"Schooling Can't Buy Me Love": Marriage, Work, and the Gender Education Gap in Latin America

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I. Introduction

In many countries, including Latin America, the gender gap in education has reversed: women are getting more education than men. In fact, as we report, the cohort in which the education gap was closed for the first time was born mostly in the 1950s, so the phenomenon is quite old. The US-based literature that tries to explain this fact has focused on the returns to education in the marriage market: if there is positive assortative matching, an additional year of schooling will translate into a more educated spouse and hence a bigger overall return to one's own educational effort. With these priors, it is thus surprising to find out, as we do in this paper, that skilled Latin

II. Data

Data for the analysis comes from the International Integrated Public Use Microdata Series (IPUMS-International). Compiled by the Minnesota Population Center, the IPUMS data includes the largest publicly available individual-level census data. It consists of decennial records of observe that in the 2000s, the education gap had not only closed, but also reversed for all countries in the region except for Bolivia and Mexico.

Figure 1: Year of Birth of First Cohort where Education Gap was closed

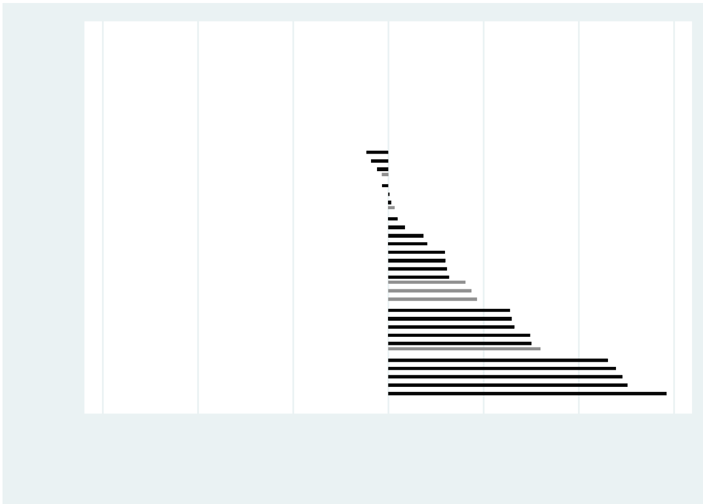
Notes: The gender gap is calculated as the difference in average years of schooling between men and women; The sample also includes countries where the gender gap in education has not reversed; LAC are in red.
Source: IPUMS census data

Among the determinants of the reversal in the gender education gap in the literature, mainly based on the U.S. experience, are changes in labor market opportunities as well as lower cost for acquiring education faced by women (i.e., a different endowment of non-cognitive skills that makes staying in school longer easier for women) which complement long run changes in technology and social norms (Goldin and Katz 2006). Moreover, increased education can be a way for women to face less discrimination. In Latin America, the reversal appears to be driven by increases in education among the most educated (Duryea et al., 2007). The existing literature also documents the high inequality in income, health and education and the more rapid growth of tertiary enrollments among the children of richer households in Latin American countries (World Bank, 2003).

In this paper, we do not examine the determinants of this change for the countries in our sample, but rather we investigate some possible consequences of the change in relative supplies of skilled

OECD countries with high levels of GDP per capita (United States, the Netherlands, United Kingdom) the probability for skilled women to be married is greater relative to unskilled. The top eight countries where skilled women are less likely to be married are Catholic, whereas Communist and former communist countries are overrepresented among those where skilled women are more likely to be married. We will investigate later to what extent this may be related

Figure 2b. Probability of being married (OLS) – dummy on skilled (Secondary +), Men



Marriage rates have traditionally been higher in the United States than in the other developed countries (Stevenson and Wolfers 2007). However, here we observe that the probability of marriage for skilled individuals relative to unskilled is higher in the US than in any other developed or developing country in our sample. A possible explanation for the recent upsurge in the marriage rate among skilled individuals (and women in particular) relies on the changing nature of marriage, which is shifting from a production- to a consumption-based legal union benefiting highly skilled individuals more than they less educated counterparts (Isen and Stevenson 2010). However, this explanation does not seem to apply to most countries in our sample, and in particular to Latin American countries, where skilled women are less likely to be married than unskilled women. Moreover, in Latin America and the majority of the countries in our sample, there is an asymmetry by gender: skilled women are more likely to be unmarried than unskilled women whereas skilled men are more likely to be married than unskilled men. We therefore want to explore this issue further by comparing the likelihood of family formation between skilled men and women.

When we look at the World Values Survey question about whether being a housewife is just as fulfilling as working for pay we see that in Argentina and Chile, a lower share of skilled women agree with the statement than in other LAC, and the difference between unskilled women and skilled women is greater. These are also the countries where unskilled women are no more likely to be married than skilled women.

Figure 3. Women who agree that being a housewife is just as fulfilling as working for pay, 30-55

Fact #2: Skilled men are more likely to be married than skilled women

Next, if we plot the same coefficients from (1) for the probability of skilled women to be married (horizontal axis) against the probability of skilled men to be married (vertical axis) we can see whether there is asymmetric behavior between skilled men and skilled women in how they marry. In countries above the diagonal, skilled men are more likely to be married than skilled women (relative to unskilled men and women), while in countries below the diagonal, skilled women are more likely to be married than skilled men. We can see that most countries

Figure 5. Probability of labor force participation (OLS) for married men vs. women (dummy on married, i.e. relative to unmarried)

Country-level regression for Fig. 5: Latin America Dummy on Difference (Prob Married Men’s LFP - Prob Married Women’s LFP)

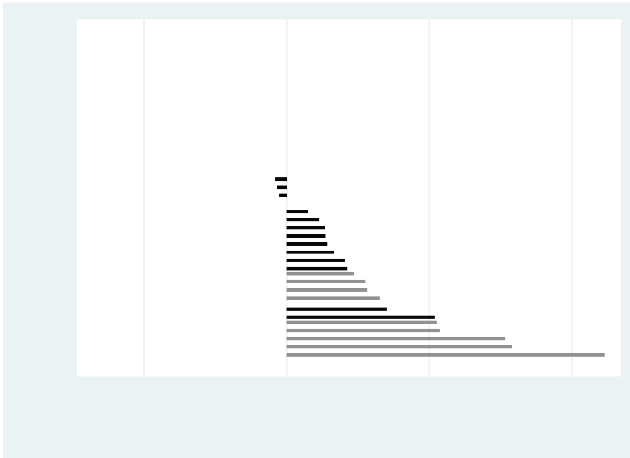
Latin America Dummy	0.173**

look closer at the matching behavior of women more closely to understand the decision of marrying down or not marry at all.

Fact #4: Skilled LAC women are more likely to marry down than in other countries.

In the graph below, we plot the share of women 530- in each country who “marry down” (women who have more education than their husband) against the gender education gap in that country (average years of schooling of men

Figure 8. Probability of LFP For Wives Marrying down



Country-level Regression for Figure 8:
Latin America Dummy on Difference of LFP For Wives Marrying down, controlling for GDP (but GDP not significant)

Latin America Dummy	0.057** (0.015)

We therefore find a pattern that is consistent with the US pattern highlighted by Chiappori et al. (2009) whereby, if married, women are more likely to "marry down"; however we find that this seems to be an even more defining characteristic of Latin American countries.

Fact #6: Women who marry down marry the "better" men (higher residual from wage regression)

So far we have only considered the education level of the husband a woman is married to. However, there are other characteristics of a husband that women care about. In this section, we consider what types of men women who marry down choose. If they marry down, perhaps they marry men who have better labor market outcomes. To investigate this further, we run the following wage regressions separately for the husbands of women who marry down, marry up, and marry husbands of the same educational level:

(4)

After controlling for the husband's education, we graph the residual from the wage regression – the part of wages that is not explained by education and not observed by us. This may include qualities like ability, attractiveness, height, etc. From the graphs, we see that for all Latin American countries, women who marry down marry the "better" men in terms of this residual. Residuals from husband wages and their level of significance are reported in the table in the next page.

Figure 9. Residual from Husband's Wages

Table 2. Residual from Regression Predicting Husband's Wages

	Marry Down	Marry Up	Diff	P-value	Marry Same	Diff	P-value					
ARG 2002	0.115	-0.229	0.344	0.000	-0.003	0.118	0.000	0.8	664.56	49.8	0.48	ref180

2) Men differ across countries with respect to their preferences about their wife's labor force participation

Traditional Roles within the Household

One assumption in the recent literature on matching is that roles in the household are gender neutral. However, since we observe that women in LAC do tend to marry down, we consider whether traditional roles for men and women persist in LAC than in the US, for example. Using data from the WVS question about whether someone agrees that you "need children to be self fulfilled" we see that LAC is very different from the US. In LAC, having children remains an aspiration for a greater share of women in Latin America, whereas a much lower share of women in the United States agree that they need children to be self-fulfilled. Surprisingly, we observe that a lower share of women in Latin America find housework as fulfilling as working in the labor market than in the US.

Table 4: Women's Preferences, Labor Force Participation and Having Children

Country	Being a housewife just as fulfilling as working for pay			Need children to be self-fulfilled		
	% skilled women	% unskilled women	difference	% skilled women	% unskilled women	difference
Argentina	40.51	56.33	-15.82	36.67	59.24	-22.57
Chile	41.03	60.10	-19.07	57.14	62.61	- 5.47
Mexico	67.44	81.14	-13.70	28.89	51.21	-22.32

Table 5. Men’s Preferences, Women Working Outside of the Home

Being a housewife
just as fulfilling as
working for pay

Because of women's disutility from housework (e.g., cooking: both spouses enjoy but women also make the effort of cooking)

- <u>Balance of Power within the Household</u>
  Monetary income gets distributed as a domestic bargain that has to do with the relative RXWVLGH RSWLRQ RI HDFK SDUWQHU &RQVLGHU WR E
  appropriated by the husband.
  $_{ss}$: if both spouses are skilled
  $_{uu}$: if both spouses are unskilled
  $_{us}$: if man is unskilled and woman is skilled
  $_{su}$: if man is skilled and woman is unskilled

  Where:

  $_{su} > _{ss}$

  $_{uu} > _{us}$

  :H DVVXPH WKDW $_{ij}$ is not dependent on whether the wife stays at home or works. This is a strong assumption that makes our result harder to obtain. This is so because if a working woman's outside option is greater if she works than if she stays at home, then she may want to work because it improves her power within the household but that is the reason why men would rather have her stay at home. We assume away this effect in this first discussion. We also assume that there is no gender discrimination in the labor market so that the outside options are symmetric for both spouses. More simply, let us assume:

  $_{ss}$=1/2
  $_{uu}$=1/2
  $_{su}$>1/2
  $_{us}$<1/2

We assume that men can be skilled or unskilled, married or single, but they always work, whereas women can be skilled or unskilled, married or single but they can either work or stay at home. Individuals maximize the following utility function:

8 : 5

:KHUH : LV WKH ZDJH OHYHO L H KLJK RU ORZ DV SUHY
wages which depends on the bargaining process within the household, which is related to their income earning potential outside of the union, and hence on their relative skill level. R is the gender-specific return from the wife staying at home.

The payoff matrix for men and women can be represented as follows:

		Marry a Skilled Woman		Marry an Unskilled Woman	
	Remain Single	Work	StayHome	Work	Stay Home
Skilled Man	h	K $_{ss}$ [2h(1- $_{ss}$)]	(h + R_m $_{ss}$ [(h + R_w)(1- $_{ss}$)]	K Q $_{su}$ [(h + l) (1- $_{su}$)]	(h + R_m $_{su}$ [(h + R_w) (1- $_{su}$)]
Unskilled Man	l	O K_{us} [(l+h) (1- $_{us}$)]	(l + R_m $_{us}$ [(l + R_w)(1- $_{us}$)]	O $_{uu}$ [2l(1- $_{uu}$)]	(l + R_m $_{uu}$ [(l + R_w)(1- $_{uu}$)]

x A skilled woman prefers to work rather than being married and staying at home with a skilled man if:

$$2h(1-{}_{ss}) > (h + R_w)(1-{}_{ss})$$

Which implies that a skilled woman prefers to work if her wage is greater than her returns from being a stay-at-home wife, that is if:

$$h>R_w$$

x A skilled woman who marries an unskilled man prefers to work rather than staying at home with an unskilled man if:

$$(h+l)(1-{}_{us}) > (R_w + l)(1-{}_{us})$$

Which implies that a skilled woman prefers to work if her wage is greater than her returns from being a stay-at-home wife, that is if:

$$h>R_w$$

x A skilled woman prefers to marry an unskilled man and to work rather than remaining single if:

$$(l+h)(1-{}_{su})> h$$

Which means that a woman would be willing to "marry down" (i.e., marry a man with a lower level of education) if the wage differential can be compensated by her greater power in the household:

(1-

- The skilled man would marry an unskilled woman who stays at home if the skilled woman would rather work than stay at home, provided that:

$$R_m > h \left(\frac{S_{ss}}{S_{su}} \quad 1\right)$$

- The skilled woman would marry an unskilled man rather than staying single if the utility arising from the household balance of power is greater than the wage differential (condition previously shown).

- The unskilled man would marry a skilled woman who works if her earning capacity is high enough to compensate him from the loss of bargaining power within the household:

$$h > (1/ \quad _{us} -1)\ l$$

- The unskilled woman would marry a skilled (or unskilled) man and stay at home rather than remaining single if:

$$R_w > l$$

Which is less stringent than $R_w > h$ as an unskilled woman, all else equal, has a lower labor market opportunity cost than a skilled woman

To explain the puzzle in our facts we assume that men in Latin America and the U.S. differ with rather marry an unskilled woman who stays at home. So a skilled woman is left with the option of remaining single and working, marrying an unskilled man who will allow her to work or marrying a skilled man who requires that she stay at home. Given these options, she would rather

We note that programs that make it easier for women to work, such as day care centers, would probably tend to cause greater female labor force participation, ceteris paribus, but it would also imply that disagreements within the household over the advantages of staying at home would increase. If these policies do not affect the return of a stay home wife relative to a man, they may not affect the marriage market equilibrium.

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