The first model in each set tests the theory that intermarriage likelihood will be depressed by the economic distance or inequality between educational groups. Next, I introduce a gender equality index variable to test the theory that

homogamy will be more pronounced (and by extension, intermarriage less common) to the degree that a relative labor market and educational attainment parity has been achieved between men and women. Finally, I test the "modernization" theory by introducing measures of HDI. It is true that the modernization theory postulates the existence of an "inverted U-shaped" relationship between level of development and intermarriage likelihood. However, my sample only contains nations which are well into the industrialization process; they should all be well "over the hump" of the inverted U, and therefore in this sample the relationship between HDI and intermarriage ought to be approximately linear and thus estimable without a polynomial term.

(Table 4 about here)

Table 4 gives the results of these three sets of regression models. In all models, intergroup inequality has a negative relationship with the probability of intermarriage. The addition of additional variables only confirms the pattern glimpsed above in the scatterplots. Indeed, this negative relationship becomes steeper, though not always as more consistent, with the introduction of the other variables. In the models predicting medium/low intermarriage, this relationship is strikingly steep and consistent; intergroup distance predicts 45% of the variance in medium/low intermarriage likelihood across countries. In the other two sets of models, predicting high/medium and high/low marriage, the relationship with intergroup inequality is less steep and nearly the same relationship appears in both.

Gender equity does not seem to have particularly consistent predictive power in explaining intermarriage. Its relationship with the dependent variable is not particularly strong in any model, and it is most predictive in the models relating to medium/low intermarriage. It is interesting to note, also, that in these cross-sectional models the relationship between gender equity and intermarriage is uniform, and is counter to the expectations derived from the preference-convergence theory. That is, it

seems that, controlling for intergroup inequality, countries with in which women have achieve greater parity in education and employment have more, not less, intermarriage.

The relationship between development and intermarriage also seems to be weak, controlling for inequality and gender equity. This is cross-sectional data, and most of the countries are wealthy, so there is not a dramatic amount of variance in HDI in this sample. But we would expect, according to modernization theory, that the relationship would be positive. In fact, here it is uniformly *negative*. That is, controlling for inequality and gender equality, countries which have higher development scores seem to have less, not more intermarriage. It is true, though, that this effect is not "significant" for high/middle intermarriage, and that it is only marginally so for medium/low intermarriage. Still, though, the direction of this relationship is intriguing.

(Table 5 about here)

Panel Data Models

The study thus far has looked only at cross-sectional models, and at has estimated the variance *between* countries, based on data from the early 2000s only. In these models, it appears that there is a relatively strong, consistently negative relationship between inequality between educational strata and the commonality of heterogamous partnering. Because of the manner in which income inequality is determined (from person-level files), it would seem that the income inequality would be causal in this relationship. However, cross-sectional data has been examined only, and it is possible that this relationship could be spurious. Examining the change in data over time will address some of this difficulty.

First, I ask what the overall direction of change over time is for each variable in question, and present the basic patterns in table 5. This table shows six variables: the three intermarriage variables, a measure of inequality (the Gini index calculated from person-level income data), the gender equality index score, and HDI. Only countries for which there are at least three observations are shown. Examination of the change in intermarriage parameters over time within countries suggests, somewhat surprisingly, that net of marginal distributions there has been an increase in intermarriage over time in a large set of countries. Now, these changes are for the most part not large, and the estimated likelihood may not have monotonically increased. But it seems that, in general, intermarriage appears to have become more common or to have remained static in most countries under analysis. In general, In fact, though four countries present increases in all three types of intermarriage, no country has experienced uniform decline; Sweden comes closest, with a decline in two forms of intermarriage and no change in the third. It should be admitted here that these are merely estimates, and are subject to quite a bit of sampling variability. Further, I have not carried out any formal significance tests to determine whether or not the apparent increases are likely to be actually existent. But I have endeavored to be quite conservative in my judgments, and any country in which there was not a clear pattern for a given variable was described as "no change/ambiguous". The overall pattern seems clear: intermarriage, based on the educational groups as defined here, seems to be getting on the whole more, not less, common for the countries in this sample.

(Table 6 about here)

Moving forward, I estimate three separate sets of models: pooled OLS regressions for all 96 observations, random-effects models and fixed-effects models. The models have various strengths and weaknesses, and can help illuminate different aspects of the relationships in question.

Table 6 displays results of the pooled OLS regressions. I proceed in the same manner as previously, estimating three separate sets of models for three different forms of intermarriage. Intermarriage between medium and low educational groups is predicted strongly and negatively by intergroup inequality in models 1-3. As before, gender equity is a positive predictor of intermarriage; the effect appears to be more significant as more statistical power has been achieved through pooling of observations across time. HDI now appears to positively, though not consistently, predict higher intermarriage likelihood.

For high/medium and high/low inequality, the patterns observed in table 4 also continue to, for the most part, obtain in models 5-7 and 9-11. For high/medium intermarriage, there is a shallow negative gradient between intermarriage likelihood and inequality which is not attenuated by the introduction of other variables. Gender equity has a positive but negligible effect. The relationship between development and intermarriage is here weak but positive. For high/low intermarriage, we continue to witness a consistently negative relationship with inequality and a positive but small relationship with gender equity. HDI here has a small, negative effect.

Given that these are repeated observations within countries, however, and given that we are studying the stock of prevailing marriages, we would expect intermarriage rates to be relatively stable over time. Thus, it is very likely that there is substantial serial correlation between observations. Introducing a lagged dependent variable as a predictor in these models can help to determine whether the observed effects continue to persist after to adjust correcting for this autocorrelation. In effect, I estimate the relationship between intermarriage and the predictor variables at time *t* net of the relationship between intermarriage at time *t* and intermarriage at time *t-1*.

Introducing the lagged term dramatically attenuates all of the relationships apparent in the previous models. The relationship with inequality is almost entirely eliminated for high/medium and

high/low intermarriage likelihood. It is reduced substantially, but nonetheless remains, for medium/low intermarriage. The effect of gender equity is obliterated in for medium/low and high/medium intermarriage, and is actually reversed for high/low intermarriage. The relationship between development and intermarriage is reduced to zero in the case of high/low partnering, and becomes a negative predictor of intermarriage likelihood in the other two cases.

(Table 7 about here)

This analysis demonstrates that all of the variables are highly correlated over time within countries; all of these rates and quantities are subject to change over time, but change slowly and incrementally. For intermarriage, this is partly because prevailing marriage stocks are cumulative. But this is not the only reason, for studies which examine homogamy among newlyweds also display substantial serial correlation (e.g. Mare 1991). It is also seems to be the case that mating practices and norms, as well as the conditions which produce them, are quite "sticky" as well, and so educational intermarriage is likely to stay common in places where it is already common, and rare where it is already rare.

Bruesch-Pagen tests performed on all models, including the OLS regressions with lagged terms, were highly significant, demonstrating substantial correlation between errors terms within countries. Thus OLS, which treats all observations as independent, is not the best method to use. Random-effects models, which permit error terms to be clustered within countries over time, can provide consistent estimates in this context.

Table 7 provides random-effects estimates of intermarriage probability. The relationship between inequality and intermarriage is, as before, consistently negative, but remains substantial only for medium/low intermarriage. The effect of gender equity is in general small and positive, except in one of the models estimating high/medium intermarriage, where it is effectively zero. In support of

modernization theory, development has in these models a consistently positive effect on intermarriage probability.

Random effects models estimate variance both between and within clusters, and it is clear that in these models only HDI is explaining much of the variance within countries over time. The other variables continue to explain variance mostly between countries. To further focus on change only within countries, I estimate a series of fixed-effects models[2]. Fixed effects models essentially estimate a separate dummy variable for each country, and are thus able to control for all time-invariant ("fixed") country attributes even thought they are not specifically measured. This can substantially reduce bias in a model, by eliminating omitted variable bias deriving from time-invariant variables. They also allow the researcher to focus entirely on within-unit effects; the country dummies ensure that between-unit cross-sectional relationships are entirely eliminated.

Such models have significant flaws, however. First, they do not control for time-varying attributes, and thus the models remain prey to bias from these sources. Secondly, estimating a separate parameter for each observation-cluster is quite expensive in terms of degrees of freedom; unless there are many observations per cluster it is difficult to estimate more than one or two covariates simultaneously. Indeed, fixed-effects models, because they expend so many degrees of freedom on country clusters, are likely to understate the significance of estimated effects. This is not as much of a problem in this study as well, as we are conceptualizing significance tests as rough guides rather than true statements about the likelihood that a finding is the result of sampling error.

[2] Hausman tests were performed to determine whether random or fixed effects are appropriate. Small p-values of the test statistics suggest that the null hypothesis of no correlation between cluster effects and predictor variables should be rejected, and that therefore fixed-effects ought to be used. Large p-values suggest the opposite, that the random effects model is more efficient and therefore preferable. I performed Hausman tests for all three full models, and for each the p-values were between .04 and .06, which does not provide strong evidence in favor of either fixed or random effects.

The within-unit effects estimated are reported in Table 8. As was suggested by the random effects models, very little within-country variance in intermarriage likelihood is predicted by inequality between educational groups. It is important to note, though, that in all of these models the relationship is negative, though it is sometimes very close to zero. The relationship between gender equality and intermarriage is in some models positive, in some negative, and in some close to zero. Once HDI is introduced, the relationship between gender equality and intermarriage appears to be null or negative.

(Table 8 about here)

HDI, however, here emerges as a consistently powerful positive predictor of educational intermarriage for all three types of heterogamous partnering. Whether or not this is evidence in support of the modernization hypothesis is, however, unclear. For the fact is that HDI increased in *every country* over the study period (see Table 5). Many countries also experienced increases in intermarriage likelihood. The unanimity of HDI increase presents the strong possibility that it will correlate with, and thus appear to predict, anything that is also, in general, increasing over the study period. But the fixed effects models do, for the first time, lend some evidence to validate the modernization hypothesis, at least within countries.

Discussion

This study has examined educational homogamy, or, conversely, educational intermarriage, across twenty-six countries and over twenty years. It has sought to simultaneously examine three hypotheses as to the sources of cross-national and over-time variance in the likelihood of educational intermarriage. The first hypothesis stated that the odds of intermarriage would be negatively correlated with inequality, and specifically with the distance in incomes between people with differing levels of education. I noted that rational-choice, cultural matching, and structural opportunity theories all give

different reasons for suspecting that this relationship would exist, and most likely all three describe important dimensions of selective mating processes. In the second hypothesis, gains in women's educational and labor market position were expected to lead to the eclipsing of male preference toward less-educated women. Men would join women in preferring highly educated partners capable of garnering high salaries on the labor market; the outcome would be more educationally assortative marriage in countries where women have achieved greater parity with men. Finally, I investigated Jeroen Smits' modernization-development hypothesis, which predicts that as countries reach overall higher levels of economic development there will be a secular trend toward "greater societal openness", leading to less assortative marriage.

In general, cross-sectional data and panel data models which estimate between-nation variance lend substantial support the first hypothesis. It appears to be broadly true that more economically equal societies, in which the difference in incomes between educational strata is smaller (largely because the variance in incomes in the society overall is smaller), intermarriage between people of different levels of educational attainment is more common. This relationship appears particularly acute when we consider the marriage between those with secondary diploma and those who did not complete secondary education. This particular breed of intermarriage seems to be much more directly related to, or responsive to, returns to a secondary diploma. The consistent relationships between intermarriage and intergroup inequality do, however, appear to be mostly taking place at the level of countries; adjusting for serial correlation or estimating country-level fixed effects results in the evaporation of most of these apparent relationships (with the exception of the relationship for medium/low intermarriage).

However, it may be that this relationship is spurious, and that there is something of a "third factor" which leads some nations to have both lower levels of inequality and a greater tendency toward

intermarriage – a general egalitarian ideology perfusing the culture, greater general social solidarity, more social mobility not tied to educational outcomes, or perhaps less cultural or social distance separating people of different strata in the society. If this is the case, the apparent relationship between inequality and intermarriage would be two symptoms of a single underlying process or set of processes.

The data certainly give us reason to doubt, and certainly not for accept, the "convergence of preferences" theory. On the whole, gender equality seems to be only weakly related to the likelihood of intermarriage. And where such a relationship does appear to exist, it was more likely to be a positive rather than a negative predictor of intermarriage. Perhaps this is reason to suspect that a different sort of 'convergence in gender preferences' is salient. The focus in this theory has been on a change in male, not female preferences. In the past, the theory goes, women's labor market participation was expected to decline or entirely evaporate after marriage and childbearing, and so men sought principally to find a partner with the capacity for nurturance and for domestic production. In more recent cohorts, however, as women's labor force participation and earnings capacity has increased, men's preferences have shifted, and men now seek partners with high earnings capacity as well. Men, it is asserted, have adopted what had been traditionally female preferences in partners.

But it is possible that something else has occurred. Perhaps women previously sought mates with high earnings capacity in part because their own earnings capacity was so low, because it was taken for granted that a woman would be economically dependent on her mate. But perhaps female economic independence has permitted women to diversify their preferences in terms of partnering, and to be more open to "marrying down" at times. These tendencies could lead to more overall intermarriage, and this would be driven by female rather than male mate-selection behavior. Indeed, Qian's (1998) finding that by the 1990's American women were more likely than American men to marry down seems to reflect precisely this possibility.

Another possibility is that adult educational upgrading – that is, improvements in educational attainment made after age 25, is more common among women than among men. This could result in a steady increase in "heterogamous unions" coinciding with improvements in aggregate measures of women's' status. However, it should be noted that there does not appear to be much of any relationship between improvements in women's' status and the likelihood of intermarriage within countries; substantial relationships really only seemed to hold across countries.

Finally, this study provides some evidence to support the hypothesis of greater intermarriage as a result of economic development. In particular, within-country estimates point to the existence of a positive relationship between development and the prevalence of intermarriage over time. However, it is also possible that this is a spurious correlation. Because HDI has uniformly and monotonically increased in all countries under scrutiny, another quantity which has increased broadly can appear to be "predicted" by it. If we included instead of HDI another predictor which has increased everywhere – such as average temperature in July or the median age of the population, it would also be likely to appear to predict increases in intermarriage.

Further, the modernization hypothesis is derived from what Giddens (CITE) refers to as "the theory of industrial society", which claims a general democratizing and equalizing of society will flow ineluctably from the later stages of industrial development. One of the centerpieces of this theory was the idea that inequality, after having risen within countries during the onset of industrialization, would decline substantially with higher economic development. It is clear, though, that this is not in fact the case. Inequality has risen in virtually all of the countries in this study, at the same time that HDI has increased and that intermarriage has become slightly more common overall.

More research into the determinants of educational homogamy and intermarriage is clearly needed. None of the presently existing theories is able to account robustly for variance both within and

across countries in the likelihood of educational intermarriage. In particular, future research should investigate the possibility that the structure of educational systems themselves, and the precise hierarchy of available credentials, could impact the tendency to marry across an apparent boundary. The existence of something like "intermediate credentials" could have the result of making the occupational and educational distance between educational levels less steep and more subtly graded. In all, though, we should not be surprised that cross-national variance in partner choice does not admit of a single easy explanation. It is likely to be a complex phenomenon which we are only beginning to grasp.

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Table 1: Countries and Years of Observation

	Wave 2	Wave 2	Wave 4	Wave5	Wave 6
Austria			1995	2000	2004
Belgium	1985	1988	1995	2000	
Brazil					2006
Canada	1987	1991	1994	2000	2004
Denmark	1987	1992	1995	2000	2004
Finland	1987	1991	1995	2000	2004
France	1984	1989	1994	2000	2005
Germany			1994	2000	2004
Greece			1995	2000	2004
Ireland			1995	2000	2004
Israel	1986	1992	1997	2001	2005
Italy	1987	1991	1995	2000	2004
Korea					2006
Luxembourg			1997	2000	2004
Mexico	1984	1989	1994	2000	
Netherlands	1987	1990	1993	1999	2004
Norway	1986	1991	1995	2000	2004
Poland	1986	1992	1995	1999	2004
Russia				2000	
Slovakia			1997	1999	2004
Spain		1990	1995	2000	2004
Sweden		1992	1995	2000	2005
Switzerland				2000	2004
Taiwan	1986	1991	1995	2000	2005
UK				1999	2004
USA	1986	1991	1994	2000	2004

Table 2: Loglinear Models for Cross-Sectional Data

Model #	Model	Log Likelihood	AIC	BIC	Dissimilarity Index
1	H+W+C	-87296.68	746.38	171530.4	.3067
2	(Model)1+H*W	-39435.04	337.34	75828.96	.2068
3	1+H*W+H*C+W*C	-4283.37	37.75	6071.13	.0498
4	1+H*C+W*C	-40542.68	347.62	78567.95	.2153
5	4+Homog	-12632.69	109.09	22753.41	.0965
6	4+Fhyp	-17177.48	147.93	31843	.1085
7	4+Mhyp	-16807.50	144.77	31103.04	.1071
8	4+ DHyp	-12630.47	109.08	22754.44	.0965
9	4+Dist	-4372.00	38.49	6237.49	.0496
10	4+Cr	-4916.25	43.14	7325.98	.0543
11	4+QS	-4303.72	37.92	6106.38	.0499
12	4+High close	-12407.02	107.17	22307.55	.1055
13	4+Low Close	-17116.15	147.42	31725.8	.1434
14	4+Homog+ Homog*C	-10825.92	93.86	19276.27	.0851
15	4+Fhyp+ FHyp*C	-15475.46	133.60	28575.34	.0995
16	4+Mhyp+ MHyp*C	-14728.98	127.22	27082.38	.0979
17	4+ DHyp+ DHyp*C	-10048.96	87.44	17864.19	.0795
18	4+Dist+ Dist*C	-1890.80	17.71	1547.86	.0231
19	4+Cr+ Cr*C	-2286.66	21.09	2339.57	.0251
20	*4+QS+QS*C*	*-1148.86*	*11.59*	*205.81*	*.0051*
21	4+High close+ HighClose*C	-10289.05	89.49	18344.37	.0813
22	4+Low Close+ Low Close*C	-14728.50	127.44	27223.27	.1201

Table 3: Quasi-Symmetry Model Fit Statistics for Wave-Specific Loglinear Models

	Number of Countries	Log Likelihood	AIC	BIC	Dissimilarity Index
W6	22	-1003.02	11.46	162.03	.0047
W5	24	-1027.60	11.29	124.88	.0052
W4	21	-884.01	11.13	86.78	.0041
W3	15	-637.90	11.22	87.01	.0051
W2	13	-555.14	11.26	90.88	.0056

Table 4: OLS Regressions Predicting the Intermarriage of Educational Strata

	Medium and Low			High and Medium			High and Low		
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Ratio of Median Incomes (log)	-0.743**	-0.569**	-0.882**	-0.173*	-0.150*	-0.214+	-0.128**	-0.100*	-0.242**
	(0.128)	(0.166)	(0.207)	(0.0769)	(0.0713)	(0.111)	(0.0431)	(0.0411)	(0.0723)
Gender Equality Index		0.0708*	0.0428+		0.0273	0.0246		0.0290	0.0133
		(0.0319)	(0.0231)		(0.0201)	(0.0179)		(0.0226)	(0.0137)
HDI			-0.970+			-0.265			-0.884*
			(0.495)			(0.325)			(0.386)
Observations	26	26	25	26	26	25	26	26	25
R-squared	0.454	0.541	0.652	0.097	0.152	0.170	0.160	0.215	0.439

Robust standard errors in parentheses

** p<0.01, * p<0.05, + p<0.1

Figure 1

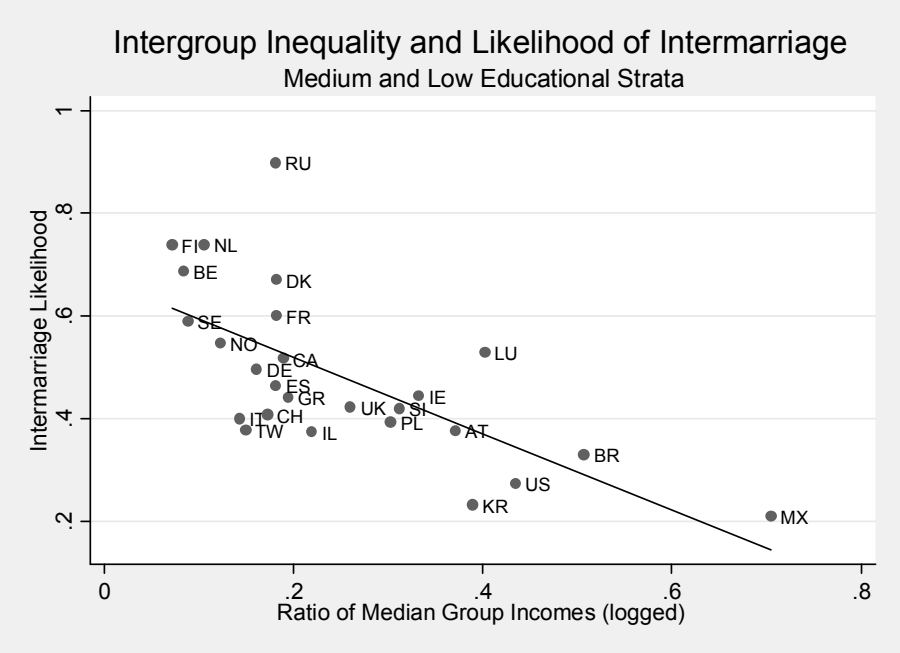

Figure 2

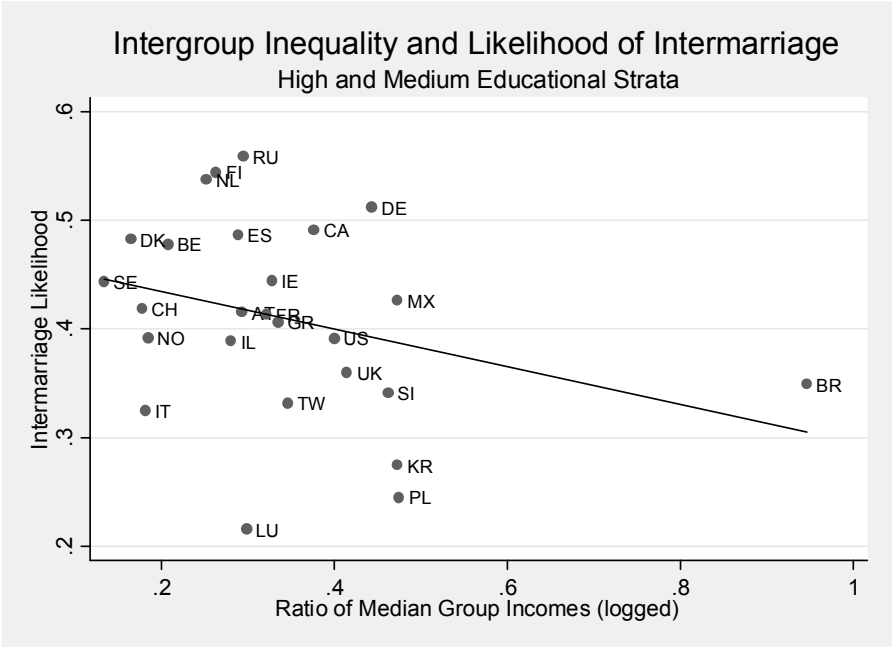

Figure 3

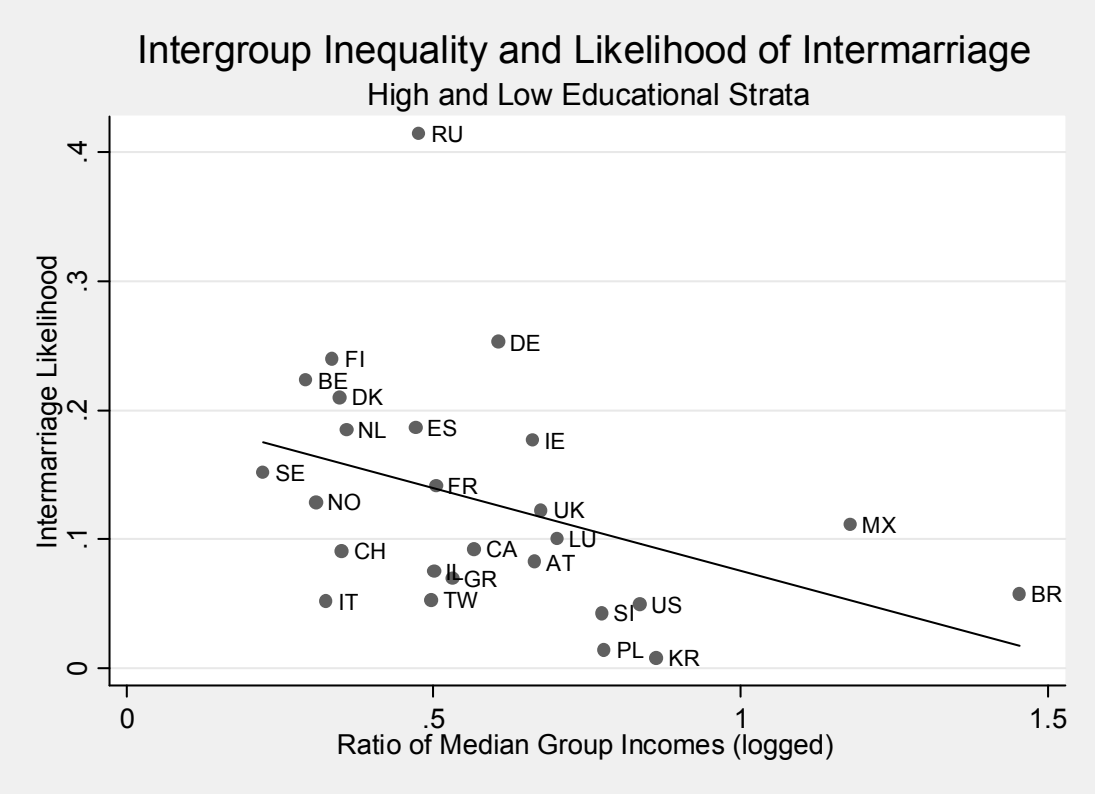
Intergroup Inequality and Likelihood of Intermarriage
High and Low Educational Strata
Intermarriage Likelihood
0
.1
.2
.3
.4
RU
DE
FI
BE
DK
NL
ES
IE
SE
FR
NO
UK
MX
LU
CH
CA
AT
IL
GR
BR
IT
TW
SI
US
PL
KR
0
.5
1
1.5
Ratio of Median Group Incomes (logged)

Table 5: Changes in Parameters Within Countries Over Study Period

	M/L Likelihood	H/M Likelihood	H/L Likelihood	Gini	Gender Eq	HDI
Austria	/	+	+	+	-	+
Belgium	+	+	+	+	+	+
Canada	+	+	+	+	+	+
Germany	/	+	/	+	/	+
Denmark	+	+	+	/	+	+
Spain	+	/	/	+	+	+
Finland	+	+	+	+	+	+
France	/	+	/	+	+	+
Greece	+	/	/	+	+	+
Ireland	/	/	+	+	+	+
Israel	/	-	/	+	+	+
Italy	+	/	/	+	+	+
Luxembourg	/	-	+	+	+	+
Mexico	/	/	+	+	+	+
Netherlands	+	/	+	+	+	+
Norway	-	/	/	-	+	+
Poland	+	+	/	+	+	+
Sweden	-	/	-	/	+	+
Slovakia	/	/	/	/	+	+
Taiwan	+	-	+	/	+	+
USA	-	+	/	+	+	+

Overall Increase (+); Overall Decrease (-); No Change or Ambigious Pattern (/)

Table 6: Results of Pooled OLS Regressions Predicting Intermarriage Between Educational Strata

	Middle and Low Educational Strata				High and Middle Educational Strata				High and Low Educational Strata			
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Ratio of Median Incomes (Logged)	-0.624**	-0.521**	-0.529**	-0.217**	-0.154**	-0.149*	-0.157**	-0.0124	-0.115**	-0.0904**	-0.102**	-0.0166
	(0.0750)	(0.0793)	(0.0903)	(0.0538)	(0.0562)	(0.0569)	(0.0589)	(0.0557)	(0.0264)	(0.0260)	(0.0289)	(0.0155)
Gender Equality		0.0587**	0.0456+	0.000687		0.00931	0.00295	0.00351		0.0323**	0.0294*	-0.0113+
		(0.0217)	(0.0258)	(0.0138)		(0.0134)	(0.0161)	(0.0119)		(0.0110)	(0.0134)	(0.00643)
HDI			0.227	-0.195			0.110	-0.0657			-0.0603	0.00365
			(0.311)	(0.132)			(0.179)	(0.125)			(0.197)	(0.0640)
Lagged Intermarriage Term				0.786**				0.835**				0.962**
				(0.0694)				(0.0805)				(0.0746)
Observations	95	95	88	64	95	95	88	64	95	95	88	64
R-squared	0.345	0.398	0.422	0.849	0.052	0.058	0.084	0.722	0.142	0.218	0.220	0.836

Robust standard errors in parentheses

** p<0.01, * p<0.05, + p<0.1

Table 7: Random-Effects Models Predicting Intermarriage Between Educational Strata

	Middle and Low Strata			High and Middle Strata			High and Low Strata		
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Ratio of Median Incomes (Logged)	-0.252**	-0.264**	-0.332**	-0.0631	-0.0672	-0.101	-0.0306	-0.0367	-0.0404
	(0.0779)	(0.0706)	(0.0750)	(0.0645)	(0.0641)	(0.0652)	(0.0300)	(0.0261)	(0.0304)
Gender Equality		0.0634*	0.0390		0.0112	-0.00131		0.0332**	0.0242
		(0.0247)	(0.0371)		(0.0139)	(0.0191)		(0.00868)	(0.0151)
HDI			0.407			0.236			0.161
			(0.366)			(0.191)			(0.162)
Observations	95	95	88	95	95	88	95	95	88
Number of clusters	26	26	25	26	26	25	26	26	25
R-Squared Within	0.001	0.07	0.13	0	0.001	0.08	0.003	0.13	0.2
R-Squared Between	0.38	0.47	0.39	0.1	0.17	0.05	0.15	0.29	0.17
R-Squared Overall	0.34	0.37	0.41	0.05	0.05	0.07	0.14	0.2	0.17

Robust standard errors in parentheses

** p<0.01, * p<0.05, + p<0.1

Table 8: Fixed-Effects Models Predicting Intermarriage Between Educational Strata

	Middle and Low Strata			High and Middle Strata			High and Low Strata		
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Ratio of Median Incomes (logged)	-0.0334	-0.0743	-0.196	-0.00193	-0.00678	-0.0734	0.0143	-0.00486	-0.0118
	(0.0676)	(0.0534)	(0.115)	(0.0942)	(0.0964)	(0.103)	(0.0353)	(0.0338)	(0.0399)
Gender Equality		0.0472	-0.0238		0.00518	-0.0353		0.0281**	0.00223
		(0.0293)	(0.0431)		(0.0155)	(0.0254)		(0.00850)	(0.0130)
HDI			0.889*			0.536+			0.348*
			(0.402)			(0.269)			(0.154)
Observations	95	95	88	95	95	88	95	95	88
Number of country clusters	26	26	25	26	26	25	26	26	25
R-squared	0.001	0.079	0.185	0.000	0.002	0.128	0.002	0.140	0.238

Robust standard errors in parentheses

** p<0.01, * p<0.05, + p<0.1