Student, spouse, parent? A worldwide test of the role incompatibility hypothesis among adolescents and young adults[1]

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This paper exploits a vast databank of international census and survey microdata to examine the relationship between school attendance, union formation, and childbearing among adolescents and young adults. We provide widespread evidence for 64 countries among 15 to 24 year-old males and females. High shares of student population are strongly correlated with low shares in spousal and parental roles between countries, especially among women. We show that this relationship is driven by the fact that students are less likely to be in spousal and parental roles compared to non students. Nevertheless, as we compare older ages, the share of students to report as being spouses and/or parents increases. The level of compatibility of roles among studying population is correlated to the overall levels of spouses and mothers in the total population, even controlling for the level of school being attended.

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1. Introduction

Individuals that stay in school longer usually form relationships and have children later than those that leave school at younger ages. Between countries, the proportion of adolescents and young adults living in marital or non-marital cohabitation and raising children tends to be lower where a large proportion attends school. The mechanisms through which time spent in school exerts influence on age at marriage and childbearing are diverse. Some of these mechanisms operate in ages after schooling has been completed, while others only operate within the typical school ages (Thornton et al. 1995). An instance of the latter kind of mechanism is role incompatibility, referring to the difficulty of being a spouse or a parent while also attending school. Students are in school almost continuously from the age of 6 until the early twenties if primary, secondary and undergraduate levels are completed. Education systems are almost universally organized into the familiar three-stage scheme of primary, secondary, and tertiary levels, but school attendance rates vary greatly between countries. By the year 2000, more than 95% of 16 year-old females were attending school in the United States and France, but these figures were much lower in Brazil (78.7%), Cambodia (37.0%) and Niger (10.1%). Less than two percent of 16 year-old women in the United States and France were in union, whereas more women were in union in Brazil (9.7%), Cambodia (4.4%) and Niger (47.6%) (https://international.ipums.org/; see data section). The extent to which high levels of school attendance are associated with low levels of marriage and childbearing during school ages is the subject of this paper.

We examine the relationship between school attendance and spouse and parent statuses of adolescents and young adults across 64 countries around the year 2000. We focus on ages 15 to 24, and explore differences over age and between males and females. First, we investigate the association between levels of school attendance (i.e. student status) and the proportion of males and females in union (i.e. spouse) and females with own children (i.e. parent). Second, we examine the degree of dissociation between family roles and schooling. We compare the proportion in union for males and females or with children between those attending school versus those not attending school. Are students less likely to be in union or have children than those that have completed or exited school? How does this pattern vary by sex and age? Third, we examine if there are significant differences between countries in patterns of inferred role incompatibility. Do countries with early marriage and childbearing display higher marriage and childbearing rates among students?

Our approach is based on declared or inferred statuses of student, spouse (married or cohabiting) or, for females, parent. Data came from the international Integrated Public Use Microdata Series database (IPUMS) and from the Demographic Health Surveys (DHS).

2. Hypotheses

Role incompatibility.-

The determinants of societal changes in family organization are still cause for discussion among scholars (Smith 1993, Thornton 2005). Despite different views on what drives family change, the effect of education is commonly agreed upon. Education conveys both structural and ideational influences on family life (Jayakody et al. 2008; Skirbekk 2008; Lutz 2010; and see Buchmann and Hannum 2001 and Hannum and Buchmann 2004 for a review of the literature). Education delays age at first union and first birth (Bongaarts 2003; Castro-Martín 1995; Kravdal 2002; Mensch et al. 2005). The main demographic transitions to adulthood thus tend to occur after school is completed as most young adults, males and females, are assumed to enter into their first unions (marriage or cohabitation) and have their first child outside of school. Regardless of whether school is left to marry or to have a child or whether these transitions occur independently once schooling is completed, there appears to be what could be called an incompatibility of roles, which prevents most people from being both in school and fulfilling spousal and parental obligations.

Role incompatibility is potentially due to three interrelated factors: a lack of economic and personal independence while in school, exclusive time use, and parental control (Lloyd, 2005). First, the decision to marry and have children implies a certain degree of economic stability, at least for one of the spouses involved. Students often do not earn money and those that do earn money generally do not earn enough to live independently with a spouse. Second, irrespective of the educational level being attended, schools are generally highly controlled and demanding environments that require exclusive dedication of time spent on school premises, in transit to and from school, and possibly spent doing school-related homework. Marriage and childbearing implies spending time with one's spouse and children as well as time spent working either securing income or doing domestic chores. Finally, this sheltered time use is often demanded and provided for by parents, who view children's education as an investment. Parents may view their own children as a form of old-age security, the value of which increases with the level of children's education. Parents may see

union formation and childbearing as barriers for their children not satisfactorily finishing their studies, and so discourage family transitions until schooling is complete.

This research does not attempt to separate and verify the underlying mechanisms that generate role incompatibility, but rather to infer role incompatibility based on differences between students and non students in family role statuses. We expect that because of role incompatibility students will be significantly less engaged in spousal and parental roles than those not attending school and, therefore, in societies where school attendance levels are higher, the proportion of males and females in spousal and parental roles will be lower. It is important to mention that we do not expect all countries with low school attendance rates to display high proportions in union or with children: heterogeneity is generally higher comparing countries with low attendance rates, as the level also depends on other factors not included in the analysis such as employment status or religion.

Differences by Age and Sex.-

As individuals age through their teens, interests in schooling, relationships and childbearing begin to overlap. Even in countries where marital transitions occur very early (for instance Western Africa and in certain regions of India), very rarely do interests in schooling and marriage collide before age 12 (Lloyd 2005). Conflicts between schooling and partner formation are rare or non-existent until at least the mid teens. Primary schooling, which usually stops around age 12, should therefore be free of interference from partnering and childbearing. However, from age 12 onwards, especially among women in early marriage cultures, women may start marrying and to have children and conflicts between schooling and partnering may appear. The extent to which adolescents and young adults in school will be able to engage in partnership or have children would be conditioned by two main and, somehow, opposite forces. On one hand, schooling itself becomes more demanding at each increasing level. On the other, young people are subject to increasing social pressure to marry because an increasing number of people of the same age are doing so. While such pressures may be responsible for removing many young women and men from secondary and tertiary school, we also expect a greater prevalence of spousal and parental roles among students with increasing age. Specifically, we expect that in societies where early marriage is common the effect of school attendance will be most noticeable. Conversely, in countries where marrying before the age of 18 is rare, differences between students and non-students prior to age 18 should be smaller.

Males and females are subject to different constraints limiting the ability to reconcile marital and student life. Transitions to marriage and childbearing occur earlier in life for women than for men and attendance rates differ greatly between the sexes in many countries. Marriageability among men is usually tied to the ability to secure economic independence sufficient to support a family, whereas this condition does not always apply to women, especially in breadwinner family systems. Males usually go to school more universally and for longer, although the gender gap has narrowed in recent decades, and in a select few countries has even reversed (Esteve et. al. 2011). We expect that the relationship between school attendance and union formation and childbearing to be stronger for women than for men since in many societies women start unions and begin having children during typical or potential school ages. We also expect that the role incompatibility among women will be highest in those societies with early marriage cultures. Finally, given the above mentioned age- and gender gradients and cultural differences in marriage timing, we also expect country differences to increase with age and be largest for women.

3. Data and methodology

Sources and countries selected.-

For our analysis we combine data from (i) the Integrated Public Use of Microdata Series (IPUMS) International database (Minnesota Population Center 2011), the most complete database of global census microdata available today (62 countries, 185 censuses, 397 million individual records for the period 1960-2008); and (ii) the Demographic and Health Surveys (DHS) (ICF Macro 2011), a survey that has collected, analyzed and disseminated accurate and representative data on population, health, HIV, and nutrition from more than 260 surveys over 90 countries.

Only countries whose census or survey data identifies students, spouses and parents in the age range 12 to 24 in single ages were selected. This left us with samples from 64 countries (28 from Africa, 10 from Asia, 17 from Latin America and 11 from Europe and North America), totaling almost 23 million cases (see Appendix 1). 42 samples were from the IPUMs database and 24 from the DHS Surveys. All samples were around the year 2000 and only one dataset was selected for each country. In case both IPUMS and DHS data were

available for one country, the IPUMS data was preferred because of large sample sizes and more information about males.

The analysis is based on the population aged 12-24. Students are identified from age 12 to 24 but spouses and parents only from age 15 onwards. For each sample, proportions of each variable were aggregated by single ages. Resulting age curves that presented extreme volatility or implausible shifts, often due to age heaping on age 20 and/or low sample sizes, were adjusted using a smoothing spline. This procedure affected roughly one quarter of the series aggregated, mostly cross-tabulated DHS data, and in no series did the smoothing produce undesired side-effects.

Students.-

In IPUMS datasets, students were identified on the basis of 'school attendance' (SCHOOL) and, lacking this variable, by 'activity status' (EMPSTAT). Most census questionnaires contain a direct question on school attendance, while some censuses include the option to answer 'in school' in the question on employment status. For DHS data, the dichotomous variable was created on the basis of the variable 'still in school' (HV110). Individuals with student status were assumed to attend school, but neither information on the levels attended nor if the person has stayed continuously in school is known. When available (63 countries), we therefore used the 'educational attainment' variable from the census data and 'highest educational level' from the DHS to establish the level being attended, but not necessarily completed. One reason to distinguish education levels for students is because census data do not indicate when a person left school. For instance, a 20 year-old mother attending primary school is likely to have spent a number of years outside of the schooling system (see Appendix 2).

Spouses.-

In IPUMS data, spouses were identified on the basis of 'marital status' (MARST) and 'spouse's location in the household' (SPLOC). Any person who responded 'married/in union' and/or had an identifiable spouse in the household was considered a spouse. We included both married and non-married couples as well as those who did not specifically declare themselves as 'cohabiting' or 'married' but stated their relationship to the household head as 'spouse'. For the DHS data the information was obtained directly from the 'marital status' variable (H502 for the female respondents and HV116 for the general population).

Parents.-

Parental status information is typically only available for women. Many DHS surveys do not include male questionnaires, and most censuses do not provide information on children for men. Using census data, there were two options to identify the parental status of individuals: 'children ever born' (CHBORN) or the 'number of children in the household' (NCHILD). The latter is a variable created by IPUMS on the basis of relationships between household members. First, the variable CHBORN was used to identify parent status for all samples that included this variable. For individuals with a missing value for CHBORN, information was taken from the NCHILD variable. As well, for samples lacking the variable CHBORN, the NCHILD variable was used exclusively. In DHS data, information on parental status was drawn from the variable 'children ever born' (V201).

Before showing the results of the main analysis, a few stylized facts are provided on the country-specific characteristics of educational attendance, spousal and parental status (see also Appendix 1):

- Attendance among 12-24 year-olds is highest in southern and western Europe and North America (70% on average) and lowest in Africa (e.g. 10% among women in Benin) except for Gabon, South Africa, Namibia and Congo where between 55% and 65% are enrolled. Attendance is generally higher among males than females in Africa, higher among females than males in Europe and North America, while in Asia there is much variability between countries.

- The proportion of 15-24 year-old women in union ranges from 5% in Slovenia to 67% in Niger and from 2% in Slovenia to 22% in Malawi among men. Levels are highest in Africa and southern Asia lowest in Southern and Western Europe.

- The proportion of 15-24 year-old women who are mothers ranges from 4% in Spain to 58% in Mozambique. The highest proportions are found in Africa except Morocco and the lowest ones in Southern and Western Europe (just 6% on average). Although one may expect the proportion of females that are mothers to be lower than the proportion in union, this is not necessarily the case (see e.g. Jamaica).

4. Results

The relationship between school attendance and union formation and childbearing.-

Figures 1a and 1b are composed of a series of boxplots summarizing the between-country distribution of population aggregate percentages of students, spouses and parents over single ages from age 15 to 24 (12 to 24 for school attendance) near the year 2000 for 64 countries.
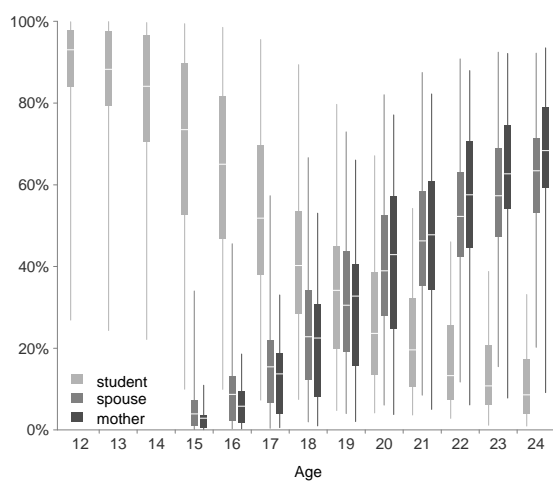
a. Females   b. Males
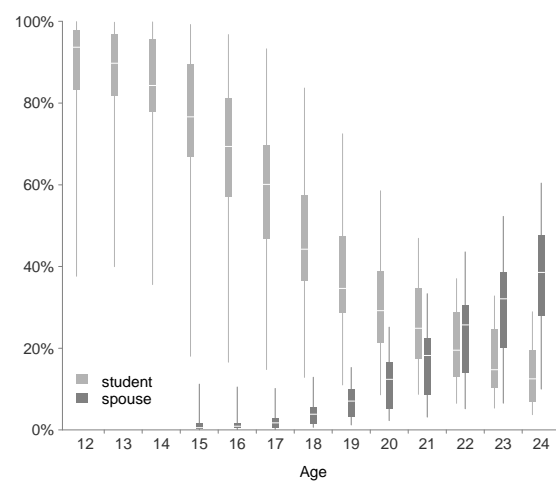
Figure 1. Age-specific between-country variability in percentages student, spouse and mother.
Source: IPUMS and DHS. See Table 1 for the countries in each figure.

School attendance levels decrease by age for both males and females, and are on average higher among males than among females. Between-country variability in attendance is highest in ages 15-18, which corresponds with between-country variation in the end of compulsory schooling. Figure 1a shows that both proportions in overall levels of attendance and inter-country differences begin to decrease after age 17. Variation among males follows the same pattern, but at a slightly lower level than that observed for females. Regarding family roles, the percentage of males and females in union and females with children increases with age. Among females, the proportions of spouses and of mothers are relatively low at age 15, but start increasing sharply after age 18. Half of the countries analyzed have values over 22% spouses by age 18, reaching 63% by age 24. A similar trend is shown for

males, although fewer males are in spousal roles at the same age (4% at age 18, 30% at age 24). The age- pattern of mother status follows closely that observed for unions, although one is able to observe a cross-over around the age of 20-21, after which more females are mothers than are spouses. We suspect that this reflects the presence of single mothers, break-ups and excess male mortality. For instance, when analyzing the country-specific results, we can already see that at age 20 the difference in the percentage of females in union with those who are already mothers is -29% in the case of Jamaica and -27% in South Africa, while the 64-country median is 0.6%.

Figures 2a and 2b show the bivariate relationship between the aggregate percentage in school on the y-axis and percentage in union on the x-axis separately for every other age from age 16 to 24. For reference, a line has been fit[4] to the points from each age separately, with 95% confidence regions[5]. We observe far less interaction between school attendance and being in union for males than for females, simply because males tend to form a first union a few years later than females, as is roughly evidenced by Figure 1b. Without much overlap between schooling and union formation for males, there is little information on which to establish the existence of a relationship between the two.

For females, on the other hand, the negative relationship between the proportion enrolled and being a spouse is strong, significant and consistently increases in magnitude as age increases. The age-specific linear fits in Figure 2a show us that proportions in school of the general population are a strong and significant predictor of proportions in union at all ages, and vice versa, but that the nature of the relationship changes over age. To illustrate, around age 19 a country with 10% higher percentage of females in school on average has around 10% lower percentage of females in union. By age 23 this relationship increases in magnitude to +10% predicting -20%, respectively.

Figure 3 is identical to Figures 2a and 2b, except the proportion spouses has been switched to be the proportion of females that are mothers. As is the case with Figure 2a, the age-specific relationships between attendance and motherhood are strong and significant. The magnitude of relationship follows a similar decreasing pattern over age. The one to one negative relationship seen for union status around age 19, is also seen for motherhood around

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[4] Lines were fit using Deming regression, rather than OLS, so that the axes may be flipped. Confidence bands were estimated using bootstrapping.

[5] It should be noted that these two figures are not strictly comparable because Figure 2b for males is based on 18 fewer information points (46) per age si-nce not all DHS samples offer union status information for males.

age 19 (10% higher attendance predicts 10% lower motherhood). This changes to +10% in school predicting -20% of females with children around age 21.
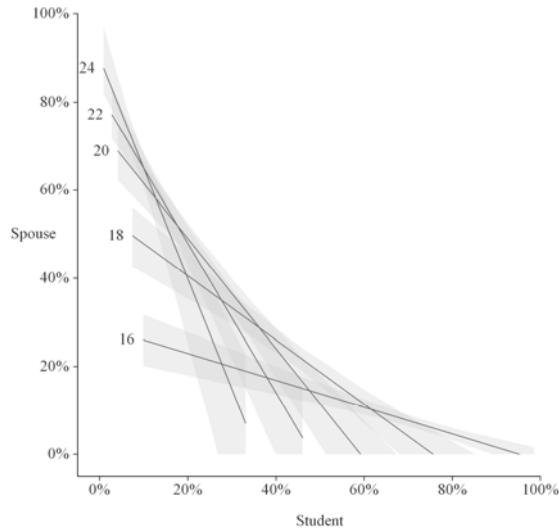
2a Females   2b Males
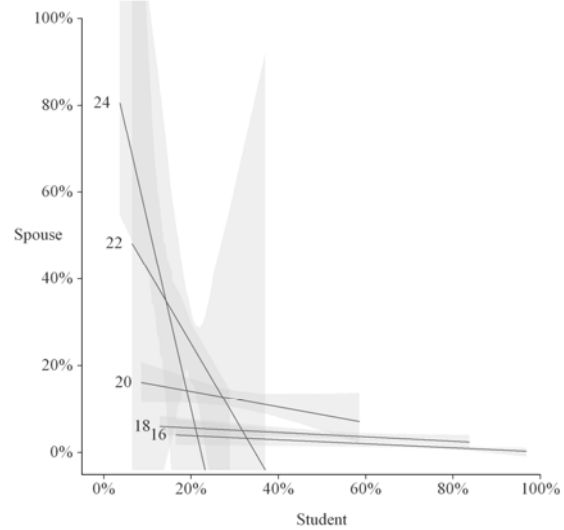
Figure 2. Age-specific bivariate relationship between percentage in union and percentage enrolled.
Source: IPUMS and DHS. See Table 1 for countries included.

Figure 3. Age-specific bivariate relationship between percentage mother and percentage enrolled.
Source: IPUMS and DHS. See Table 1 for countries included.

Differences by school attendance status.-

To examine the extent to which the strong negative relationship between the proportion of young people in a country who are enrolled and the proportion who are spouses or mothers is due to differences in prevalence of family roles between school attending and not attending populations, we now proceed to compare both populations.
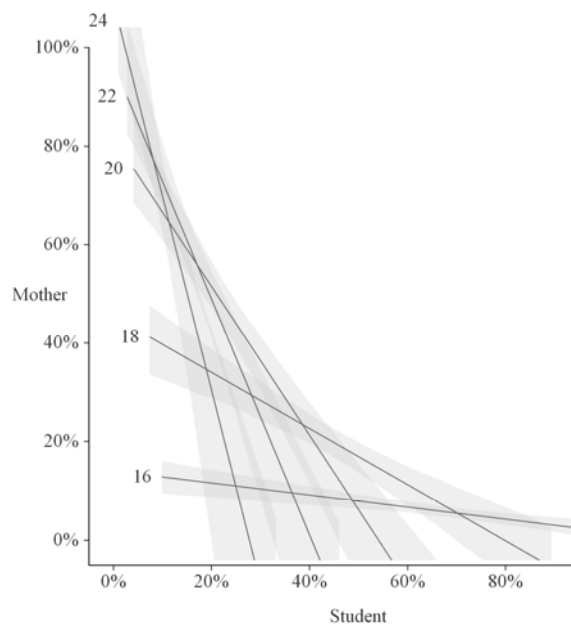
Figures 4a and 4b show age-specific between-country variation in the percentages in union and mother, split by school attendance, for females and males respectively, summarized by age-specific boxplots. Looking first at females (left), we note that the proportion of women in union and with children increases with age irrespective of school attendance status, and that it is at all ages higher among women not in school than those who attend. Role compatibility among the population attending school increases with age. By age 20 the median percentage of women who are mothers or in union outside of school among the countries studied was about 50%, whereas for enrolled women just 10%. At age 24, in 75% of all countries the proportion of enrolled women who have family roles is less than about 40%. The observed differences between the enrolled and not enrolled groups are lowest at early ages because the overall levels of in union are also lower. Not surprisingly, the between-country variation in the proportion of enrolled women in family roles also increases with age, but it is far lower than those not enrolled until around age 22.

Figure 5 shows the bivariate relationship between the aggregate percentage of females that are mothers on the x-axis and percentage of females in school that are mothers on the y-axis separately for every other age from 16 to 24, with linear fits and 95% confidence regions for each age, as with Figures 2-3. The figure shows a strong and significant relationship within each age, and a consistent pattern of relationship increasing over age. There is a strong association between the overall proportion of females that are mothers and the tendency for females in school to also have this role. There is a less than 1-1 relationship at all ages prior to age 24- for instance at age 16, a society's having 10% higher percentage females that are mothers predicts 2.5% higher proportion of students as mothers, increasing to a 4.0% change by age 20. This result means that the percentage of females students with parental roles is sensitive to societal prevalence of childbearing, and this relationship increases with age.

4a Females   4b Males
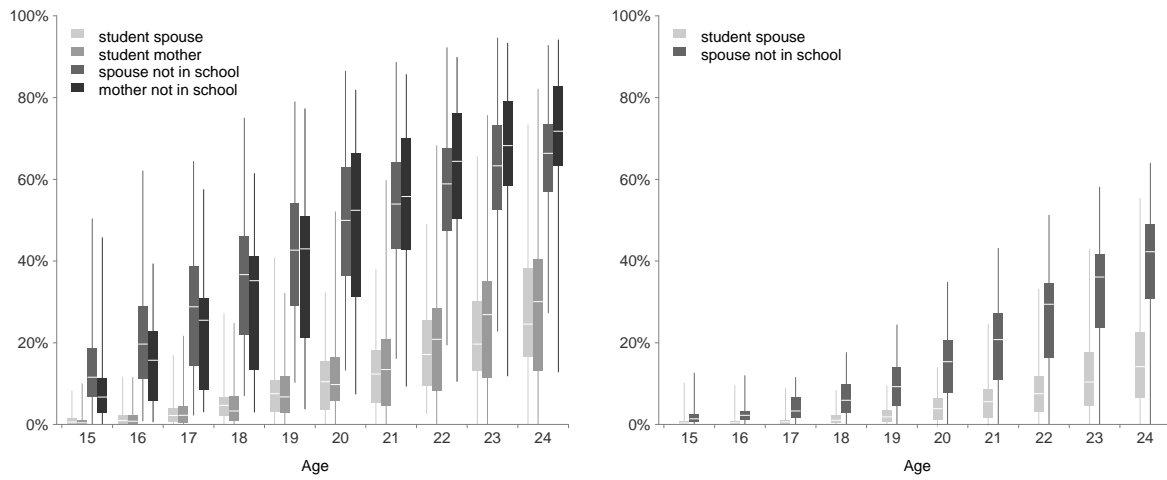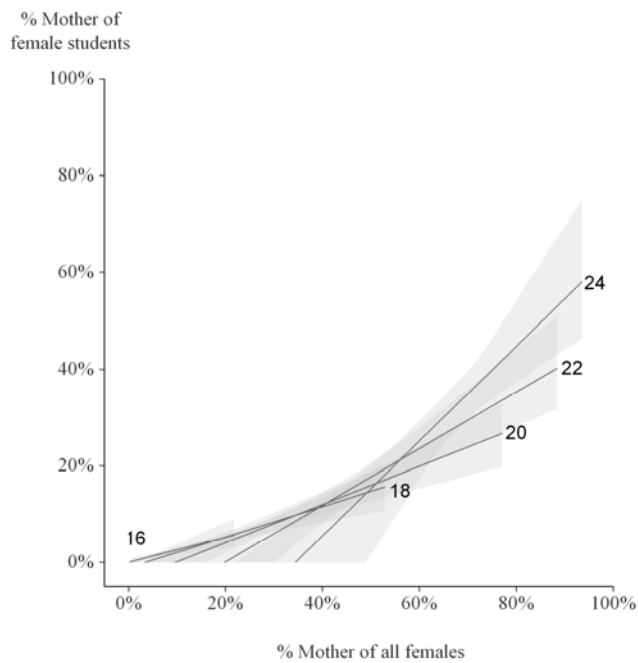

Figure 4. Age-specific between-country variability in percentages union and mother by school attendance status.
Source: IPUMS and DHS. See Table 1 for countries included.

Figure 5. Age-specific bivariate relationship between percentage mother of all females and percentage mother of enrolled females
Source: IPUMS and DHS. See Table 1 for countries included.

Similarly, Figure 6 shows the relationship between the aggregate percentage of females in union on the x axis and percentage of females in school that are in union on the y axis separately for single ages from age 15 to 24. The overall age pattern and slopes are very similar to that of in school and out-of-school motherhood in Figure 5, although the 95% confidence bands are wider. In short, we conclude that what happens outside the in-school population is a strong predictor of family roles among those attending school, but less strong than for motherhood. Sensitivity is weak at younger ages, and increases with age, albeit not as fast as for motherhood. By age 24 a 10% increases in the overall percentage of females that are spouses predicts an 8.5% increase in the percentage of female students that are spouses. In all almost all cases, family roles in school are lagged considerably behind those outside of school, but they covary strongly.
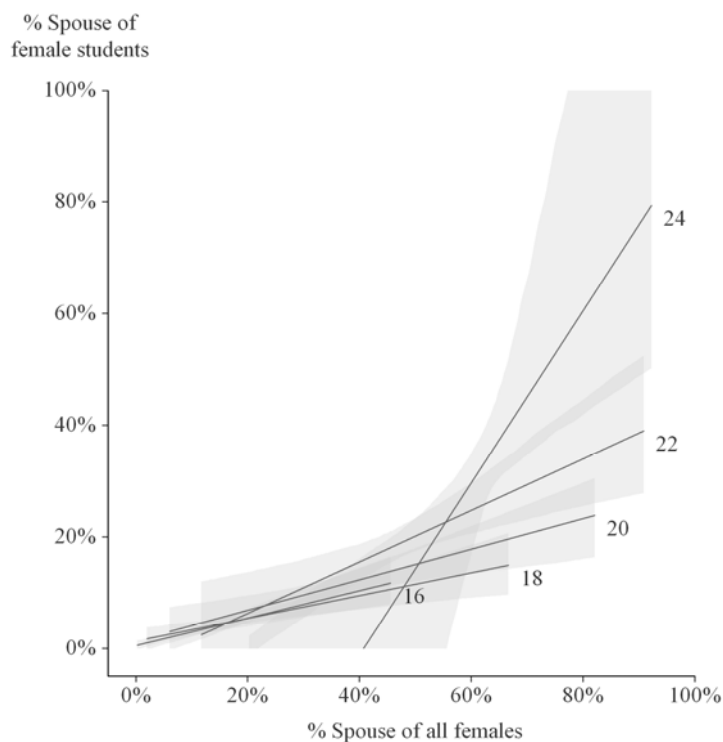
Figure 6. Age-specific bivariate relationship between percentage in union of all females and percentage in union of enrolled females
Source: IPUMS and DHS. See Table 1 for countries included.

Figure 7 shows the relationship between the aggregate percentage of age 20 females that are mothers on the x axis and the percentage of age 20 females students that are mothers on the y axis, split by educational level for those attending. In the earlier figures we saw an

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apparent increase in 'compatibility' over age. Part of this may be due to the heterogeneity in the grade of school being attended, since in many, especially low-income, countries there are many 20 year-olds who are not university students but attend lower level educational programs (see Appendix 2). In essence, Figure 7 is like Figure 5, except we can now see that composition of the enrolled population by educational level is relevant. Furthermore, Figure 7 makes apparent that in some countries there are females who attend primary school at age 20 and at the same time show a higher proportion of mothers than the out-of-school population. As expected, females age 20 attending at least secondary school are less sensitive to the overall level of childbearing than those attending primary school but still show significant association. The relationships within both educational levels are significantly different from one another.
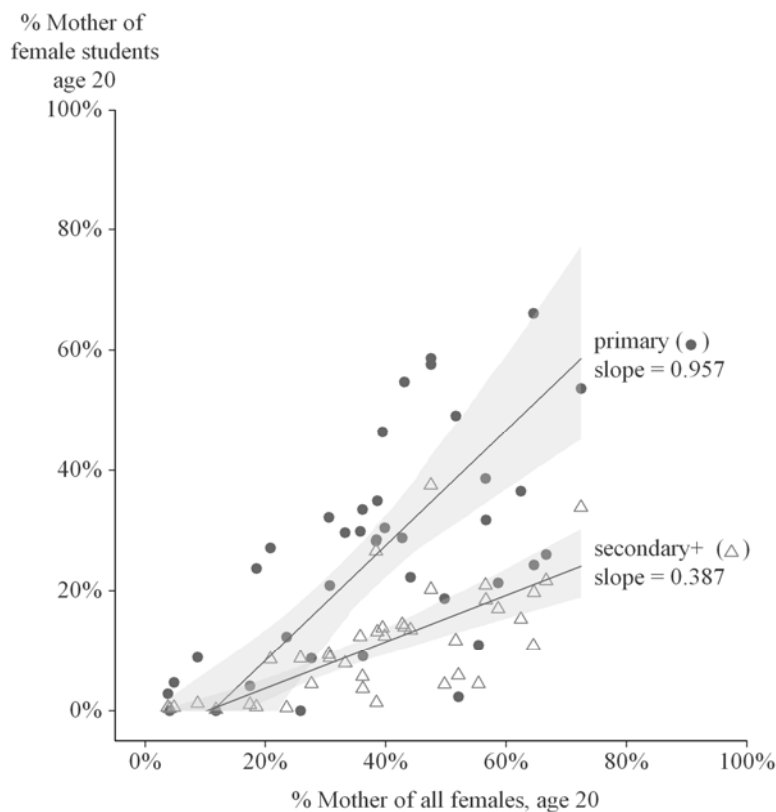
Figure 7. Bivariate relationship between percentage mother of all age 20 females and percentage mother of age 20 female students by present level of educational attainment (primary or secondary and more).
Source: IPUMS and DHS. *Note:* University is grouped together with Secondary due to low case counts in many samples. 16 of countries have been aggregated into 5 UN-like macro regions. The figure therefore shows data for 34 individual countries and 5 regions.

5. Discussion

Education is considered to be a major correlate in the timing and quantum of many transitions to adulthood, including demographic events such as entering into a union and childbearing. The mechanisms through which education exerts influence are diverse and operate differently in different societal contexts and over age and sex. In this research we have shown that the incompatibility of roles (being a student vs. being a spouse or a mother) may appear as the main direct mechanism among adolescents and young adults. Despite the fact that we have not examined the causes of role incompatibility, we have shown for males and females aged 15-24 using data from 64 countries that a strong and significant correlation exists between different indicators of education and the proportion of spouses and mothers at these ages. This relationship has been observed in various ways.

We first showed that higher levels of school attendance are generally well correlated with low levels of consensual unions/marriages and motherhood during schooling ages. It is also clear that this relationship is age dependent. The most direct relation between the level of attendance and the proportion in union and mothers is observed at ages 16-18, which are typical high school years. The lack of conflict between school attendance and getting married or having children before age 16 is shown by the lack of correlation between attendance and union formation before this age. The association between levels of school attendance and proportion of men in union is weaker regardless of age because there is less potential for role conflicts until later ages, by which time schooling is typically well beyond completion.

Results indicate that part of the relationship between overall levels in school and in union and motherhood are due to differences between the in-school and not in-school populations. Students systematically display a lower proportion of males and females in union as well as mothers, which is consistent with the hypothesis of role incompatibility. In-union and motherhood levels among female students displays a positive and strong relationship with the levels of in union and motherhood in the overall population, suggesting that the presence of an early marriage culture puts additional pressure on those attending or that the roles are just more compatible. This relationship also holds after controlling for the level of attendance. In other words, women reporting as a students in countries where women form unions and have children at young ages are more likely to be in spousal and parental roles than those in countries with later union formation and childbearing.

To conclude, some considerations about the quality of the data have to be made. The experience of using census and DHS data simultaneously has been positive. The fact that we

were using simple indicators made comparisons less problematic. In several countries data were available from both sources for the same or a similar year, and the overall levels were similar when compared (e.g. Cambodia 1998 and Colombia 2005). Despite DHS questions being broader and of better quality than census ones, lower sample densities made the breakdown for ages and the educational level being attended more difficult and information for males was usually absent. Basing our analysis on current statuses limited the scope of the conclusions that can be drawn about the existence of role incompatibility. A longitudinal approach would have been optimal, i.e. one that tracked the educational and family trajectories of individuals and that permits the differentiation of sequences in transitions. Despite data limitations, the fact that we were able to construct union formation and parenthood indicators for a large number of countries allowed us to investigate the association between school attendance and union status and childbearing for a large and diverse number of countries, providing an overview of where and for what ages differences in school attendance are more predictive of marriage/union and childbearing levels.

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Appendix 1 Characteristics of census and DHS samples included in the analysis.

Region	Country	Year	Source	Unweighted cases (all ages)		Enrolled (12-24)		Currently in union (15-24)		Mothers (%) (age 15-24)
				females	males	females (%)	males (%)	females (%)	males (%)	
Eastern Africa	Ethiopia	2000	DHS	9,727		23.1		40.7		34.3
	Kenya	1999	IPUMS	218,366	208,134	45.1	52.5	37.1	11.1	42.3
	Malawi	2008	IPUMS	190,123	174,610	42.5	53.4	48.4	21.6	50.8
	Rwanda	2002	IPUMS	140,089	130,571	30.6	33.4	24.8	13.5	25.2
	Tanzania	2002	IPUMS	532,810	483,557	35.0	44.8	45.3	15.3	45.7
	Uganda	2002	IPUMS	362,725	339,107	47.8	59.9	47.0	21.1	53.0
Middle Africa	Cameroon	2004	DHS	7,470		47.7		47.7		43.0
	Chad	2004	DHS	3,895		22.3	0.0	60.7	0.0	52.8
	Congo (Brazzaville)	2005	DHS	4,667		56.9		34.5		44.3
	Niger	2006	DHS	5,884	5,107	13.4	26.1	67.3		56.9
Northern Africa	Morocco	2003	DHS	9,193	6,163	36.5	33.1	23.0	5.3	16.6
Southern Africa	Lesotho	2004	DHS	6,230		52.0		33.8		37.3
	Madagascar	2003	DHS	4,852		34.2		44.1		50.3
	Mozambique	2003	DHS	8,497		40.1		54.9		58.2
	Namibia	2000	DHS	4,254		58.2		14.2		35.4
	South Africa	2001	IPUMS	520,212	498,312	65.1	67.5	11.7	4.2	32.5
	Zimbabwe	1999	DHS	4,364		44.4		40.8		40.9
Western Africa	Benin	2006	DHS	10,563	10,485	36.9	59.4	45.0	8.2	42.8
	Burkina Faso	1998	DHS	4,419	2,502	10.4	12.5	60.0	9.3	49.5
	Côte d'Ivoire	1998	DHS	2,353		21.5		39.9		44.6
	Gabon	2000	DHS	4,347		65.8		33.6		46.8
	Ghana	2000	IPUMS	241,804	240,454	35.8	42.7	34.2	14.5	35.0
	Guinea	1999	DHS	4,004		15.3		60.9		52.5
	Mali	1998	IPUMS	131,411	124,096	14.4	27.1	53.2	8.4	43.9
	Nigeria	2003	DHS	4,810		43.5		45.5		38.3
	Senegal	2002	IPUMS	148,387	142,088	23.3	32.4	42.3	13.7	41.1
	Sierra Leone	2004	IPUMS	66,269	61,818	39.4	59.6	48.4	10.9	34.4
	Togo	1998	DHS	5,363		36.7		39.3		37.1
North America	United States	2000	IPUMS	1,230,922	1,286,425	70.6	67.9	21.4	14.8	17.6
Caribbean	Dominican Republic	2002	DHS	14,297	10,625	70.2	57.3	35.7	14.1	39.2
	Haiti	2000	DHS	6,201		35.9		30.8		29.3
	Jamaica	2001	IPUMS	28,060	25,506	61.3	55.2	13.9	5.9	35.6
	Puerto Rico	2000	IPUMS	19,327	19,867	70.2	66.2	24.2	15.8	25.2
Central America	Costa Rica	2000	IPUMS	48,628	50,077	55.9	54.5	29.9	15.1	35.0
	Guatemala	1998	DHS	4,541		36.5		42.0		40.2
	Honduras	2005	DHS	13,319		31.9		35.6		37.7
	Mexico	2000	IPUMS	1,369,244	1,301,305	23.1		40.7		34.3

Region	Country	Year	Source	Unweighted cases		Enrolled		Currently in union		Mothers (%)
				females	males	females (%)	males (%)	females (%)	males (%)	
	Nicaragua	2001	DHS	8,880	9,157	45.0	48.5	32.3	20.3	30.4
	Panama	2000	IPUMS	34,054	34,763	49.4	43.5	34.6	18.6	39.6
South America	Argentina	2001	IPUMS	417,256	423,280	56.1	52.5	33.1	16.9	35.7
	Bolivia	2001	IPUMS	113,519	113,245	62.4	58.6	21.6	11.7	26.9
	Brazil	2000	IPUMS	1,317,528	1,349,404	45.7	49.7	29.5	17.0	40.4
	Colombia	2005	IPUMS	479,194	487,787	58.0	57.6	29.8	15.2	30.2
	Ecuador	2001	IPUMS	161,321	158,713	53.6		28.5		31.9
	Peru	2007	IPUMS	352,400	354,662	48.9	48.2	36.4	21.2	36.1
	Venezuela	2001	IPUMS	295,971	296,251	59.7	61.4	29.2	16.1	30.6
Central Asia	Kazakhstan	1999	DHS	2,271		57.4	52.6	29.7	16.7	33.3
	Kyrgyz Republic	1999	IPUMS	62,515	62,373	64.9		28.0		22.7
Eastern Asia	Mongolia	2000	IPUMS	35,240	35,672	56.7	55.4	33.1	13.0	27.5
Southern Asia	India	2004	IPUMS	75,198	81,041	51.1	41.2	25.3	14.1	24.2
Southern-East Asia	Cambodia	1998	IPUMS	154,269	150,415	38.3	49.1	46.4	16.2	30.3
	Malaysia	2000	IPUMS	52,808	54,166	36.0	51.2	28.3	16.1	21.7
	Philippines	2000	IPUMS	959,204	989,539	56.4	54.5	17.6	6.2	12.3
	Vietnam	1999	IPUMS	318,200	313,718	57.9	56.8	25.1	14.0	19.0
Western Asia	Armenia	2001	IPUMS	39,250	40,102	38.6	46.8	29.4	15.3	22.3
	Jordan	2004	IPUMS	70,442	74,809	54.4	49.5	22.9	7.1	19.1
Eastern Europe	Belarus	1999	IPUMS	98,053	94,451	58.4	56.7	23.3	5.0	14.6
	Hungary	2001	IPUMS	45,423	47,616	64.8	64.8	26.8	14.7	22.4
	Romania	2002	IPUMS	207,866	213,958	56.8	54.3	19.6	8.8	13.5
Southern Europe	Portugal	2001	IPUMS	44,937	46,349	69.3	65.1	8.2	2.2	4.9
	Spain	2001	IPUMS	169,433	177,673	81.9	74.9	5.3	1.6	5.6
Western Europe	Austria	2001	IPUMS	60,630	63,026	67.6	60.6	8.0	3.4	4.2
	France	1999	IPUMS	245,804	257,648	56.3	49.7	13.6	6.0	11.0
	Switzerland	2000	IPUMS	27,203	28,439	75.5	72.4	16.6	7.7	6.5

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Appendix 2 Percentage of women aged 20 who are enrolled, are mothers, and are enrolled mothers according to educational level.

| Region | Country | Unweighted cases (all ages) | | % of enrolled women by edu. level who are mothers | |
		% enrolled	% mothers	Primary	Secondary +
Eastern Africa	Ethiopia	9.4	52.0	4.3	11.3
	Kenya	13.6	56.6	40.1	21.0
	Malawi	13.3	66.6	29.4	19.4
	Rwanda	12.0	27.6	8.8	4.5
	Tanzania	5.1	62.4	38.2	15.4
	Uganda	16.0	72.4	55.3	33.8
Middle Africa	Cameroon	21.0	61.6	0.0	7.1
	Chad	7.4	74.6	26.4	31.0
	Congo (Brazzaville)	30.9	60.8	43.5	22.3
	Niger	2.4	75.1	0.0	8.0
Northern Africa	Morocco	19.1	18.5	11.2	0.7
Southern Africa	Lesotho	21.8	46.4	0.0	13.4
	Madagascar	7.0	68.4	0.0	0.0
	Mozambique	13.7	77.1	60.5	29.6
	Namibia	26.7	45.4	0.0	18.0
	South Africa	45.9	38.4	28.3	26.7
	Zimbabwe	6.8	54.0		9.4
Western Africa	Benin	12.5	61.2	13.6	7.7
	Burkina Faso	4.2	72.7	0.0	18.3
	Côte d'Ivoire	10.0	60.2		9.9
	Gabon	47.8	64.5	74.3	50.1
	Ghana	8.5	48.1		19.6
	Guinea	5.0	69.5	0.0	17.2
	Mali	5.6	64.5	57.9	10.9
	Nigeria	17.0	57.3	14.2	8.5
	Senegal	8.0	57.0	21.1	4.3
	Sierra Leone	14.3	55.4	13.4	5.8
	Togo	12.3	50.8	0.0	1.6
North America	United States	53.7	19.0		6.6
Caribbean	Dominican Republic	51.6	47.5	72.8	20.3
	Haiti	16.2	36.2	10.9	3.2
	Jamaica	39.5	42.7	48.6	14.4
	Puerto Rico	56.9	28.2		11.5
Central America	Costa Rica	39.8	39.4	41.5	14.1
	Guatemala	12.4	56.3	89.4	12.0
	Honduras	18.8	48.9	17.2	13.5
	Mexico	24.2	36.1	33.5	5.8
	Nicaragua	33.5	53.2	43.1	17.9
	Panama	35.1	43.1	52.6	14.2
South America	Argentina	43.1	30.6	34.6	9.5
	Bolivia	12.0	47.5	60.1	37.5
	Brazil	35.1	35.7	29.9	12.4
	Colombia	30.9	38.6	34.2	14.3
	Ecuador	31.5	44.1	22.3	13.5
	Peru	38.6	33.3	25.8	8.0
	Venezuela	39.0	39.8	32.4	12.5
Central Asia	Kazakhstan	31.1	22.9		18.5
	Kyrgyz Republic	27.9	30.7	0.0	7.9
Eastern Asia	Mongolia	31.6	25.8	0.0	8.7
Southern Asia	India	11.3	38.5	12.8	2.6
Southern-East Asia	Cambodia	7.2	30.7	20.9	8.7
	Malaysia	23.0	11.7		1.1
	Philippines	41.0	20.8	27.1	9.0
	Vietnam	14.8	23.5	13.4	0.5
Western Asia	Armenia	29.1	18.7	0.0	4.7
	Jordan	38.5	14.2		0.7

Region	Country	Unweighted cases (all ages)		% of enrolled women by edu. level who are mothers	
		% enrolled	% mothers	Primary	Secondary +
Eastern Europe	Belarus	39.4	20.7	0.0	8.1
	Hungary	37.4	11.8	0.0	0.2
	Romania	36.1	17.4	0.0	1.1
Southern Europe	Portugal	59.6	3.8	0.0	0.6
	Spain	67.1	4.8	5.6	0.7
Western Europe	Austria	46.2	4.1	0.0	0.4
	France	33.5	53.2	43.1	17.9
	Switzerland	35.1	43.1	52.6	14.2

Source: IPUMS and DHS.