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[NOTE TO THE CHAIR: this paper has recently been presented at the IUSSP seminar on Changing Transitions to Marriage (New Delhi, 10-12 September). During the next year, the authors will continue working on this paper. We will basically introduce the suggestions made by the reviewers during the seminar and extend our models to include other explanatory variables]

## Educational Homogamy in the Developing World

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### **Abstract**

Assortative mating patterns have been little investigated in the developing world. Our paper examines the effect of changes in increasing schooling on the prevalence and conditions of unions in various contexts of the developing world. More specifically, we refer to the effects on assortative mating patterns with regard to education. We use census microdata for several countries available from the IPUMS-International website. The selected countries are representative of various contexts of the developing world: Brazil, China, Iraq, Kenya, Mexico, Philippines, South Africa, India (not presently integrated into IPUMS database). Results show some of the possibilities for comparative research of marriage patterns in time and space. We see that significant changes are underway as union formation, particularly for females, is postponed to the mid-twenties and beyond. At the same time, the proportions of never-marrying (or forming a union) increase. Educational attainment is an important factor in both these developments.

### **Introduction**

Spousal unions between people with similar characteristics (homogamy) constitute a classic topic in the field of family studies. Stretching back almost a century, authors from diverse disciplines have given special attention to the way in which men and

women form unions, researching the relationship between the processes and institutions linked to partner selection and the reproduction of systems of social domination and hierarchy (e.g., Lévi Strauss, 1969; Bourdieu, 2004; Simmel, [1917] 1986). Virtually all studies conducted to date have concluded that unions between people with similar characteristics make up the predominant pattern (Kalmijn, 1998). This phenomenon has been studied with consideration for different variables, according to both the particularities of each social context and the interests of researchers. In this way, variables such as race (Qian, 1997), religion (Kalmijn, 1991), occupation (Hout, 1982), age (Bozon, 1991; Cabré, 1993), residential proximity (Katz & Hill, 1958) and education (Mare, 1991) have been used to study homogamy. Precisely this last variable has been the object of growing interest by researchers in recent years. The power of the education variable originates in its efficiency as a principle of differentiation within the social structure (Bourdieu, 2006). Studies elaborated in this regard confirm that, as levels of educational attainment increase and discrimination in schooling against females declines, there is a growing tendency for people to form unions with those from the same level of educational attainment, especially at the extremes of the educational hierarchy (Smits, 2003; Schwartz & Mare, 2005; Esteve & McCaa, 2007).

Although these studies have considerably expanded our knowledge about this phenomenon, comparative work on an international scale is rather scarce. This shortage becomes more obvious when working with so-called "developing" countries, most research on the subject having been done in the context of countries with advanced economies. Assortative mating patterns have been little investigated in the developing world. In developed societies, where most of research exists, there is extended evidence of increasing gender equality in spousal choice and roles within marriage. This transition has been driven by forces such as women's entry into the labor force and increasing schooling, marriage delay, and growing agency with regard to spouse selection. Parental and group influence on marriage decisions are not even considered as a remote working hypothesis by studies of the developed world. Individuals are assumed to choose freely their spouses as the role of family of origin is weakening.

Marriage terms and conditions in the developing world follow, however, a different path, with important differences between and within broad cultural regions. Men

and women marry earlier. Age differences between spouses are higher. Family and parental decisions still exert a critical influence on marriage decisions. Large differences by education, household wealth and residence are also observed. In spite of that, mating patterns in developing countries are also transitioning. The increase in age at marriage is quite widespread for women, and often for men as well. Increases in women's schooling and labor force participation and higher costs of marriage are behind marriage postponement (Quilodran 2005, Lloyd 2005). In Latin America, for instance, intergenerational data on educational attainment show the dramatic improvement in education that most countries have experienced in recent decades (Ariza & De Oliveira, 2001; Arriagada, 2002).

The analysis of marriage market composition and its structure along various axes of social inequality, such as race, caste, tribe, ethnicity, gender, birthplace or education, is of particular interest, especially considering the developments in recent decades resulting from modernizing processes occurring with greater or lesser intensity in developing countries. This situation has significantly changed the way that marriage, as a social institution, is linked to structures of social domination and hierarchy. These changes also entail significant modifications related to the power balance between couples, which is an important aspect in analyzing family reproductive decisions.

Within this context, our paper examines the effect of changes in age at marriage and increasing schooling on the prevalence and conditions of unions in various contexts of the developing world. More specifically, we refer to the effects on assortative mating patterns with regard to education. Assortative mating patterns at both ends of the educational hierarchy are of special interest because they provide grounds for comparing individuals who stayed longer in school and, thus, married later, with individuals who left school and married earlier.

The present work is inspired by a series of comparative studies set in motion years ago by several researchers (Ultee & Luijkx, 1990; Blossfeld & Timm, 2003; Smits, 2003; Esteve & McCaa, 2007). Our purpose is to assess the levels of educational homogamy in India and eight countries, for which high-precision, integrated census samples are incorporated into the IPUMS-International database. The selected countries are representative of various contexts of the developing world: Brazil 1970, 1980, 1991,

2000; China 1982, 1990; Colombia 1973, 1985, 1993, 2005; Iraq 1997; Kenya 1989, 1999; Mexico 1970, 1990, 2000; Philippines 1990, 2000; South Africa 1996, 2001.

We hope to contribute to the literature related to this topic by conducting a comparative analysis of developing countries, which are still undergoing intense and varied processes of modernization with articulated demographic, economic, social, political and cultural dimensions.

The questions guiding this study can be formulated in the following terms:

Before discussing patterns of assortative mating, we first wish to:

- i) Explore trends and patterns of union prevalence (never-married nor in consensual union) among young men and women (ages 15-34) in these countries (see Tables 1 and 2, for males and females respectively)
- ii) Examine the factors associated with these patterns, and more specifically the impact of education (Table 3) to see to what extent education is associated to higher or lower likelihoods of being in union. This way we see the effects of education on marriage timing and also see how the effects of education play out differently for men and women in the marriage market (Tables 4 and 5, males and females, respectively).

Regarding assortative mating:

- iii) With consideration for each educational grouping (based on level of attainment), to what extent do the analyzed countries present similarities in relation to their patterns of educational homogamy (Tables 6 and 7, males and females, respectively)?
- iv) How do gender differences in educational attainment translate into gender differences in heterogamy (hypergamy vs hypogamy—see Table 8). As we shall see, gender is a key dimension and the comparison of gender patterns among countries is particularly intriguing.

To address these questions, we apply a series of logistic and loglinear regression models. Individuals aged 15 and 34 years old married or in free union are included in the analysis. Except for India, all data come from census samples available from the IPUMS

project (<https://international.ipums.org/international> 2008) based at the Minnesota Population Center. The Indian samples are currently being integrated into IPUMS and are expected to be launched in mid-2009. While Indian census microdata are unavailable to the IPUMS project, National Sample Survey Organization employment and unemployment samples (“schedule 10”) are used instead for the years 1983, 1993, and 2005 (rounds 38, 50, and 61). The Indian samples consist of high-precision nationally representative quinquennial micro-censuses. We wish to thank the Government of India for entrusting NSSO samples to the Minnesota Population Center and for extending a license to integrate and disseminate these samples to researchers worldwide without cost via the IPUMS website.

## **Background and hypotheses**

We apply here the term “homogamy” when a couple is formed by two people similar with respect to some socially significant trait linked to the system of social hierarchy. Such traits can be ascribed (ethnicity, race, caste, tribe, sometimes religion) or socially acquired (education, occupation, sometimes religion, etc.). To refer to the opposite situation (i.e. unions between people with different characteristics), we use the term heterogamy. Researchers commonly take the woman<sup>1</sup> as a reference point to distinguish *hypergamy*, when a woman’s husband is better positioned in the social hierarchy; or *hypogamy* in the reverse case.

Studies on homogamy enjoy a long tradition in the field of social sciences. Burgess (1943) locates the first literature reviews on the topic in 1912, with the work of Harris (1912), followed by Jones (1929) and Richardson (1939). Among some of the weaknesses that characterized studies conducted in those years, Burgess himself mentions the strong emphasis placed on the physical and intellectual characteristics of the spouses, as well as the lack of a systematic effort to research the influence of social and cultural factors on selective pairings. Over the following decades, various authors (Davis, 1941; Merton, 1941; Hollingshead, 1950; Winch, Ktsanes, & Ktsanes, 1954; Coombs, 1961; Kerckhoff, 1964; Trost, 1965; Murstein, 1967), contributed significantly to the

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<sup>1</sup> Measured in terms of some socially significant variable of hierarchical nature, such as: education, occupation, income, etc.

theoretical and conceptual refinement of this field, proposing various approaches to explain the factors behind partner selection. However, it was in the eighties when the focus of studies first shifted to underscore the structural mechanisms behind marital decisions (Surra, 1990) and to develop methodologies to ascertain the effects of structure on pairing behavior (Hout, 1982; McCaa, 1982; Goldman, Westoff, & Hammerslough, 1984; Schoen, 1986; Gray, 1987; McCaa, 1993). Most research being conducted at present has been nurtured by these developments, mainly with regard to the use of log-linear statistical models.

In general terms, contributions can be classified into two major groups (South, 1991; Pullum & Peri, 1999), depending on which emphasis is granted to the different factors involved during the process of partner selection: a) approaches linked to the social exchange theory, and b) those oriented in greater measure to the structural characteristics of marriage markets. In the former case, under the premise that selection operates through market mechanisms, the process of choosing a spouse or partner is essentially a transactional act (Goode, 1963; Lévi Strauss, 1969). Such approaches tend to reflect, to a greater or lesser extent, the principle of maximizing profits, oriented toward those characteristics positively valued by society: beauty, economic capital, educational capital, etc. (Edwards, 1969; Becker, 1987; Schoen, Wooldredge, & Thomas, 1989). In the latter case, that is, from a viewpoint closer to the structural dynamics of marriage markets, special emphasis is placed on the limits imposed by the population structure on the possibilities of contact and interaction between the people within those markets (Blau, Blum, & Schwartz, 1982; Lichter, Anderson, & Hayward, 1995). In reality, these approaches do not represent opposing tendencies, but are rather complementary. Kalmijn (1998) suggests that a proper approach to the subject should consider three closely related factors: 1) individual preferences, 2) the influence of the social group to which each member of the couple belongs and 3) the constraints of the marriage market in which people interact.

As for the conclusions emerging from these studies, as mentioned in the introduction, the majority agree that the current predominant modus of homogamy is conditioned by several socially significant variables. One of the variables employed with greater frequency in this regard is that of education. According to Blossfeld and Timm

(2003), the importance of education as an explanatory variable of homogamy patterns is based on two facts: 1) Education is the most important determinant of varying degrees of success in the occupational structures of industrialized societies, and 2) it reflects the influence exercised by people's cultural resources in partner selection. In this sense, educational homogamy implies that the levels of social inequity at any given moment are perpetuated through marriage, based on both individuals' accumulation (positive or negative) of economic and cultural resources. Theoretically, the chances of such pairings are greater in societies that have experienced strong processes of educational expansion, a context in which the likelihood of knowing someone at the same level rises. A significant amount of empirical evidence from various social contexts seems to sustain this hypothesis (Mare, 1991; Smits, Ultee, & Lammers, 1998; Blossfeld & Timm, 2003; Schwartz & Mare, 2005; Esteve & McCaa, 2007).

Generally speaking, researchers usually explain this phenomenon from certain transformations associated with the processes of modernization that act in multiple dimensions (economic, political, cultural, etc.) and on different levels (individual, family, regional, global). Among these changes, the incorporation of women in various areas of public life, such as labor markets and the formal education system, assumes a salient role (Oppenheimer, 1988). All this occurs in the framework of societies experiencing a slow erosion of the very foundations of the system of patriarchal domination. This deterioration extends the ability of individuals to make decisions in a wide range of situations, strengthening the role exercised by market mechanisms in the partner search. In other words: "The links once joining biography to family are slackening" (Beck & Beck-Gernsheim, 1995, p. 33).

However, it should be noted that market mechanisms associated with marital selection tend to operate in various ways. This diversity is generated from the political, economic, social and cultural circumstances of each particular context (Flaquer, 1999). According to Goode, "All courtship systems are market or exchange systems. They differ from one another with respect to who does the buying and selling, which characteristics are more or less valuable in that market, and how open or explicit the bargaining is." (Goode, 1963, p. 8); hence the importance of comparative research, which allows us to appraise the regularities underlying different structures and social contexts.

Among the most significant efforts to conduct comparative studies on an international scale, the work of Smits and colleagues is of particular merit (Smits et al., 1998; Smits, Ultee, & Lammers, 2000; Smits, 2003). The notoriety of this body of research lies not only in the breadth of population under study (representative samples varying between 55 and 65 countries), but in its inclusion of both developed and developing countries. Among its most important findings is the existence of a non-linear relationship between a country's degree of economic development and its levels of educational homogamy (Smits et al., 1998). Specifically, under increasing levels of economic development, levels of homogamy first intensify, then climax, and finally decrease, outlining the shape of an inverted "U". Also, by including indicators on the size of groups with higher levels of education, Smits (2003) demonstrates that homogamy levels are lower in countries where the availability of people with higher education is greater.

In light of these ideas, we propose two hypotheses. First, *it is expected that higher levels of educational homogamy correspond to groups located at the extremes of the hierarchy*, given that the barriers separating them from the rest would be harder to cross. In the classification used here, this translates into the groups labeled "less than primary" and "university completed." This pattern would adjust to contexts marked by strong processes of modernization, where education's value as an element of social differentiation acquires precedence over other traditional criteria of an ascriptive nature, and where universities become powerful marriage markets.

However, the effects of these modernizing dynamics do not extend equally to all population groups. Throughout the developing world inequalities still persist regarding access to various goods and public services, among them education. These inequalities are strongly associated with various factors such as race, caste, tribe, ethnicity and gender. Considering the population composition that characterizes different countries, we pose the hypothesis that *there is a positive relationship between gender inequalities in access to education and levels of educational hypergamy, even controlling for the fact of unequal numbers of men and women at a particular educational level*.



## **Data and Methods**

The data used in this study are from integrated samples of census microdata made available by the proposed Integrated Public Use of Microdata Series (IPUMS), based at the Population Center at the University of Minnesota. Specifically, we use household samples for 9 countries: Brazil 1991 and 2000 (6%), China 1982 and 1990 (1%), Colombia 1993 and 2005 (10%), India 1983, 1993, and 2005 (0.2%), Iraq 1997 (10%), Kenya 1989 and 1999 (5%), Philippines 1990 and 2000 (10%), Mexico 1990 and 2000 (10%) and South Africa 1996 and 2001 (10%). Most of the household samples have been drawn systematically from the original census person files: one in even *n*th—typically tenth, but occasionally every twentieth (Kenya) or even every hundredth (China)—household. Stratified cluster samples applied in the field characterize the 2005 sample of Colombia and the 2000 sample of Mexico as well as all the samples for Brazil and the NSSO samples for India. In the case of Brazil, the IPUMS samples consist of one in two households of the long form. Excluded from the analysis are samples from developed countries, from countries with only one sample in the IPUMS database (with the exception of Iraq), and countries lacking a question on educational attainment. For detailed discussions of sample characteristics, see the IPUMS website.

There are two main variables of interest: never married and educational homogamy. Never married is a dummy variable that distinguishes never married from ever married. In order to not leave out consensual unions we have considered as ever married (or ever in union) individuals who report single as marital status but also have a partner in the same household. Thus, throughout this paper, “ever married” includes individuals currently in consensual unions, and “never married” the opposite. Educational homogamy refers only to those individual who are in union, whether legal or consensual, and co-resident in the same household at the time of the census. Our measure is based on the combination of educational attainment of both spouses.

The level of education taken as reference is that stated at the time of the census, and therefore does not necessarily correspond to the level that spouses had at the time of

marriage or union. The challenge of this research lies in creating a commensurate system of classification by level of education that is thus comparable between countries. To begin with, the countries studied do not divide their educational timelines in the same way. In Brazil there are divisions at 4 years of schooling (primary), 8 (basic secondary) to 11 (upper secondary) and 15 or more (higher education). Mexico sets its main divisions at 6 years of schooling (primary) to 9 (secondary elementary) to 12 (secondary) and 16 or more (higher education). Kenya has an 8-12-16 system We opt for a 6-12-16 classification, which yields four categories elaborated on the basis of the IPUMS variable: 'less than primary' (<6 years), 'elementary complete' (6-11), 'secondary complete' (12-15) and 'tertiary complete' (>15). The IPUMS variable EDATTAN registers the maximum level of educational attainment or that for which a diploma has been earned, and uses the international classification of the United Nations that sets primary school at 6 years, basic secondary at primary plus 3 and higher secondary at basic secondary plus 3. The levels of instruction in each country have been harmonized to this classification. Additional details are available from the IPUMS project website. In addition, original source census forms and manuals with definitions of concepts in the official language and English translation are also readily available as text or images from the IPUMS website. Moreover, the IPUMS dynamic meta-data system permits the researcher to examine the precise phrasing, concepts and definitions for each variable or question by any combination of censuses and countries. Thus, each researcher is responsible for carefully studying the original source documentation to be assure that the analysis faithfully reflects definitions and concepts as used in each census.

From these samples, we select those couples whose members resided in the same household at the time of the census, irrespective of the type of union (from legal marriage to consensual union). Couples with one spouse absent are not considered, because there is no way of knowing the characteristics of the other spouse. The degree of omission varies by whether the census is defacto or dejure, by the degree of migration, etc. Thus, in the cases of Brazil and Mexico, 2.2% and 1.7% of couples, respectively, are dropped from the analysis. The upper age limit is used to reduce bias introduced by the differential dissolution of unions, i.e. the fact that unions tend to dissolve more or less as a function of spousal characteristics (selection effect).

We restricted the analysis to ages 15 to 34 years. Couples have been selected based on the age of women. Duplicating the analysis by men's age yields more or less the same results and is not discussed here.

From the couples selected, we are interested in knowing relative levels of educational homogamy. We use loglinear regression models, which prevail in this type of research (F. L. Jones, 1991; Kalmijn, 1991; Mare, 1991; Qian, 1997). Log-linear models are known for their ability to extract information from interactions in a contingency table, controlling for the marginal effects on interactions.

Where possible, our models control for additional variables such as age differences between spouses, urban rural, and time or period. "Country" is not used as a variable. Instead we ran separate models by country and sex.

## **Descriptive Findings**

For females (see Table 1), marriage postponement is nearly universal in the countries studied here, aside from China. India is the most dramatic example, where, in barely two decades, the proportion never married aged 15-19 soared from 63 to 85%. At age 20-24, the Indian pattern is equally dramatic, with the proportion surging from less than 20 to more than 33%. At older ages the proportions never-marrying while small, doubled over the same period. Little change is noted for China, but this may be due to the fact that the two samples are separated by only eight years. In any case, the Asian pattern of universal marriage for females is confirmed by our samples, although early marriage is fast disappearing for females as well as males. It is notable that the pattern for Filipino females is more akin to Latin America than to China or India. Is this the famous Catholic, Iberian colonial pattern? Consider, however, that for Iraqi females proportions never-marrying are even more similar to Latin America. Africa represented by only two countries, Kenya and South Africa, is as different from one another as they are from countries from other continents. Kenya is characterized by a relatively early marriage pattern, similar to India, except marriage is not as universal. South Africa is at the extreme with very high proportions never marrying even as late as age 30-34. Fully 1/3 of South African females were reported as never married,. Note that in both the 1996

and 2001 censuses, never married was defined in detail with categories for “married civil/religious”, “married traditional/customary”, and “living together like married partners.” For the first time in 2001, “polygamous marriage” was added to the list. Nonetheless, visiting unions are quite common in South Africa and are not captured by the census question nor was any innovation in the marital status question introduced in the 2007 microcensus nor is any planned for 2011.

Fewer than one-in-ten males marry before age 20 (Table 2) in any of the 10 countries and the proportion is shrinking to zero in Kenya, South Africa, China, India, and to one-in-twenty in Iraq, Philippines, Brazil, Colombia and Mexico. The most significant temporal trend is in India, where the proportions of males never marrying rose from 90% in 1983 to 98% in 2005. At age 20 and above, the transformation of Chinese society is clearly underway with proportions of men marrying at age 20 and above, increasing rather than declining. Remarkably in South Africa, an even greater relaxation of marital bonds is apparent, whether due to increased freedom or growing poverty, we do not know. It is remarkable that for South Africans in a mere five years the fraction never married at age 30-34 increased from 1/3<sup>rd</sup> to 2/5<sup>th</sup>, At the other extreme lie China and India, where marriage is nearly universal for males by age 35. A perceptible movement away from the iron rule of marriage by age 35 is evident in the Indian data. The remaining countries are intermediate between these Asian and African extremes with a tendency toward growing numbers not marrying by age 35, amounting to an increase of approximately 1/6<sup>th</sup> to 1/3<sup>rd</sup>.

Table 3 addresses the question of effects of educational attainment on proportions marrying, controlling for time period, urban/rural, economic activity status, and even the age distribution as it changes from one census to another. Notwithstanding these controls, there is a great diversity of degree, if not pattern. More education means higher proportions never married, everywhere except South Africa and China (males only). For Chinese and Filipino females more education has a strikingly powerful effect of delaying marriage. For the remaining countries the effects lie more or less midway between the extremes. For males the effect of increased education in delaying marriage is dampened, but remains significant in all cases

Tables 4 and 5 display, for females and males, respectively, the distribution of educational attainment for each country and census. For females, higher proportions completing high school (35-40% in 2000) are found in South Africa, Philippines and Colombia. In the remaining countries less than 1/5<sup>th</sup> completed secondary school (Brazil, Mexico) and in some cases less than 1/10<sup>th</sup> (Kenya, India, Iraq). At the university level, India is the leader with 10% in 2005 followed at 7% by Colombia (2005) and Philippines (2000). At the other extreme, in the 2000 round, proportions not completing primary are greatest for India (52%), followed by Brazil (44%), and Kenya (32%). Typically ten percentage points were shaved off this proportion from the 1990s to the 2000 round of samples for all the countries except South Africa (declined by 3 points to 15% in 2001), and Philippines (declined by 4 points to 12% in 2000).

Gender inequality in educational attainment is readily apparent by comparing Tables 4 and 5. In terms of university studies, the male completion rate is typically double that of females, although only in India at 16% did the base rate exceed ten percent. In three countries the female rate marginally exceeded that of males: Philippines, Brazil and Colombia. At the opposite pole, females who did not complete primary exceeded male rates by 50% in Kenya, China, India and Iraq. Elsewhere there was little gender inequality at the lowest level of education attainment for the countries studied. Gender equality in secondary studies completed was attained in the Philippines and the Latin American countries, whereas in the remaining countries the male rate typically exceeded females by one-half.

Homogamy is the rule in all countries with more than half of the unions between couples of the same level of educational attainment and rising to 70% or higher in the case of India (Table 6). Nonetheless there is notable secular decline particularly in Latin America, where the record stretches over four decades. In Brazil homogamous unions declined from as high as ninety percent for each educational level to below 60% for all. In Mexico, the decline was a matter of twenty percentage points, and for Colombia only ten points--not as dramatic, but substantial in all three instances. In India the decline in homogamous unions was typically even smaller at five points. Slight increases were registered in Kenya, China and the Philippines. For Iraq, with data only for one census, secular trends cannot be measured, but what is striking is that Iraq registered the lowest

levels of educational homogamy of all the countries studied, due perhaps to the strong cross-currents of kin (cousin marriages are common), tribe and religion.

When unions are heterogamous, that is between husbands and wives of differing educational levels, what proportion are men marrying women of lower educational attainment, that is what are the proportions of hypergamous unions (Table 7). Hypergamy is strong in four countries--Kenya, China, India and Iraq—but the pattern is weakening by 5 to 10 percentage points in the most recent decade. Hypogamous unions (women of greater educational attainment marrying men of less) is the rule in the Philippines, Brazil, Colombia and South Africa, while the degree of hypergamy is declining in Mexico.

Table 8 uses log-linear models to assess, in the left panel, the mating attraction of educational homogamy controlling for rural/urban, age composition, and time period. Homogamy is the rule everywhere but is on the wane in Latin America, while there are slight increases elsewhere. Comparing Tables 6 and 8 reveals the extent to which apparent changes over time or differences between countries may be explained by structural effects included in the model. What we see is that much of the change and differences is due to compositional differences in age structure, educational attainment levels, and growing urbanization. Once the compositional effects are taken into account, there is a remarkable uniformity in the rule of homogamy, regardless of country, culture or even time.

Hypergamy, on the other hand (right panel of Table 8), diverges from one country to another, but most striking is the sharp secular decline in 5 countries: India, the Philippines and Latin America. Indeed hypergamy is likely to disappear in this decade in four and in the next decade in the fifth (India), as well as in China and South Africa. Only in Kenya does hypergamy show no signs of weakening. The effect of the disappearance of hypergamy as a iron law of assortative mating on family dynamics is a matter for social psychologists to explore, but one can readily imagine that a new threshold is being breached as females gain greater access to educational opportunities.

## Reflections

This preliminary study of 9 studies demonstrates some of the possibilities for comparative research of marriage patterns in time and space. We see that significant changes are underway as union formation, particularly for females, is postponed to the mid-twenties and beyond. At the same time, the proportions of never-marrying (or forming a union) increase. Educational attainment is an important factor in both these developments. As we focus our Hubble telescope closer on the marital dynamics of human populations we see that while homogamy rules everywhere, there is a surprising shift away from the conventional heterogamous pattern. Increasingly it is the female who brings greater educational attainment to the union than the male.

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TABLE 1. Percentage of Women Never Married (and not in Union) by Age, Time Period, and Country

Country	Age 15 - 19				Age 20 - 24				Age 25-29				Age 30-34			
	1970s	1980s	1990s	2000s	1970s	1980s	1990s	2000s	1970s	1980s	1990s	2000s	1970s	1980s	1990s	2000s
Africa																
Kenya	-	-	80,5	81,4	-	-	34,8	38,2	-	-	15,4	21,1	-	-	8,4	11,2
South Africa	-	-	91,9	96,0	-	-	72,6	79,0	-	-	48,6	55,9	-	-	32,9	39,1
Asia																
China	-	95,5	95,1	-	-	46,5	41,8	-	-	5,1	4,1	-	-	0,6	0,6	-
India	-	62,6	76,3	85,0	-	19,0	25,0	33,8	-	5,0	6,2	9,7	-	1,5	2,1	3,5
Iraq	-	-	84,0	-	-	-	51,9	-	-	-	28,1	-	-	-	15,9	-
Philippines	-	-	89,9	88,3	-	-	55,8	56,2	-	-	27,5	27,3	-	-	13,7	14,3
South America																
Brazil	87,5	83,7	83,4	83,5	50,7	46,1	47,6	53,1	25,5	23,4	24,9	30,4	14,9	14,1	15,1	19,3
Colombia	84,2	83,4	79,7	82,4	49,8	50,5	47,9	55,2	28,2	27,5	28,1	34,0	18,6	17,5	18,8	23,7
Mexico	78,6	-	84,2	82,6	37,9	-	48,1	48,3	17,5	-	22,5	24,9	10,5	-	13,0	13,7

Source: IPUMS international

NOTE: Brazil 1970, 1980, 1991, 2000; China 1982, 1990; Colombia 1973, 1985, 1993, 2005; Iraq 1997; Kenya 1989, 1999; Mexico 1970, 1990, 2000; Philippines 1990, 2000; South Africa 1996, 2001; India 1983, 1993, 2005 (are currently being integrated into the IPUMS database).

TABLE 2. Percentage of Men Never Married ( and not in Union) by Age, Time Period, and Country

Country	Age 15 - 19				Age 20 - 24				Age 25-29				Age 30-34			
	1970s	1980s	1990s	2000s	1970s	1980s	1990s	2000s	1970s	1980s	1990s	2000s	1970s	1980s	1990s	2000s
Africa																
Kenya	-	-	97,0	97,2	-	-	77,6	77,9	-	-	36,8	40,9	-	-	14,3	16,2
South Africa	-	-	94,0	98,6	-	-	84,3	92,2	-	-	60,7	69,7	-	-	35,7	45,0
Asia																
China	-	98,9	98,2	-	-	72,2	63,2	-	-	23,7	17,0	-	-	8,8	7,2	-
India	-	90,2	94,8	97,8	-	59,7	67,7	74,3	-	23,3	29,1	34,9	-	7,6	8,8	11,5
Iraq	-	-	96,9	-	-	-	78,7	-	-	-	41,5	-	-	-	18,7	-
Philippines	-	-	96,8	94,8	-	-	73,5	73,1	-	-	38,5	39,4	-	-	17,8	20,2
Latin America																
Brazil	98,5	96,4	96,6	96,4	75,3	69,3	69,3	70,4	37,3	31,9	36,4	39,9	18,7	15,0	18,1	23,7
Colombia	94,4	94,6	92,2	94,1	73,4	72,3	68,7	71,8	41,3	40,4	40,5	44,8	22,4	21,2	23,8	27,1
Mexico	94,8	-	94,4	94,2	60,6	-	63,2	62,1	27,2	-	30,8	31,8	13,7	-	15,0	17,0

Source: IPUMS international

NOTE: See Table 1.

TABLE 3. Estimated Log Odds Ratios from a Logistic Regression of Never Married by Educational Attainment, Women and Men Aged 25-34\*

Country	Women				Men			
	Less than Primary	Primary Completed	Secondary Completed	University Completed	Less than Primary	Primary Completed	Secondary Completed	University Completed
Africa								
Kenya	ref.	0,51	1,11	0,97	ref.	-0,23	0,34	0,35
South Africa	ref.	-0,03	-0,06	-0,46	ref.	-0,05	-0,21	-0,63
Asia								
China	ref.	0,97	2,05	2,96	ref.	-0,95	-0,99	-0,23
India	ref.	0,82	1,42	2,07	ref.	0,47	0,87	1,23
Iraq	ref.	-0,04	0,37	0,65	ref.	-0,16	0,10	0,37
Philippines	ref.	0,05	0,83	1,57	ref.	0,05	0,47	1,00
South America								
Brazil	ref.	0,16	0,49	0,62	ref.	0,02	0,45	0,65
Colombia	ref.	-0,07	0,41	0,86	ref.	-0,13	0,32	0,91
Mexico	ref.	0,25	0,61	1,06	ref.	0,13	0,62	1,09

\* Results are all significant at the 0.05 level

\* Controlling factors not shown in the table: Time Period, Urban-rural, Age, Activity Status.

TABLE 4. Distribution of Women (15 - 34) in Union by Educational Attainment, Time Period and Country

Country	Less than Primary				Primary Completed				Secondary Completed				University Completed			
	1970s	1980s	1990s	2000s	1970s	1980s	1990s	2000s	1970s	1980s	1990s	2000s	1970s	1980s	1990s	2000s
Africa																
Kenya	-	-	47,0	31,7	-	-	51,7	66,9	-	-	0,9	0,7	-	-	0,4	0,6
South Africa	-	-	18,3	15,4	-	-	51,5	45,8	-	-	27,3	35,1	-	-	2,9	3,6
Asia																
China		41,3	25,6			52,5	60,8			6,0	13,4		-	0,2	0,2	-
India		72,8	62,9	52,3		19,7	23,0	26,9		5,6	10,1	8,3	-	1,9	4,1	9,9
Iraq	-	-	42,9		-	-	43,7		-	-	10,4		-	-	3,1	-
Philippines	-	-	16,6	12,9	-	-	39,1	37,5	-	-	34,0	43,0	-	-	10,2	6,6
South America																
Brazil	89,6	73,3	55,3	43,6	6,1	15,4	25,9	32,3	3,8	9,1	15,1	20,5	0,5	2,2	3,7	3,6
Colombia	62,3	37,9	27,0	17,6	32,6	45,9	50,4	41,1	4,3	13,3	21,9	34,3	0,8	3,0	0,7	7,0
Mexico	75,6	-	26,3	17,7	22,7	-	59,1	59,9	1,2	-	9,8	16,8	0,6	-	4,7	5,7

Source: IPUMS international

NOTE: See Table 1.

TABLE 5. Distribution of Men (15 -34) in Union by Educational Attainment, Time Period and Country

Country	Less than Primary				Primary Completed				Secondary Completed				University Completed			
	1970s	1980s	1990s	2000s	1970s	1980s	1990s	2000s	1970s	1980s	1990s	2000s	1970s	1980s	1990s	2000s
Africa																
Kenya	-	-	29,7	22,2	-	-	66,4	73,9	-	-	2,8	2,2	-	-	1,1	1,7
South Africa	-	-	17,6	15,9	-	-	46,8	41,3	-	-	31,6	38,0	-	-	4,0	4,8
Asia																
China	-	9,8	9,4	-	-	76,6	68,4	-	-	13,1	21,6	-	-	0,4	0,6	-
India	-	50,9	46,6	36,2	-	32,0	29,9	35,9	-	12,0	16,2	11,5	-	5,1	7,3	16,4
Iraq	-	-	24,1	-	-	-	47,6	-	-	-	20,3	-	-	-	8,0	-
Philippines	-	-	19,3	16,5	-	-	35,7	35,0	-	-	36,5	43,0	-	-	8,6	5,5
South America																
Brazil	87,0	71,5	55,0	47,3	7,8	16,1	26,3	31,5	3,6	8,8	14,6	18,0	1,5	3,6	4,0	3,2
Colombia	55,9	35,9	26,5	19,9	34,6	43,8	49,1	40,7	6,3	15,0	23,4	33,4	3,3	5,4	1,0*	6,1
Mexico	71,0	-	21,1	15,1	24,8	-	58,3	61,5	1,9	-	12,6	16,0	2,3	-	8,0	7,4

Source: IPUMS international

NOTE: See Table 1. .

\* Colombia 1993 under-reports university completed.

TABLE 6. Percentage of Women in Homogamous Unions by Age, Time Period, and Country

Country	Age 15 - 19				Age 20 - 24				Age 25-29				Age 30-34			
	1970s	1980s	1990s	2000s	1970s	1980s	1990s	2000s	1970s	1980s	1990s	2000s	1970s	1980s	1990s	2000s
Africa																
Kenya	-	-	69,1	70,4	-	-	71,8	75,3	-	-	69,3	73,4	-	-	68,8	71,2
South Africa	-	-	66,1	63,9	-	-	63,3	61,8	-	-	64,1	63,6	-	-	64,0	63,7
Asia																
China	-	55,3	69,3	-	-	55,4	70,4	-	-	55,6	63,0	-	-	57,3	59,5	-
India	-	66,7	66,2	62,0	-	62,6	63,8	58,1	-	63,7	62,6	57,8	-	65,9	61,1	58,9
Iraq	-	-	53,6	-	-	-	53,9	-	-	-	53,7	-	-	-	54,0	-
Philippines	-	-	58,5	60,9	-	-	58,4	63,2	-	-	58,2	64,8	-	-	60,0	63,5
South America																
Brazil	92,6	79,8	67,1	59,9	88,5	75,3	62,4	55,5	87,1	74,2	62,9	57,4	87,6	77,7	65,4	56,5
Colombia	72,3	64,6	60,2	56,1	71,0	63,2	62,7	57,0	71,5	62,2	63,5	57,4	73,7	63,5	62,9	58,4
Mexico	80,0	-	66,4	67,3	77,7	-	61,3	63,4	78,8	-	60,4	59,6	79,9	-	60,6	57,7

TABLE 7. Percentage of Women in Heterogamous Unions in Hypergamic Unions (Male > Female) by Age, Time Period, and Country

Country	Age 15 - 19				Age 20 - 24				Age 25-29				Age 30-34			
	1970s	1980s	1990s	2000s	1970s	1980s	1990s	2000s	1970s	1980s	1990s	2000s	1970s	1980s	1990s	2000s
Africa																
Kenya	-	-	65,5	70,3	-	-	61,7	62,4	-	-	70,8	64,0	-	-	75,9	65,5
South Africa	-	-	54,5	62,3	-	-	48,9	50,0	-	-	46,8	46,0	-	-	48,9	43,6
Asia																
China	-	85,3	81,4	-	-	83,2	84,4	-	-	88,4	75,6	-	-	92,5	76,8	-
India	-	87,4	80,5	74,8	-	88,8	84,2	76,4	-	89,6	86,2	78,2	-	90,4	87,6	83,5
Iraq	-	-	86,4	-	-	-	83,6	-	-	-	78,9	-	-	-	79,6	-
Philippines	-	-	56,9	53,9	-	-	48,1	44,7	-	-	44,2	42,5	-	-	45,3	41,9
Latin America																
Brazil	68,0	53,2	60,5	47,4	61,7	51,4	49,9	43,7	64,5	53,3	46,5	44,5	66,8	55,7	48,8	45,7
Colombia	62,6	57,3	54,2	53,5	61,6	54,4	49,7	47,1	65,3	52,9	49,6	40,1	65,0	58,8	49,9	39,4
Mexico	59,0	-	61,2	60,2	62,7	-	55,3	55,6	65,2	-	61,7	55,2	67,7	-	66,3	57,0



TABLE 8. Estimated Log Odds Ratios from a Loglinear Regression of Overall Educational Homogamy and Hipergamy by Time Period and Country (Women 15 - 34)

Country	Homogamy				Hypergamy			
	1970s	1980s	1990s	2000s	1970s	1980s	1990s	2000s
Africa								
Kenya	-	-	0,97	1,01	-	-	0,90	1,00
South Africa	-	-	1,25	1,27	-	-	0,09	0,12
Asia								
China	-	0,89	1,07	-	-	0,01	0,19	-
India		1,20	1,33	1,31		0,92	0,48	0,41
Iraq	-	-	1,02	-	-	-	0,25	-
Philippines	-	-	1,29	1,39	-	-	0,21	0,07
Latin America								
Brazil	1,53	1,34	1,11	0,94	0,52	0,26	0,12	0,06
Colombia	1,11	1,01	1,03	1,07	0,05	0,24	0,20	0,13
Mexico	1,17	-	1,01	0,97	1,45	-	0,33	0,08

Note: Loglinear models control by Time Period, Rural-Urban, Age, and Educational Attainment of the spouses.

TABLE 9. Estimated Log Odds Ratios from a Loglinear Regression of Educational Homogamy by Educational Attainment, Time Period and Country (Women 15 - 34)

Country	Less than Primary				Primary Completed				Secondary Completed				University Completed			
	1970s	1980s	1990s	2000s	1970s	1980s	1990s	2000s	1970s	1980s	1990s	2000s	1970s	1980s	1990s	2000s
Africa																
Kenya	-	-	3,47	3,32	-	-	0,87	1,05	-	-	0,87	0,85	-	-	1,94	2,49
South Africa	-	-	2,82	2,78	-	-	1,15	1,40	-	-	1,13	0,80	-	-	2,71	2,75
Asia																
China	-	2,80	2,94	-	-	1,28	1,27	-	-	0,48	0,69	-	-	2,33	4,07	-
India		2,77	2,57	2,42		0,74	1,02	0,87		0,50	0,32	0,46		2,06	2,47	1,41
Iraq	-	-	2,08	-	-	-	0,96	-	-	-	0,25	-	-	-	2,53	-
Philippines	-	-	2,54	2,52	-	-	1,00	1,18	-	-	0,86	1,01	-	-	2,13	2,61
South America																
Brazil	3,05	2,48	2,07	1,76	0,65	0,72	0,78	0,80	0,30	0,60	0,62	0,43	1,22	1,44	1,56	1,90
Colombia	3,25	2,74	2,49	2,31	0,56	0,82	0,90	0,96	1,32	0,90	1,06	0,63	1,58	2,15	1,95	2,71
Mexico	2,87	-	2,58	2,17	0,83	-	0,64	0,76	0,80	-	0,74	0,70	0,17	-	1,49	1,84

Note: Loglinear models control by Time Period, Rural-Urban, Age, and Educational Attainment of the spouses.