THE LINK BETWEEN UNEMPLOYMENT AND THE
MARRIAGE RATE: BUENOS AIRES, ARGENTINA, 1980-1999
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1. INTRODUCTION

The 1980-99 period in Argentina was characterized by an extraordinary increase in unemployment rate, for both male and females, and an increase in women labor force participation. At the same time, especially since 1990, the marriage rate shows a remarkable decrease. This phenomenon has been more evident among the young population and most of the substitution was away from marriage and toward consensual union and single. For instance, the percentage of married women between the ages of 17 and 29 decreased from 37% in 1980 to 16% in 1999. On the other hand, the percentage of single women and women in consensual union increased from 54% and 5% to 68% and 14% respectively. These changes are remarkable, specially taking into account that Argentina introduced the "divorce law" in 1987, which decreased the cost of marriage engagement.

One tempting explanation to the decrease in marriage rate could be based on changes in "social rules" or preferences among the young population. For example, one of the most important newspapers in Argentina said:

"The specialists see in this crisis of marriage a denunciation of the social institutions of the modernity, "the stereotype of the perfect family, the idea that one gets married to have children immediately, the conjugal fidelity that, in most cases, was a lie because it was not fulfilled", enumerates Loyacono, president of the Argentine Society of Family Therapy. And in every denunciation there is an attempt of transformation, wishes to change the rules of the game." 16/12/01, *Clarin*.

This article evaluates two possible explanations: the first hypothesis is that a change in social rules or values, or in some unobservable factor, was the driving force behind this phenomena, and the second is that declining labor market opportunities for young people resulted in a reduction in the gains of marriage, therefore a decline in the marriage rate. In order to evaluate these explanations, we estimate a multi-logit model for young women marriage decision using micro-data from Area Metropolitana and Gran Buenos Aires, for the 1980-1999 period.

Our main finding is that the increase in male unemployment has been one of the main determinants of the increase in the odds of a woman of being "single" versus being "married". On the other hand, the worsening of labor market opportunities for young women has played no role in the decline of marriage. These results confirm the economic view that the division of labor in household production plays a crucial role in marriage decisions.

The rationale behind this empirical finding is that the worsening of labor market conditions for the partner specialized in market activity has a higher impact on marriage output than the worsening of labor market conditions for the partner specialized in household activity. Also, we find that female labor force participation appears as an important determinant of marriage decision.

Based on this evidence, a tentative explanation of the complete phenomena is that a worsening on male labor market conditions has largely reduced marriage rate in Argentina and as a consequence women that would otherwise be more devoted to non-market activities are now single and active in the labor market. This feedback from the marriage market to the labor market could have reinforced the increase in unemployment rate.

All of what follows is based on microeconomic data from the Household Permanent Survey of Area Metropolitana and Gran Buenos Aires, Argentina, of 1980 through 1999, collected by the National Institute of Census and Statistics of Argentina (INDEC). The plan of the paper is as follows: Section 2 describes the evolution of the rate of different categories of marital status and labor market variables for women between the ages of 17 and 29. In Section 3 we estimate a multilogit model for young women marriage decision using micro-data. Section 4 concludes.

2.   TRENDS IN LABOR MARKET CONDITIONS AND MARRIAGE RATE

In this section we show the evolution of labor market and marriage market variables for the period 1980-1999 in Area metropolitana and Gran Buenos Aires, Argentina, for the population between 17 and 29 years. We concentrate our analysis in the young population based on the idea that among this group of the population are concentrated most of the individuals taking the decision of whether or not to engage in marriage.

According to the classification of the INDEC, there are 5 categories of marital status: Single, Consensual union, Married, Separated or divorced and Widow. Figure 1 shows the evolution of the proportion of married women, women in consensual union and single women. The figure shows that during that period there was a substitution away from marriage and toward single and consensual union. The percentage of married women between the ages of 17 and 29 decreased from 37% in 1980 to 16% in 1999. On the other hand, the percentage of single women and women in consensual union increased from 54% and 5% to 68% and 14% respectively. Being a married young woman in the 80's was usual; during the 90's they became an exception.

FIGURE 1
DISTRIBUTION OF WOMEN BETWEEN 17 AND 29 YEARS OLD
CLASSIFIED BY MARITAL STATUS
ARGENTINA, 1980-1999
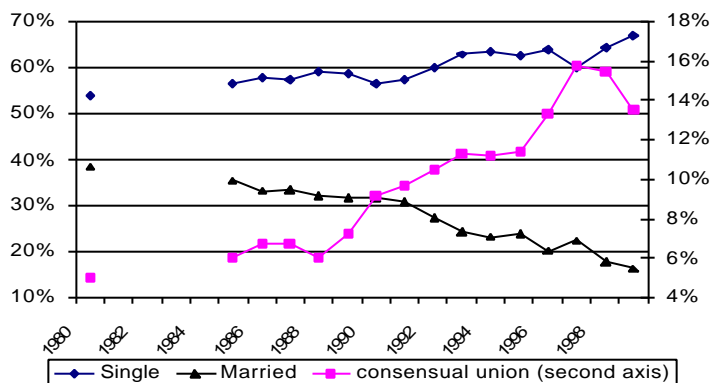
Source: EPH, INDEC, Argentina.

Panel 1 shows the evolution of labor market variables that affect the marriage decision for the group of women between the ages of 17 and 29 classified by level of schooling. We classified the population in three groups according to their level of schooling: Primary (7 years of education or less), Secondary (Between 7 and 12 years of education) and More than secondary (more than 12 years of education). Table 1 shows the definition of the variables considered.

The first two Figures of the panel shows the secular increase in the unemployment rate for all the three categories during the period 1980-99. Unemployment rate for both genders skyrocket since 1990. The unemployment peak was in 1996; the unemployment rate for that year for young women with secondary school and more than primary school was 35%! Taking into account that males are more likely to specialized in labor market activities, we would expect that male unemployment rate has a greater impact than female unemployment rate on the decision of whether or not to engage in marriage.

Another important determinant of the gaining in marriage according to Becker's theory of Marriage is the male-female wage differential. As women became more alike with men in terms of hourly wage the gains of marriage due to specialization are reduced. During the period under analysis there was a reduction on wage inequality for all three group (see Figure C). Mainly, the reduction in inequality was in the less educated group.

Finally, Figure D shows the evolution of women labor force participation for each group. The main changes in labor force participation were among the most educated group and the less educated group, and it moved in opposite directions. While the labor force participation increased from 58% to 68% for the most educated group, it decreased from 52% to 43% for the less educated group.

PANEL 1
LABOR MARKET VARIABLES FOR PEOPLE BETWEEN 17 AND 29 YEARS
OLD CLASSIFIED BY SEX AND EDUCATION - ARGENTINA, 1980, 1985-1999

FIGURE A
UNEMPLOYMENT RATE OF WOMEN BETWEEN 17 AND 29 YEARS OLD
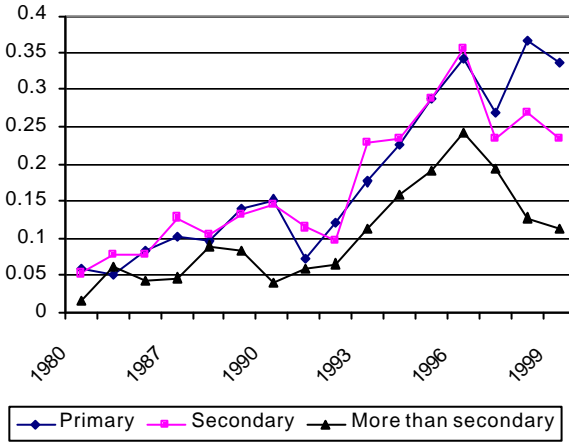CLASSIFIED BY SCHOOLING

FIGURE B
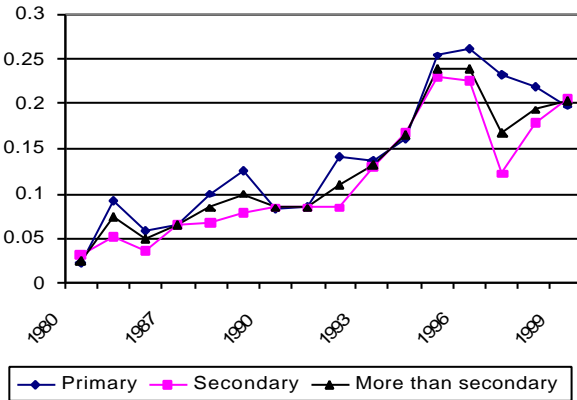UNEMPLOYMENT RATE OF MEN BETWEEN 17 AND 29 YEARS OLD CLASSIFIED
BY SCHOOLING

FIGURE C
RELATIVE WAGE IN LOG OF MEN OVER WOMEN BETWEEN 17 AND 29 YEARS
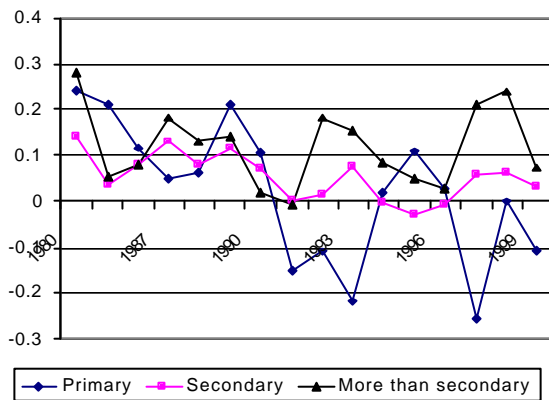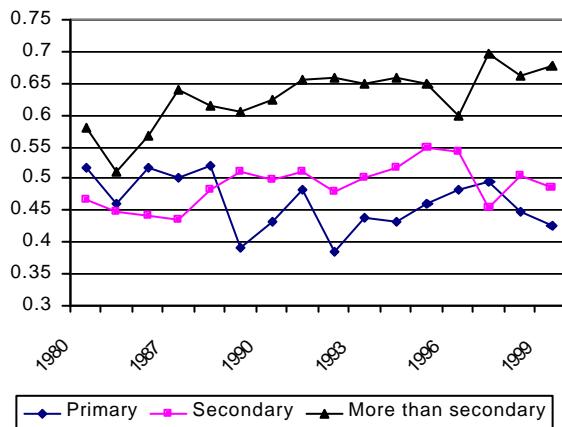OLD CLASSIFIED BY SCHOOLING

FIGURE D
LABOR FORCE PARTICIPATION OF WOMEN BETWEEN 17 AND 29 YEARS OLD
CLASSIFIED BY SCHOOLING

Source: Own elaboration, data from EPH, INDEC, Argentina.

TABLE 1
VARIABLES DEFINITION

Variable	Definition
Net supply of male over female	Ratio of male over female by education level.
Female labor force participation	Women who worked or are unemployed over the total number of women by education level.
Female unemployment rate	Unemployed women over women who worked or are Unemployed by education level.
Male unemployment rate	Unemployed men over men who worked or are unemployed by education level.
Male-Female wage differential	Ln(wm) - ln(wf). Where wm and wf are the average wage for men and female who worked by education level.
Family income per capita	Average of the total income per family over the number of members of the family at 1999 prices by education level.
Age	Age of the woman

3.   ESTIMATION

In this section we apply a multiple logit model to the prediction of marital status of women between 17 and 29 years old, based on aggregate labor market and marriage market variables, the age and the age square of the individual. We include as explanatory variables labor market variables, variables that reflect marriage market conditions and the age of the individual, all variables that could be considered exogenous from the point of view of the individual. Also, we include year dummies. This time trend could reflect changes in preferences or any other unobservable factor that changes over time and affects the likelihood of women to engage in marriage.

Taking into account that the correlation coefficient in wife's and husband's schooling in Argentina is equal to 0.7 approximately, we assume positive sorting in the marriage market according to the education level of the individual. This implies that the labor market, and marriage market variables relevant for marriage decision of women will vary according to her education level. Table 1 describes the variables that we include in our specifications.

In order to establish the effect of male unemployment rate on marriage rate we follow the following empirical strategy. First, we begin by examining the effects on marriage decision of year and schooling dummies, the age and the age square of the individual only. Then we add to our first specification marriage market and labor market variables other than men unemployment rate. Finally, we estimate a model adding to the second specification the unemployment rate for men. As we will show, once we include the unemployment rate for men we are able to explain most of the trend for the odds of being "single" versus being in "marriage". All estimations are performed using Maximum Likelihood estimation technique.

        For the estimation, we consider 3 categories for the marriage decision: Single, Consensual Union and Married[1]. In table 2 we present the estimated coefficients of the three models. The risk ratio represents the increase in the odds of being single versus married when the explanatory variable increases by one unit, holding everything else constant. Figure 2 show the evolution of the risk ratios for being "single" versus being "married" of the year dummies for the three estimated models.

        In the first model (Model 1), that only includes year and schooling dummies, the age, and the age square of the individual, the odds ratios of being "single" versus being "married" are increasing over time and significant (See figure 2 and Table 2), which implies that the upward trend in the odd ratio of being single versus being married cannot be explained with schooling, age, and age square only.

        In an attempt to explain the trend we add in the second model (Model 2) the following variables: Ratio of male over female, female labor force participation, female unemployment rate, male-female wage differential and average family income per capita in $ of 1999. As Figure 2 shows, the trend is still there and is significant (See Table 2).

        Finally, we add the unemployment rate of men to the last model (Model 3), and as table 2 reports, and Figure 2 shows, most of the time trend for the odds of being "single" versus being "married" is removed. All the explanatory variables suggested by the economic theory of Marriage have the "right" sign. In particular, the coefficient on male unemployment is significant at a 85% level, but when we exclude the year dummies it become significant at a 99% level and the coefficient is unaltered. These results could be interpreted in two different ways: changes in male unemployment rate explain the decrease in marriage rate; or the time trend, that affected marriage rate, have affected male unemployment rate also. The first explanation seems more plausible taking into account that unemployment rate is an exogenous variable from the point of view of the individual.

FIGURE 2
LABOR FORCE PARTICIPATION OF WOMEN BETWEEN
17 AND 29 YEARS OLD CLASSIFIED BY SCHOOLING

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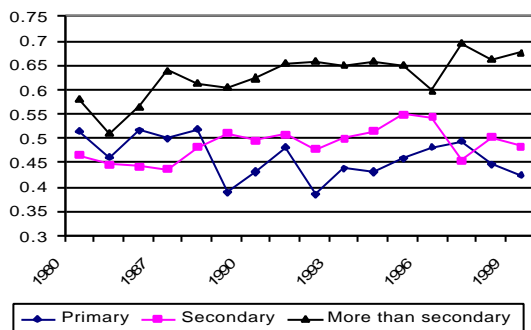
[1]   If we do not distinguish between consensual union and marriage (i.e. run a logit with two categories: single and "married") the results are not affected.

TABLE 2
MULTI LOGIT FOR MARRIAGE DECISION ESTIMATES- RELATIVE RISK RATIOS (rrr) AND z VALUES

	Model 1				Model 2				Model 3			
	Ps/Pm		Pcs/Pm		Ps/Pm		Pcs/Pm		Ps/Pm		Pcs/Pm	
	rrr	z	rrr	z	rrr	z	rrr	z	rrr	z	rrr	z
Year Dummies												
1985	1.03	0.3	1.28	1.4	1.24	1.9	1.58	2.3	1.08	0.5	1.40	1.39
1986	1.17	1.6	1.55	2.6	1.22	1.7	1.91	3.5	1.12	0.9	1.78	2.88
1987	1.16	1.5	1.60	2.8	1.25	1.8	2.22	3.9	1.10	0.6	2.01	3.10
1988	1.15	1.4	1.49	2.3	1.15	1.1	2.13	3.4	0.96	-0.2	1.83	2.18
1989	1.09	0.9	1.93	3.9	1.28	1.8	2.68	4.1	1.02	0.1	2.23	2.54
1990	1.10	0.8	2.44	4.9	1.21	1.3	3.58	5.4	1.01	0.1	3.13	4.13
1991	1.19	1.5	2.83	5.9	1.11	0.7	4.41	6.2	0.91	-0.5	3.81	4.72
1992	1.27	2.1	3.52	7.2	1.37	2.3	5.18	7.0	1.07	0.3	4.23	4.51
1993	1.51	3.7	4.18	8.4	1.48	2.2	6.46	7.4	1.06	0.2	4.98	4.35
1994	1.57	4.1	4.51	8.8	1.46	1.9	6.36	6.9	0.95	-0.1	4.55	3.49
1995	1.42	3.2	4.41	8.8	1.26	1.0	6.44	5.9	0.66	-0.8	3.88	2.21
1996	1.67	4.5	6.08	10.6	1.59	1.7	10.54	6.4	0.82	-0.4	6.29	2.81
1997	1.67	2.8	6.91	8.2	1.65	2.0	11.66	7.4	1.10	0.2	8.40	4.40
1998	2.03	6.3	8.76	13.1	2.01	3.3	13.55	8.3	1.21	0.5	9.08	4.20
1999	2.30	7.4	8.81	13.0	2.32	4.3	14.99	9.2	1.33	0.7	9.73	4.25
Dummy for primary school	0.21	-28.4	4.58	15.1	0.48	-2.7	12.61	4.4	0.49	-2.6	12.92	4.41
Dummy for secondary school	0.32	-22.6	1.76	5.5	0.63	-2.5	3.79	3.3	0.67	-2.1	3.98	3.37
Net supply of male over female					0.90	-0.4	0.93	-0.2	0.84	-0.7	0.87	-0.35
Women labor force participation					1.04	5.2	1.00	0.7	1.04	5.3	1.00	0.77
Women unemployment rate					0.99	-0.1	0.99	-0.6	0.99	-0.1	0.99	-0.60
Men unemployment rate									1.03	1.5	1.02	0.96
Male-female wage differential					0.99	-0.9	0.99	2.0	0.99	-1.1	0.99	1.91
Family income per capita					1.00	0.9	1.00	1.3	1.00	0.8	1.00	1.31
Age	0.31	-13.5	0.60	-4.4	0.31	-13.5	0.60	-4.3	0.31	-13.5	0.60	-4.34
Age square	1.02	9.2	1.01	3.1	1.02	9.2	1.01	3.1	1.02	9.2	1.01	3.12
Number of observations	19,216				19,216				19,216			
Pseudo R^2	0.23				0.235				0.24			

Note: P_s, P_{cs} and P_m are the probability for a woman between 17 and 29 years of being Single, in Consensual Union and Married respectively.

Our interpretation of this result is that, during this period, worsening in labor market opportunities for men has reduced the gain of marriage and as a consequence the incidence of marriage among the young population has decreased. The role of division of labor within marriage in conjunction with the trend in male unemployment rate appears to have a crucial role in explaining the trend toward most single women.

One way to think about this result in terms of welfare is to consider as an additional lose of labor market rigidities the number of marriage (single) that would have taken place (remain single), but did not, if labor markets had been "healthier", and, as a consequence, had adjusted better to the business cycle. Roughly, the net loss will be given by the reduction in the "output" of marriage minus the reduction in the "output" of single, in the case of marriage loosed. The fact that individuals are able to substitute reduces the size of the loose.

4.   CONCLUSION

In this paper we have shown the enormous decline in marriage rate for the young population, and the increase in single and consensual union over the last two decades in Area Metropolitana and Gran Buenos Aires, Argentina. According to our estimations, the trend toward more single young women is attributable to the increase in males unemployment rate during the period. During the 1990s, the decrease in marriage among the young population could have lead to an increase in female labor participation.

This result could be rationalized using the theory of marriage developed by Becker based on rational choice. Since men are more likely to specialize in labor market activities than women, the worsening in labor market opportunities for men has reduced the gain of marriage and as a consequence the incidence of marriage among the young population has decreased during the period. Now, women prefer to wait or to stay alone.

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