

# La brecha entre la fecundidad real y deseada en Uruguay. Un estudio a partir de datos de panel\*

## Desired and achieved fertility. Evidence from Uruguay

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### Abstract

Uruguay is a non developed country facing demographic problems that can be considered similar to those of developed ones. The recent decline of fertility is a subject of concern among researchers and politicians because of its social and demographic consequences. In this context, the gap between desired and achieved fertility appears as a relevant issue, which has begun to be considered in the design of public policies. In this paper we analyze this gap and its determinants. Using longitudinal data, we also explore changes in desired fertility over time, and the potential role of ex post rationalization of births, that may be interpreted as adaptive preferences.

### Introduction

Uruguay is not a typical country in the context of Latina America: it went through its first demographic transition during the end of the XIXth century and the beginning of the XXth. By the mid 50s, the country already exhibited low fertility levels (three children per woman). The declining trend in fertility continued from then on, but at a slower path (Pellegrino 2003). Since 2004 the fertility rate is below the replacement level (it was 2.02 in 2007).

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Although average fertility has been low for many years, there are important social and geographical differences. These differences are not as big as in other countries of the region (Chackiel, 2004), but many authors have pointed out the process of widening of fertility gaps among different population groups (Varela et al., 2008, Videgain, 2006; Paredes & Varela 2005; Calvo 2002). Less educated women, women in poor households and women with weaker links to the labour market do exhibit higher fertility rates when compared to more advantaged women. Fertility behaviour among less educated women does not show important changes during the past years, whereas more educated women experienced a significant decrease in their fertility rates.

The recent decline of fertility is a subject of concern among researchers and politicians because of its social and demographic consequences. Public debate has included the discussion of the problems associated with a small and aged population, and the future challenge for the social security. In this context, the gap between desired and achieved fertility appears as a relevant issue, which has begun to be considered in the design of public policies. Specifically, the ongoing discussion addresses the mechanisms to stimulate fertility among those women whose desired number of children is higher than the children they actually have.

On the other hand, recent policies undertaken in countries with low or very low fertility, aimed at fostering fertility, including those which tried to reconcile family and labour spheres, do not seem to have been successful. More research, and a more in depth reflection about the mechanism that determine childbearing decisions, are needed (Gauthier, 2008).

Research about desired and achieved fertility and about the mechanisms that influence both variables is scarce in the country. This paper aims at contributing to fill this gap through the analysis of the divergence between desired and achieved fertility and its determinants. We also aim at exploring the possibility of existence of adaptive preferences or ex-post rationalization regarding the desired number of children. Research about the change in fertility intentions is scarce, mainly because longitudinal data on desired fertility is not abundant. In this paper we exploit the longitudinal data set, in order to analyse changes in desired fertility among women. The panel data

set will be used both to analyse the degree of coherence between fertility intentions and outcomes, and to consider if there exists a review of intentions after time goes by. The existence of an ex post rationalization of births may be interpreted as evidence of the prevalence of adaptive preferences.

The paper is organized as follows. The first section briefly reviews the literature about determinants of desired and actual fertility. Later we discuss the theory of adaptive preferences and its possible application to fertility. The third section describes our data and other methodological aspects. Our main results are presented in the fourth section. In section five we explore the existence of adaptive preferences, and section six presents our final remarks.

## **1. Desired and observed fertility**

Desired fertility is usually conceived as the number of children someone would have if there were no subjective or economic problems involved in regulating fertility. The conventional theory of fertility assumes that implicitly or explicitly couples are able to reach their preferences related to family size, and so observed and desired fertility do not differ significantly. Nevertheless, data for both developed and developing countries indicates that observed fertility deviates from desired one (Bongaarts, 1998).

In poor countries, observed fertility tends to be significantly higher than desired one. In developed countries, and specifically in countries where second demographic transition is taking place, reproductive expectations tend to be above observed fertility (Billari, 2008). Post transitional societies exhibit nowadays fertility rates below the replacement level (McDonald, 2008). In the case of Uruguay, previous research has stressed the existence of a “double dissatisfaction” among Uruguayan women, referring to empirical evidence about desired fertility (Peri and Pardo, 2006). Desired fertility is higher than achieved one for higher educated women, as in post transitional economies, whereas less educated women tend to have more children than desired, as in less developed countries.

Bongaarts (2001) identifies factors enhancing fertility relative to desired family size, and factors reducing fertility relative to desired family size. Among the former factors, which explain why observed fertility exceeds desired family size are: unwanted fertility, child replacement and gender preferences.

In relation to *unwanted fertility or unintended births*, he argues that in pretransitional societies both preferences and fertility are high, so unwanted childbearing is uncommon. With the onset of the fertility transition, unwanted fertility rises substantially because there is a decline in desired family size and control over the reproductive process still incomplete. Many authors argue that in these cases excess fertility is due to inadequate contraception, as a consequence of inaccessibility, high costs or lack of knowledge. Under this “family planning gap” view, a relevant policy question refers then to the best way to reduce high and unwanted fertility. Finally, in the last part of the transition, unwanted fertility declines again as couples are completely able to implement their preferences. Moreover, families may restrict their fertility below their ideal level, mainly due to economic constraint.

It seems reasonable that *replacement* may take place in many families that experience the death of a child, although the evidence about the impacts of child mortality on reproductive behaviour is weak. Nevertheless, the impact of child replacement on fertility in advanced societies is very small, as child mortality is low, so theoretically this does not seem to be a very relevant factor.

Finally, *gender preferences* may determine that parents continue to have children after they have reached their desired number of children. Son preferences may exist in traditional societies and even in the absence of son or daughter preference, women would rather prefer a balance in the number of boys and girls. The impact of this factor rises over the course of fertility transition, as parents become increasingly effective in achieving their reproductive desires. Bongaarts (2001) reports that estimates of the fertility effects of gender preferences being large enough to have significant demographic consequences in post transitional societies.

Among the factors that reduce fertility relative to desired family size, apart from the attenuation of the three above factors, the author points out the rising age at childbearing, the incidence of involuntary fertility and the existence of competing preferences.

In recent decades, the *age at onset of childbearing* has risen, and the effect has been a deflation on the total fertility rate because birth to successive cohorts are spread over a longer time period. If women are likely to postpone childbearing until they achieve a stable position in the labour market, this may result in a reduction in overall family size and in a gap between desired and observed fertility, since women who become mothers late are expected to bear fewer children. This fecundity inhibiting effect of the rising age at childbearing may be responsible in part for observed fertility being lower than desired one.

Among the *involuntary factors* that may determine that a person is unable to achieve her reproductive objective are the difficulties to find a suitable partner, the interruption of unions, or the presence of sterility.

Finally, the apparent inconsistency between desired and observed fertility, when the latter is lower, may be explained by the presence of economic or social factors that induce to stop childbearing, what Bongaarts (2001) called competing preferences. Strictly, this would imply that responses to questions about ideal family size are not accurate estimates of demand for children, as women would be reporting a number closer to the one they would prefer under other circumstances. On this line, economic conditions, specifically labour and also housing market conditions, have been considered as determinants of the mismatch between desired and achieved fertility (Adsera, 2004, 2005; Adam, 1996). In the presence of persistent unemployment or bad labour market conditions, a withdrawal of the labour market can imply a long term negative impact on income. Under those conditions, women may postpone or even desist of childbearing. Lack of employment stability among young men may also reinforce this negative effect on fertility. An extensive literature for developed countries shows that fertility and fertility intentions are shaped by possibilities of

combining childbearing and labour market activities, as the gender division of labour persists within households (Mc Donald, 2000). The same problematic is starting to appear in developing countries (OIT/PNUD, 2009).

Other factors that may determine the gap between desired and observed fertility refer to heterogeneity of preferences within the couple, and the religious make up of the family. Differences in desires within the couple affect final parity (Freedman et al, 1980). Evidence indicates that disagreement in desires of children between wives and husbands are reflected in lower birth rates (Thomson, 1997). In relation to the role of religion, the literature points out that some churches have a more pronatalist orientation (conservative Protestants, Catholics, and especially Mormons) (Lehrer, 1996). This fact would be expressed in variation in family size across religious groups, but there are no reasons to expect any relationship between religious denominations and the difference between ideal and actual family size. In fact, empirical studies do not find any relationship between these variables in US (Freedman et al, 1980). Nevertheless, the literature suggests that religious differences within the couple may affect the gap between desired and achieved fertility. The lower stability of interfaith marriages should reduce their number of births, restricting their fertility down from their preferred size. This implies that there should be a higher degree of mismatch between women's preferred and achieved fertility among inter-faith couples.

Evidence on differences between desired and observed fertility come mainly from developed countries, one recent exception being Forero & Gamboa (2010), who analyse the determinants of this variable for Colombia. Their study confirms the hypothesis that the more educated women are, the smaller the number of unintended births they will have. They also suggest that achieved fertility is higher than desired fertility due to failures in access to contraception, and they find no evidence of changes in preferences over time.

## **2. The potential role of adaptive preferences or ex post rationalization**

In his writings, Sen made a strong point for a careful consideration of the adequate informational space to evaluate individuals' welfare. He used the concept of adaptation, to note the situation in which people living under different types of deprivations consider nevertheless themselves as satisfied with their lives and circumstances (Sen, 1992). The idea of adaptive preferences was introduced by Elster (1983) in *Sour Grapes*, where he reflects the idea that the preferences underlying a choice may be shaped by the constraints people face. Within the capabilities approach, it has been used to explain why people materially deprived declare themselves as satisfied or happy with their lives. The idea is simply that, as a psychological response to an undesired but hard to change situation, a person may respond by "cutting down her desires and by learning to take some pleasure in very small mercies" (Sen, 2006). This would make the utility concept rather useless, as it won't reflect real but adaptive preferences. So idea of adaptive preferences is simple and appealing, but is also very powerful and challenging, as orthodox economic theory is basically based on the idea of rationality. The existence of adaptive preferences would give a strong argument to evaluate wellbeing in terms of functionings and capabilities, as objective dimensions. The concept of adaptation or adaptive preferences has specially been emphasized in the case of women, arguing that women living in very gender unequal societies may get used to those inequities (Qizlibash, 2008). In the case we are analyzing, we may hypothesize that social and cultural values, which are very strong when it comes to maternity, may affect women's subjective values. In this case, we would observe a change in desired fertility along time, to adapt to the real situation of the woman.

A similar concern has been pointed out by many demographers and psychologists, which suggest that desired fertility may be a biased measure of the real number of children a woman wants to have, as *ex post* women will tend to deny that they desired family size is smaller than their actual family size. If women feel constrained to give a preferred family size at least as large has their real

family, declarations about desired family size would not reflect true preferences. Cultural and social factors may also play a role in this *ex post* rationalization process (Prichett, 1994). The tendency for parents to rationalize unwanted children has not been subject to extensive research, although specific measures of wanted fertility to avoid the potential *ex post* rationalization have been proposed (Bongaarts, 1990).

### **3. Methodological aspects**

#### **3.1 Data**

To explore the determinants of the gap between actual and desired fertility and to test for the existence of adaptive preferences, we use longitudinal micro level data, collected in two waves of a household survey. The first wave was conducted in 2001 (*Encuesta sobre Situaciones familiares y desempeños sociales de las mujeres*), and included 1806 women between 25 and 54 years old, living in Montevideo.<sup>2</sup> These women were asked about their actual and desired fertility.

Seven years later, in 2008, a second wave of the survey was conducted. In this opportunity, efforts were made in order to contact as many women of the first wave of the survey as possible, as well as to complement the original sample, adding new women to “rejuvenate” the panel (including 93 women between 25 and 31 years old in 2008), and to amplify the sample (including 308 of women between 25 and 61). As a result, 1229 women were interviewed in the second wave, 828 of whom also belonged to the first wave. So it is feasible to exploit the following data bases:

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<sup>2</sup> The type of analysis presented in this paper is usually based on data from World Fertility Surveys (WFS) or Demographic and Health Surveys (DHS), but this data are not available for Uruguay.



<b>Table 1. Description of data</b>		
	Number of women interviewed	Ages
First wave	1806	25-54
Second wave	1225	25-62
Longitudinal	828	30-62

The probability of being interviewed in the second wave, for women belonging to the first wave sample, is correlated with age and with conjugal status, as shown in table A.1. There are no biases associated to labour market adscription, education or place of residence. Considering the important attrition of the panel, two sets of sampling weights were designed to guarantee the statistical properties of the sample: one for the cross sectional data of 2008, and the other in order to be able to exploit the longitudinal data (828 women interviewed both in 2001 and 2008). In both cases, sample weights is calibrated considering age and educational level as auxiliary variables, and using population estimations coming from the National Household Survey (2006). Details about the statistical method used to calibrate both sets of weights can be found in Antía y Coimbra (2009).

### **3.2 Questions about fertility**

In both surveys, questions about achieved and desired fertility were included, although under different formulations. In the first round, women were asked: *“Which is the number of children that a couple should have?”*. Women should choose a number between 1 and 9, and other possible responses were 10 or more, or “I don’t know”. It must be stressed that, due to an involuntary mistake, zero was not provided as a valid option.

In the second round, women with no child or pregnant for the first time, where asked: *“If you could choose exactly the number of children that you would like to have, how many would you have?”*

The answer was open. Women already having a child were asked: *if you could go back to the time*

*when you didn't have any child, and you could chose the number of children that you would have during your life, how many children would you have?* Again, the answer was not coded.

The formulation of the question for the second wave of the survey resembles that usually included in the World Fertility Surveys in the late 70s and early 80s, or in the in the more recent Demographic and Health Surveys (DHS). This question aims at reflecting the demand for children, that is, the number of children a woman would choose to have at the time of the survey, based on her assessment of the costs and benefits of childbearing and with complete control over her fertility. This type of information has been used, jointly with data on fertility, in the debate about the impacts of planning programs. Nevertheless, this measure is not exempt of problems (see Bongaarts, 1990; Bhushan and Hill, 1995). Following this literature, the measure may be biased due to different factors operating in different directions. Among these factors are ex post rationalization, non numerical responses given by women, infant and child mortality, involuntary limitation of fertility, and compositional preferences among others. Also, it has been suggested that women report a number closer to the “ideal” family size, that would prevail under circumstances other than those that they really experienced (more similar to the question in the first wave), and so this measure would not be measuring properly the demand for children.<sup>3</sup>

Despite the limitations that this data may have, it provides useful information about preferences and fertility. Our data provides us the opportunity of analysing these issues in a developing country, and so exploring a topic that has scarcely been analysed in Uruguay. Based on the cross sections for 2001 and 2008, we analyse desired and achieved fertility, and we try to assess the importance of different factors to explain differences among them. The analysis is based both on descriptive statistics and on the econometric estimation of reduced form equations were the dependent variable

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<sup>3</sup> Problems with this kind of question about ideal family size led some researchers to use other approaches based on retrospective wanted fertility approaches or on information about the desire for additional children.

is the difference between desired and achieved fertility, and the explanatory variables include a wide set of personal and household characteristics.

#### **4. Desired and achieved fertility: results**

We want to assess the impact of key factors on the determination of deviations from desired fertility. Using longitudinal data, we also intend to explore changes in desired fertility over time, and analyse the potential role of ex post rationalization of births, that may be interpreted as adaptive preferences.

##### **4.1 Basic statistics**

In both rounds of the survey, the majority of women declare that they would like to have at least two children (table A.2). Younger cohorts tend to prefer fewer children, whereas the desired number of children is increasing with education and socio-economic strata (table 2).

The gap between achieved and desired fertility, calculated as the simple difference between both variables for each woman, is negative both in 2001 and 2007. This means that, on average, final family size is lower than preferences. There are no significant changes in fertility levels between both waves of the survey: the average number of children women had at different ages and at the end of their fertile life do not show any significant change. On average, Uruguayan women declare that they wish to have around 2.4 children in 2001 and 2.5 in 2007. So, ideal family size remains above replacement level in Uruguay.

<b>Table 2. Women achieved and desired fertility, by selected characteristics. All women.</b>						
	<b>First wave</b>			<b>Second wave</b>		
	<b>Achieved fertility</b>	<b>Desired fertility</b>	<b>Mean gap</b>	<b>Achieved fertility</b>	<b>Desired fertility</b>	<b>Mean gap</b>
<b>Age</b>						
25-29	1,1	2,2	-1,1	1,3	2,5	-1,0
30-34	1,7	2,3	-0,5	1,6	2,2	-0,6
35-39	2,2	2,5	-0,2	2,0	2,3	-0,3
40-44	2,5	2,5	0,0	2,4	2,4	0,0
45-49	2,6	2,4	0,2	2,5	2,8	-0,3
50-54	2,2	2,5	-0,2	2,5	2,7	-0,3
55-59				2,4	2,7	-0,3
60-62				2,2	2,9	-0,6
<b>Education</b>						
Primary	2,9	2,3	0,6	2,9	2,5	0,5
Secondary 1st level inc.	2,4	2,3	0,1	2,4	2,4	-0,2
Secondary 1st level comp.	2,1	2,4	-0,3	2,0	2,4	-0,3
Secondary 2nd level inc.	1,9	2,4	-0,5	1,9	2,4	-0,4
Secondary 2nd level comp.	1,9	2,3	-0,5	1,9	2,5	-0,7
Tertiary	1,5	2,5	-1,0	1,4	2,6	-1,1
<b>Economic well being index</b>						
Low	2,5	2,4	0,2	2,6	2,5	0,2
Medium	1,8	2,3	-0,5	1,8	2,6	-0,7
High	1,9	2,5	-0,6	1,8	2,7	-0,8
All	2,1	2,4	-0,3	2,1	2,6	-0,4
<b>Family status</b>						
No child and no partner	0,3	2,3	-2,0	0,7	2,2	-1,5
With partner, without children	0,6	2,2	-1,6	1,3	2,3	-1,0
No partner, with children	2,4	2,4	0,0	2,6	2,5	0,2
With partner, with children	2,5	2,4	0,0	2,4	2,7	-0,2
<b>Total</b>	<b>2,1</b>	<b>2,4</b>	<b>-0,3</b>	<b>2,1</b>	<b>2,5</b>	<b>-0,4</b>

Some differences in the gap between desired and achieved fertility by group. The gap is big and negative among the younger women, reflecting their desires to have more children in the future. An equilibrium is reached around the central ages of the fertile life, whereas desired children is lower than the real number of children at the end of the reproductive cycle. An exception is detected for women between 45 and 49 years old: in the first wave this age group reports a small excess fertility,

whereas in 2007 the contrary happens, and the gap turns negative. The interpretation of this change, which is not of big magnitude, deserves more research.

Women with lower levels of education declare to have, on average, more children than desired, whereas women with tertiary education declare that their achieved fertility is lower than desired. A similar pattern arises when analyzing the gap by socio economic index, although differences are smaller. These results are in line with previous research that has stressed the existence of a “double dissatisfaction” among Uruguayan women, as desired fertility is higher than achieved one for higher education women, whereas less educated women tend to have more children than desired (Peri and Pardo, 2006). The authors argue that the proportion of women whose desired fertility is higher than the achieved one has increased during the last years.

If the sample is reduced to women aged 40 or more, in order to restrict the analysis to those women closer to have completed their fertility, results are similar in terms of education and socio economic status (table 3).<sup>4</sup> For woman interviewed in the first round of the survey, desired and achieved fertility coincide, whereas in 2007 desired fertility is higher than achieved one for women at the end of their reproductive life. The gap is positive for less educated women and for those belonging to the lower socio economic strata, reflecting the presence of unintended births. Women without children declare on average that their desired number of children is higher.

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<sup>4</sup> The distribution of women by ages in both waves is presented in table A.2.

<b>Table 3. Women achieved and desired fertility, by selected characteristics. Women 40 or older.</b>						
	<b>First wave</b>			<b>Second wave</b>		
	<b>Achieved fertility</b>	<b>Desired fertility</b>	<b>Mean gap</b>	<b>Achieved fertility</b>	<b>Desired fertility</b>	<b>Mean gap</b>
<b>Education</b>						
Primary	3,2	2,4	0,9	3.0	2.7	0.5
Secondary 1st level inc.	2,7	2,4	0,4	2.7	2.7	-0.1
Secondary 1st level comp.	2,1	2,4	-0,4	2.9	2.8	0.4
Secondary 2nd level inc.	2,3	2,5	-0,2	2.2	2.8	-0.5
Secondary 2nd level comp.	2,1	2,4	-0,3	2.2	2.8	-0.5
Tertiary	2,0	2,6	-0,5	2.4	2.8	-0.2
<b>Economic well being index</b>						
Low	3,0	2,4	0,6	2.9	2.8	0.4
Medium	2,1	2,4	-0,2	2.2	2.8	-0.5
High	2,3	2,6	-0,3	2.2	2.8	-0.5
<b>Family status</b>						
No child and no partner	0,7	2,2	-1,7	1.3	2.2	-0.9
With partner, without children	1,2	2,1	-0,9	1.8	2.4	-0.6
No partner, with children	2,6	2,4	0,3	2.9	2.9	0.2
With partner, with children	2,7	2,5	0,2	2.6	2.9	-0.2
<b>Total</b>	<b>2,4</b>	<b>2,5</b>	<b>0,0</b>	<b>2.4</b>	<b>2.7</b>	<b>-0.2</b>

In sum, both for all women and for women who finished their reproductive life, preferences and achieved fertility present important differences. Between 50 and 60% of women aged 40 or more do not have the number of children they wished to have. If we consider the second wave of the survey, in 20% of cases this is due to unwanted births, and in 40% of them this obeys to having less children than desired, probably due to economic or other constraints (table 4). The importance of the group of unsatisfied women due to having fewer children than desired was already emphasized by Peri and Pardo (2006) based on data for 2004. Our data also confirms, as in Peri and Pardo (2006), the relatively less importance of unwanted births among Uruguayan women.

<b>Table 4. Fertility and preferences</b>				
	All women		40 and more	
	1st wave	2nd wave	1st wave	2nd wave
Achieved > desired	17.5	16.5	22.2	18.9
Desired = achieved fertility	39.1	39.5	46.6	41.7
Achieved < desired	43.4	44.0	31.2	39.4
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

#### 4.2 Determinants of the fertility gap

To analyze the determinants of the fertility gap, we considered as dependent variable the difference between achieved and desired fertility. For these estimations, we considered the second round of the survey, as more information about potential explanatory variables is gathered in that round. Also, the formulation of the question about desired fertility is more adequate to explore this issue.

The dependent variable  $Y_i$  can take three values, reflecting achieved fertility higher than desired, equality between achieved and desired fertility, and achieved fertility lower than desired. As the dependent variable consists of three non ordered categories, it can be modelled using a multinomial logit regression (Greene, 2000). The situation when achieved and desired fertility are equal is taken as the base for comparisons, so each estimated coefficient presented in table 5 reflects the effect of the corresponding independent variable on the probability of having more children than desired (option 1) or less children than desired (option 3), against that of having the same number of children as desired (option 2, base group).

The explanatory variables are the main determinants identified in the literature (Toulemon & Testa, 2005; Weston et al., 2004). They include satisfaction with life, an indicator of gender attitude, women's age, mean ideal age for motherhood, economic indicators (level of education and quartiles of an asset index), age at first child, and alternative indicators of child rearing tasks division between partners (dummy variable indicating if the woman is the main responsible for decisions

about child's education or health). Details on the definitions of the variables are included in table A.4. Other variables, such as religion indicators, dummy for working women, or alternative indicators of gender attitudes, were tested but were not statistically significant.

As expected, socio economic indicators are highly correlated, so different models using alternative variables were estimated. We present estimations using quartiles of an asset index in table 5, results using educational level are presented in table A.5. Main findings are the same in both cases.



Table 5. Multinomial logistic regression. Estimated coefficients. Base group: achieved fertility=desired fertility

	(1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)	
	Achieved >Desired	Achieved <Desired	Achieved >Desired	Achieved <Desired	Achieved >Desired	Achieved <Desired	Achieved >Desired	Achieved <Desired	Achieved >Desired	Achieved <Desired	Achieved >Desired	Achieved <Desired	Achieved >Desired	Achieved <Desired	Achieved >Desired	Achieved <Desired
Satisfaction	-0.567*** (0.107)	0.0937 (0.098)	-0.426*** (0.114)	0.0924 (0.100)	-0.418*** (0.115)	0.126 (0.102)	-0.369*** (0.119)	0.0729 (0.103)	-0.376*** (0.118)	0.0854 (0.102)	-0.323*** (0.121)	0.0242 (0.111)	-0.328*** (0.122)	0.0308 (0.111)	-0.352*** (0.122)	0.0316 (0.111)
Gender attitudes	0.043 (0.093)	0.160** (0.065)	0.093 (0.095)	0.161** (0.065)	0.0888 (0.096)	0.148** (0.065)	0.119 (0.095)	0.119* (0.066)	0.107 (0.095)	0.127* (0.065)	0.154 (0.100)	-0.023 (0.071)	0.144 (0.100)	-0.0207 (0.071)	0.167* (0.100)	-0.0274 (0.073)
Age	0.00889 (0.010)	-0.0182** (0.008)	0.0127 (0.010)	-0.0183** (0.008)	0.0128 (0.010)	-0.0198** (0.008)	0.0215** (0.010)	0.0224*** (0.008)	0.0192* (0.011)	0.0210*** (0.008)	0.0328*** (0.012)	-0.00743 (0.010)	0.0299** (0.012)	-0.00664 (0.010)	0.0248** (0.012)	0.00291 (0.010)
Ideal age for motherhood	-0.0211 (0.030)	0.0829*** (0.023)	0.00474 (0.030)	0.0841*** (0.024)	0.00438 (0.030)	0.0775*** (0.024)	0.00885 (0.030)	0.0763*** (0.024)	0.00826 (0.030)	0.0763*** (0.024)	0.0243 (0.030)	0.036 (0.026)	0.0247 (0.030)	0.036 (0.026)	0.0376 (0.030)	0.0247 (0.027)
Quartiles of asset index			-0.506*** (0.117)	-0.00216 (0.073)	-0.485*** (0.118)	0.0325 (0.074)	-0.467*** (0.118)	0.0103 (0.074)	-0.467*** (0.118)	0.0138 (0.074)	-0.387*** (0.122)	-0.0586 (0.082)	-0.383*** (0.122)	-0.0559 (0.082)	-0.389*** (0.124)	-0.0383 (0.085)
With partner					-0.23 (0.229)	-0.499*** (0.176)	-0.0539 (0.233)	-0.595*** (0.178)	-0.0922 (0.229)	-0.563*** (0.178)	-0.0556 (0.254)	0.0288 (0.216)	-0.106 (0.249)	0.0548 (0.216)	-0.113 (0.253)	0.096 (0.219)
Resp. Educ.							0.668*** (0.234)	-0.633*** (0.206)			0.716*** (0.257)	-0.108 (0.217)				
Resp. Health									0.555** (0.227)	-0.488** (0.191)			0.598** (0.247)	-0.0158 (0.205)	0.538** (0.253)	0.0116 (0.209)
Age at 1 <sup>st</sup> child											- 0.0945*** (0.026)	- 0.0878*** (0.019)	- 0.0956*** (0.025)	- 0.0879*** (0.019)	- 0.0873*** (0.026)	- 0.0686*** (0.019)
Sex of child.															0.490** (0.249)	-0.945*** (0.180)
Constant	1.188 (0.991)	-2.050** (0.808)	0.846 (1.000)	-2.068** (0.813)	0.939 (1.025)	-1.662** (0.819)	-0.215 (1.067)	-0.963 (0.844)	0.0138 (1.078)	-1.144 (0.834)	0.549 (1.130)	-2.796*** (0.931)	0.801 (1.155)	-2.916*** (0.922)	0.285 (1.185)	-2.253** (0.936)
Observations	909	909	909	909	908	908	908	908	908	908	805	805	805	805	805	805
R-sq. (ps)	0.0492	0.0492	0.0651	0.0651	0.0696	0.0696	0.0861	0.0861	0.0811	0.0811	0.0919	0.0919	0.0896	0.0896	0.117	0.117
Chi2	-888.1	-888.1	-873.2	-873.2	-867.3	-867.3	-851.9	-851.9	-856.6	-856.6	-762.4	-762.4	-764.4	-764.4	-741.4	-741.4

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1 / Robust standard errors in parentheses

In all specifications, women more satisfied with life have a lower probability of having more children than desired when compared to the base group, but this variable is not significantly associated with different probabilities of being in the base group or having less children than desired.

The indicator of gender attitude in the private sphere, based on the question: “Can a woman have a satisfactory life without having children”, is increasing with the degree of liberalism of women (as opposed to more conservative attitudes). This indicator does not discriminate between women who have more children than desired or the base group, but implies an increasing probability of having less children than desired, as expected. This variable is significant in the first two specifications, but loses significance when family status is included in the regression. CPOM

Older women have a lower probability of having less children than desired, reflecting the fact that this situation prevails at younger stages in life. Women who declare higher ideal ages for motherhood have a higher probability of having less children than desired when compared to the base group, although the variable is not significant to distinguish between the base group and women who have more children than desired. Declarations of higher ages as ideal for motherhood are associated with more liberal women. It must be said that this variable loses significance when age at first child is included, as both are positively related.

The socio economic indicator is significant and negative for the probability of belonging to the group of women with more children than desired, as this situation prevails among more disadvantaged women. This is the strongest result, which prevails in all specifications.

The binary variable that indicates if the woman has a partner is negatively and significantly associated with having fewer children than desired. This variable loses significance when age at first child is included. As expected, the age at first child is positively associated with the probability of having less than the desired number of children, and negatively with that of having more children than desired. It is always significant when included. Women who already have at

least a boy and a girl have a higher probability of having more children than desired and lower of having fewer children than desired.

Women who are mainly responsible for the decisions about education or health relating to their children have a higher probability of having more children than desired, indicating that the division of tasks between partners remains unequal in more disadvantaged groups.

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**Table A.1 Probits de la probabilidad de caer en la muestra**

```
. probit encontrada edad sep_divor viuda soltera trabaja desocupada estudia jubilada sanjose can
> elones educ_prim educ_cb educ_bch educ_terc_i educ_terc_c
```

```
Iteration 0: log likelihood = -1245.5874
Iteration 1: log likelihood = -1217.2011
Iteration 2: log likelihood = -1217.1793
Iteration 3: log likelihood = -1217.1793
```

```
Probit regression                               Number of obs   =      1806
                                                LR chi2(15)    =      56.82
                                                Prob > chi2    =      0.0000
Log likelihood = -1217.1793                    Pseudo R2      =      0.0228
```

encontrada	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
edad	.012143	.0038159	3.18	0.001	.0046641	.019622
sep_divor	-.3200396	.0938314	-3.41	0.001	-.5039458	-.1361334
viuda	-.0765151	.1795732	-0.43	0.670	-.428472	.2754419
soltera	-.2583379	.0789847	-3.27	0.001	-.4131451	-.1035307
trabaja	.1670789	.0776097	2.15	0.031	.0149667	.319191
desocupada	.1519555	.1171018	1.30	0.194	-.0775599	.3814709
estudia	-.1397064	.2757377	-0.51	0.612	-.6801423	.4007296
jubilada	-.4434397	.2624689	-1.69	0.091	-.9578692	.0709899
sanjose	-.0461567	.1703944	-0.27	0.786	-.3801237	.2878103
canelones	.1520942	.0896873	1.70	0.090	-.0236898	.3278781
educ_prim	-.0696156	.1465568	-0.48	0.635	-.3568617	.2176306
educ_cb	.0165841	.1512304	0.11	0.913	-.2798221	.3129903
educ_bch	.0811087	.1552805	0.52	0.601	-.2232355	.385453
educ_terc_i	.1002382	.1641663	0.61	0.541	-.2215218	.4219981
educ_terc_c	.1642868	.1579995	1.04	0.298	-.1453865	.47396
_cons	-.6518156	.2188886	-2.98	0.003	-1.080829	-.2228019

**Table A. 2. Desired Lumber of children.**

	0	1	2	3	4 or more	
2001	0,4	5,2	52,8	20,9	20,7	100,0
2007	3,4	9,7	45,0	23,3	18,6	100,0

**Table A.3 Distribution of women by ages**

	First wave	Second wave
25-29	18,11	13.84
30-34	15,06	14.93
35-39	16,78	13.44
40-44	18,66	12.98
45-49	15,95	14.50
50-54	15,45	14.90
55 and more		15.42
Total	100	100

Table A.4. Definition of variables		
Dimension	Variable	Definition
Value orientations and household practices	Religion	Binary variable distinguishing catholics and the rest ; binary variable distinguishing atheos and agnostics from the rest
	Gender attitudes and roles	A woman can have a completely satisfactory life without having children (1. completely disagrees-5. completely agrees) / Men are better politicians than women (1. completely agrees -5. Completely disagrees)
	Satisfaction with life	1. Very unsatisfied - 5. Very satisfied
	Child rearing tasks division between partners	Binary variable distinguishing if women is the main responsible for child's education decisions; binary variable distinguishing if women is the main responsible for child's health decisions
	Mean ideal age for motherhood	
Social and Economic Factors	Educational level	1. Primary; 2. Secondary 1st level incomplete; 3. Secondary 1st level complete; 4. Secondary 2nd level incomplete; 5. Secondary 2nd level complete; 6. Tertiary
	Assets	Quartile of index of assets
Demographic factors	Age at first child	
	Gender preferences for children	Binary variable indicating if the woman has at least a boy and a girl
	Conjugal status	Binary variable distinguishing if the woman has a partner

Table A. 5. Multinomial logistic regression. Estimated coefficients. Base group: achieved fertility=desired fertility

	(1)		(2)		(3)		(4)		(5)		(6)		(7)	
	Achieved> Desired	Achieved< Desired	Achieved> Desired	Achieved< Desired	Achieved> Desired	Achieved< Desired	Achieved> Desired	Achieved< Desired	Achieved> Desired	Achieved< Desired	Achieved> Desired	Achieved< Desired	Achieved> Desired	Achieved< Desired
Satisfaction	-0.461*** (0.113)	0.00195 (0.101)	-0.435*** (0.115)	0.0461 (0.103)	-0.388*** (0.119)	0.000479 (0.105)	-0.394*** (0.118)	0.0102 (0.104)	-0.344*** (0.120)	-0.027 (0.113)	-0.349*** (0.120)	-0.0206 (0.112)	-0.371*** (0.121)	-0.0281 (0.112)
Gender attitudes	0.115 (0.096)	0.123* (0.066)	0.11 (0.098)	0.115* (0.066)	0.138 (0.097)	0.0889 (0.067)	0.127 (0.097)	0.0967 (0.067)	0.154 (0.099)	-0.0286 (0.073)	0.143 (0.099)	-0.0259 (0.073)	0.164* (0.099)	-0.0365 (0.075)
Age	0.00567 (0.010)	-0.0157* (0.008)	0.00551 (0.010)	-0.0167** (0.008)	0.0152 (0.011)	-0.0194** (0.008)	0.0128 (0.011)	-0.0181** (0.008)	0.0276** (0.012)	-0.00584 (0.010)	0.0247** (0.012)	-0.00493 (0.010)	0.02 (0.012)	0.00455 (0.010)
Ideal age for motherhood	0.00165 (0.030)	0.0697*** (0.024)	0.00056 (0.030)	0.0652*** (0.024)	0.00376 (0.030)	0.0643*** (0.024)	0.00463 (0.030)	0.0645*** (0.024)	0.0154 (0.030)	0.0317 (0.027)	0.0164 (0.030)	0.0316 (0.027)	0.0297 (0.029)	0.0194 (0.027)
With partner			-0.375 (0.231)	-0.499*** (0.178)	-0.174 (0.238)	-0.602*** (0.181)	-0.21 (0.233)	-0.566*** (0.180)	-0.157 (0.257)	-0.0267 (0.217)	-0.206 (0.249)	0.00341 (0.217)	-0.203 (0.254)	0.0657 (0.219)
Resp. Education					0.679*** (0.241)	-0.595*** (0.209)			0.757*** (0.261)	-0.113 (0.219)				
Resp. Health							0.582** (0.233)	-0.457** (0.194)			0.650** (0.252)	-0.0155 (0.207)	0.599** (0.258)	0.0226 (0.212)
Age at first child									-0.0881*** (0.027)	0.0758*** (0.020)	-0.0886*** (0.027)	0.0758*** (0.020)	-0.0795*** (0.028)	0.0553*** (0.020)
Sex children													0.504** (0.254)	-0.941*** (0.184)
Educ. 2	-0.0871 (0.342)	0.48 (0.324)	-0.0399 (0.341)	0.508 (0.327)	-0.017 (0.335)	0.491 (0.331)	-0.038 (0.342)	0.506 (0.329)	-0.0189 (0.339)	0.556 (0.342)	-0.039 (0.344)	0.563* (0.342)	0.0612 (0.343)	0.431 (0.340)
Educ. 3	-0.196 (0.369)	0.820** (0.326)	-0.181 (0.371)	0.820** (0.326)	-0.159 (0.379)	0.815** (0.328)	-0.178 (0.376)	0.837** (0.327)	-0.119 (0.388)	0.706** (0.353)	-0.145 (0.385)	0.703** (0.353)	-0.046 (0.390)	0.621* (0.357)
Educ. 4	-0.672** (0.312)	0.367 (0.271)	-0.634** (0.314)	0.389 (0.271)	-0.614* (0.315)	0.342 (0.273)	-0.596* (0.313)	0.346 (0.272)	-0.48 (0.324)	0.243 (0.292)	-0.464 (0.322)	0.247 (0.292)	-0.443 (0.326)	0.221 (0.299)
Educ. 5	-1.094*** (0.405)	0.441 (0.300)	-1.043** (0.407)	0.484 (0.304)	-1.063*** (0.412)	0.463 (0.304)	-1.073*** (0.411)	0.477 (0.304)	-0.825* (0.423)	0.287 (0.322)	-0.839** (0.423)	0.29 (0.321)	-0.846** (0.430)	0.271 (0.328)
Educ. 6	-1.482*** (0.370)	0.936*** (0.258)	-1.462*** (0.370)	0.932*** (0.258)	-1.363*** (0.367)	0.855*** (0.261)	-1.386*** (0.367)	0.880*** (0.260)	-0.927** (0.380)	0.474 (0.291)	-0.925** (0.383)	0.485* (0.290)	-0.955** (0.397)	0.554* (0.297)
Constant	0.655 (1.004)	-1.901** (0.854)	0.845 (1.024)	-1.546* (0.858)	-0.317 (1.086)	-0.914 (0.888)	-0.126 (1.090)	-1.091 (0.877)	0.445 (1.156)	-2.716*** (0.984)	0.676 (1.169)	-2.838*** (0.972)	0.0515 (1.217)	-2.043** (0.979)
Observations	899	899	898	898	898	898	898	898	795	795	795	795	795	795
R-sq. (psdo)	0.0831	0.0831	0.0877	0.0877	0.103	0.103	0.0985	0.0985	0.0954	0.0954	0.0931	0.0931	0.12	0.12
chi2	-847.6	-847.6	-841.7	-841.7	-827.9	-827.9	-831.8	-831.8	-750.2	-750.2	-752.1	-752.1	-730.1	-730.1

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1 / Robust standard errors in parentheses