Assortative Mating on Age:

Trends in the Spousal Age Difference

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This paper will present a multi-country analysis of trends in the spousal age difference, encompassing the period from the 1970s to the present. Our focus is the non-Western societies of Latin America, Africa, and Asia (henceforth "developing countries"). For these regions, this will be the most comprehensive rigorous analysis of assortative mating on age that has been carried out in recent years. This research will also take into account assortative mating on educational attainment. Indeed, while spousal age is our principal interest, a key theme of this research will be the interplay of age and educational attainment as characteristics of prospective spouses.

Background

Patterns of assortative mating can shed light on how social structure and social life are shaped or transformed in a society. Assortative mating – who marries whom – has important implications for family size and children's socioeconomic trajectories and for the distributions of incomes and consumption (Boulier and Rosenzweig 1984; Casterline, Williams and McDonald 1986; Preston and Campbell 1993). Thus, assortative mating patterns help understand human reproduction as well as the reproduction of social inequalities in a society. Most of the current research on assortative mating is focused on changes in spousal pairing by educational attainment and race/ethnicity (Blossfeld 2009; Model and Fisher 2002; Qian and Lichter 2007; Schwartz and Mare 2005; Smits, Ultee and Lammers 1998). These studies reveal a trend towards educational homogamy and, concurrently, towards more marriage between racial/ethnic groups. Such changes are attributable, in part, to educational expansion in recent decades that has increased contact opportunities for similarly educated men and women with or without similar racial/ethnic backgrounds. Although mate selection patterns often reflect both personal preference and social structure, it is clear that structural changes such as improvement in educational attainment for men and women in general and the shrinking gap in educational attainment between men and women play an important role in changes in assortative mating.

Most of the existing research on assortative mating is limited to a single country or a comparison of just two or three countries (Blossfeld 2009). Only a few studies represent multi-country comparative research (Smits 2003; Smits and Park Forthcoming; Smits et al. 1998)Casterline et

al. 1986), despite the fact that important patterns can sometimes only be observed or confirmed in large-scale comparative research. Smits and colleagues compare educational assortative mating patterns among 50 or 60 countries and find that differences in educational homogamy are associated with many country characteristics including economic development, political democracy, religion, and technical background. Their analysis reveals a sharp contrast in educational assortative mating between more and less developed countries, and it highlights the importance of structural forces in individuals' marital behaviors. However, educational assortative mating patterns are sensitive to classifications of educational levels. This is especially a concern in comparative analyses that consider a large number of countries with distinctive educational systems (in the past and in the present).

In this research we will examine assortative mating patterns by age pairing between husbands and wives. For the purpose of comparative analysis, age has the virtue of being measured more uniformly across countries than educational attainment. But the more important reason for a focus on age is the influence that the spousal age difference has on other family and social outcomes. In summarizing the literature at the time, Casterline et al. (1986) note that spousal age differences affect marital fertility and marital disruption. Spousal age differences also reflect the gender system in a country. In more gender-traditional societies, spousal age differences tend to be large because of less emphasis on women's educational attainment and more emphasis on women's youth in marriage markets (Blossfeld 2009). Indeed, in patriarchal societies the spousal age difference is relatively large and it is frequent to have marriages in which the husband is ten or more years older than the wife. In contrast, the age difference is relatively small in societies where gender status is relatively equal or Western forms of family formation have become common (Casterline et al. 1986). A more provocative proposition is that the spousal age difference itself has a causal effect on the extent of gender equality in the society. Clearly, a comparison of spousal age differences sheds light on variations in the modernization process and women's social status among developing countries.

Multiple facets of social and economic change are likely to undermine those factors that maintained rather large spousal age differences in developing countries in the past. Most generally, one can invoke changes in values about marriage and the family, changes that might be attributed to formal schooling and exposure to mass media. But value change as a causal force is difficult to measure, and its distinctive effects are difficult to identify empirically. We prefer to focus on other relatively precise mechanisms.

First, in societies where arranged marriages were common in the past, social and economic changes have increased adolescent and young adult non-family experiences. Individuals with greater non-family experience are likely to have a greater voice in the choice of their spouse (Ghimire et al. 2006). Moreover, in the non-family social settings where adolescents and young adults now move more freely, males and females are likely to be rather similar in age. Over time, age heterogamy is likely to decline as a result.

Second, women's age at marriage has been increasing, due to multiple factors. In developing countries where early age at marriage was previously common, men typically sought younger women as wives. Everything else being equal, the younger a woman marries, the more likely she marries a man substantially older than herself. Conversely, increases in female age at marriage mean that the marriage market contains fewer young women. Men seeking wives must necessarily consider somewhat older women who, therefore, are likely to be closer in age. This is a further reason that age heterogamy is likely to have declined in recent decades in developing countries.

Third, similar to the more developed world, many developing countries have witnessed a sharp increase in women's schooling in the period since 1960. This phenomenon almost certainly has changed the dynamics of marriage markets. Young women on average remain in school to older ages, and their increased educational attainment makes formal employment more likely after they complete their schooling. The increase in educational attainment increases women's social status, and post-school employment provides men and women opportunities to meet in the work place and related social venues. Women's later ages entering the marriage market -- as a result of more years of schooling, labor force participation, and improvement in social status -- may have changed the mate selection criteria for both men and women. Men and women tend to look for spouses with similar social status at the similar ages, i.e. this reduces the incidence of age heterogamy.

Hypotheses

Based on the discussion above, our expectation is that <u>age heterogamy has declined</u> in most developing countries in recent decades.

Elaborating on this basic hypothesis, we posit that the extent of decline depends on several structural factors, specifically:

1) The larger the increase in women's educational attainment, the larger the reduction in marital age heterogamy.

2) The larger the increase in women's age at first marriage, the larger the reduction in marital age heterogamy.

Data

The analysis will use nationally-representative data of two types: demographic survey data, and IPUMS data (mostly census micro-files). In both types of data, the woman's age is known as is the age of her current husband (either directly reported by the woman in the case of the demographic survey data, or by matching husband and wife in the household roster in the case of IPUMS data). Educational attainment of both spouses is also available in all data-files.

1. *Demographic survey data*. These are surveys conducted under the World Fertility Survey [WFS] and Demographic and Health Survey [DHS] programs. We select countries with two surveys at least ten years apart, and preferably two or more decades apart. See Table 1. The demographic survey data have the advantage of containing useful pieces of information from the woman's marriage history, including: age and date of first marriage; marriage order. Analysis of these data can control on marriage order (first vs. higher-order marriages) and can be restricted by marriage cohort (e.g. marriages during the ten years preceding the survey). With the latter restriction we will in effect be conducting an incidence analysis.

2. *IPUMS data*. These consist mostly of census samples. We select countries with data-files at least ten years apart. See Table 2. The IPUMS data have the advantage of enormous sample size and long elapsed time between the first and second data-file in some countries (especially Latin America). With the latter we can observe longer-term trends in assortative mating. However, the IPUMS data as a general rule lack information on timing of the marriage (age of the woman and/or date of the marriage)

Hence each type of data has advantages, and we anticipate presenting analyses of both.

Note that we are continuing to accumulate data (survey and IPUMS), and Tables 1 and 2 do not present the final listing of countries and data-files that will be analyzed in this paper.

Methods

A first stage of analysis will examine trends in age homogamy/heterogamy descriptively -- trends in measures of central distribution, and trends in the distribution of the spousal age difference according to a discrete set of categories.

In the second and more featured stage of analysis, we will employ log-linear models to estimate the odds of age heterogamy. Log-linear models have been used in studies of intermarriage across religious, racial/ethnic, and educational boundaries (Kalmijn 1991; Qian and Lichter 2007; Schwartz and Mare 2005). These models can examine the associations between spouses' different characteristics independent of the marginal distributions of these characteristics. For this study, log-linear models control for marginal distributions of spouses' age groups so that we can examine the relative importance of these characteristics in mate selection. We will introduce time to examine changes in age assortative mating over time. From this we will proceed to explore how changes in educational compositions and age at marriage influence age assortative mating patterns.

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Table 1. Demographic Survey Data (WFS and DHS), by Country and Region (n=22)

Region	**Country**	**Earliest**	**N**	**Latest**	**N**
Southern Asia (n=4)					
	Bangladesh	1975	5,212	2007	10,113
	India	1992	84,354	2005	88,078
	Nepal	1976	5,495	2006	8,243
	Pakistan	1975	4,364	2006	9,539
Southeast Asia (n=2)					
	Indonesia	1976	9,040	2007	30,679
	Philippines	1978	8,678	2008	on going
West Asia & North Africa (n=4)					
	Egypt	1980	8,104	2008	16,524
	Morocco	1980	3,981	2003	8,791
	Turkey	1978	4,096	2003	7,672
	Yemen	1979	2,448	1991	5,508
Latin America (n=4)					
	Colombia	1976	3,292	2005	20,113
	Dominican Republic	1991	5,133	2007	15,708
	Haiti	1977	2,163	2005	6,357
	Peru	1977	5,053	2004	7,233
Sub-Saharan Africa (n=8)					
	Benin	1981	2,166	2006	13,223
	Cameroon	1978	2,933	2004	7,078
	Ghana	1979	3,994	2008	on going
	Kenya	1978	5,644	2003	4,848
	Lesotho	1977	3,104	2004	3,693
	Niger	1992	1,739	2006	7,423
	Nigeria	1981		2003	5,091
	Rwanda	1983		2005	5,452

Table 2. IPUMS Data, by Country and Region (n=20)

Region	Country	Earliest	N	Latest	N
Southern Asia (n=1)					
	India	1983	120,847	1999	120,578
Southeast Asia (n=3)					
	Malaysia	1970	38,006	2000	95,564
	Philippines	1990	1,156,126	2000	1,511,890
	Vietnam	1989	534,223	1999	534,139
West Asia & North Africa (n=1)					
	Israel	1972	89,190	1995	177,412
Latin America (n=10)					
	Argentina	1970	129,728	2001	1,040,852
	Bolivia	1976	121,378	2001	239,475
	Brazil	1960	613,273	2000	2,652,356
	Chile	1970	199,041	2002	486,115
	Colombia	1973	349,853	2005	1,054,901
	Costa Rica	1973	36,323	2000	106,973
	Ecuador	1974	145,902	2001	354,222
	Mexico	1970	82,856	2000	2,312,035
	Panama	1960	11,869	2000	84,346
	Venezuela	1971	284,336	2001	646,080
Sub-Saharan Africa (n=5)					
	Guinea	1983	110,777	1996	108,793
	Kenya	1989	224,861	1999	317,106
	Rwanda	1991	153,041	2002	191,719
	South Africa	1996	993,801	2007	345,170
	Uganda	1991	339,166	2002	529,271

Short Abstract

This paper presents a multi-country analysis of trends in the spousal age difference from the 1970s to the present. Our focus is the non-Western societies of Latin America, Africa, and Asia (n = 35+ countries). For these regions, this will be the most comprehensive rigorous analysis of assortative mating on age that has been carried out in recent years. We will present descriptive analysis of trends in the spousal age difference, and will use log-linear models to model assortative mating according to age. We will also take into account assortative mating on education -- a key theme of this research is the interplay of age and educational attainment as characteristics of prospective spouses. We posit: that marriages have become more age homogamous; and that the amount of narrowing in the spousal age gap is directly related to increase in women's educational attainment and to increase in women's age at marriage.