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*Research Article*

## **The effect of union dissolution on the fertility of women in Montevideo, Uruguay**

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## **The effect of union dissolution on the fertility of women in Montevideo, Uruguay**

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### **Abstract**

#### **BACKGROUND**

In Uruguay, the recent phase of fertility decline started in the late 1990s, a decade after deep changes in the family dynamics took root in the country. The order and timing of the two phenomena gave weight to the notion that the changes in the family dynamics caused fertility to drop below population replacement level.

#### **OBJECTIVE**

Our goal is to assess whether or not separation, divorce, and repartnering have been related to the recent decrease in fertility in Uruguay.

#### **METHODS**

We use data from a retrospective survey and a three-pronged strategy: (1) we compare the contribution to fertility and its evolution across cohorts of three broad steps of the conjugal history; (2) we estimate the effect of each of these steps on the hazard of having the next child; (3) we predict and compare the fertility, actual and counterfactual, of women who ended and women who did not end their first union. We investigate especially how union dissolution affects fertility and how patterns vary by educational levels.

#### **RESULTS**

Ending the first union reduces the fertility of Uruguayan women, and this reduction was larger among the low-educated women from the oldest cohort than it is in the youngest one. It could be very small among the highly educated of the youngest cohort.

#### **CONTRIBUTION**

We show that among Uruguayan women, the negative effect of union dissolution on fertility seems to decrease as dissolution becomes more common and occurs earlier, and

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that changes in family dynamics likely did not cause fertility to drop below population replacement level.

## **1. Introduction**

In Uruguay, since the mid-1980s, a series of transformations in the formation and the dissolution of conjugal unions have led to a pattern in which unions are more ‘flexible’: they often begin in an informal way and they are less stable than they used to be. Specifically, previous studies point to substantial changes in three features: the timing of the first union, the type of union, and the intensity of union dissolution (Cabella 1998; Cabella 2009; Cabella 2008; Cabella 2007; Filgueira 1996; Fernández Soto 2010; Paredes 2003; Cabella and Fernández Soto 2017). Among the main changes is the ‘boom’ of cohabitation (Esteve and Lesthaeghe 2016; Esteve, Lesthaeghe, and López-Gay 2012; Lesthaeghe 1991; Binstock and Cabella 2011) that delays or replaces marriage and the steady increase in separations and divorces (García and Rojas 2002; Quilodrán 2008; Cerrutti and Binstock 2009; Cabella 1998; Cabella 2009; Cabella 2007; Fernández Soto 2010). Taking cohabitation and marriage as a whole, the mean age at the formation of the first union increased slightly. However, this slight increase actually hides differences related to educational levels: low-educated women start their first union as early as older cohorts did, while highly educated women now begin theirs later (Fernández Soto 2010).

Fertility has decreased in Uruguay since the end of the 1990s, hovering around values close to those of population replacement since 2004, and the total fertility rate (TFR) reached 1.6 in 2018. Several studies show that one characteristic of fertility in Uruguay is the very strong relation between education and childbearing: low-educated women have more children than more educated women (Varela, Pollero, and Fostik 2008; Pellegrino 2010; Nathan 2013, 2015a, 2015b; Varela et al. 2014; Nathan, Pardo, and Cabella 2016).

The direction and magnitude of the changes in the demographic indicators of family life in Uruguay have also been observed in the rest of the Southern Cone countries (Binstock and Cabella 2011; Binstock et al. 2016). Family changes in Argentina, Chile, and Uruguay mainly respond to an ideational change, based on individual autonomy and tolerance to individual preferences (Binstock and Cabella 2011). At the same time, fertility levels in Latin America have fallen in recent decades, reaching values below replacement in many countries (United Nations 2015; Nathan, Pardo, and Cabella 2016).

However, very little research addresses union dissolution and its effect on fertility in Latin America. The lack of data in the region is one of the limitations for studying the trends of union formation and dissolution, and their relationship with fertility (Rosero Bixby 1978; García and Rojas 2002; Quilodrán 2008; Cerrutti and Binstock 2009). Therefore, this work seeks to be the first evidence and a stimulus for the development of research that discusses and evaluates the effect of family changes on fertility in Latin America and to be an input for the design of family and fertility policies in the region.

At the individual level, union breakdown reduces the hazard of the next birth by reducing the risk of getting pregnant. Thus, some suggested that the decrease in fertility was a consequence of union instability (Davis and Blake 1956; Bongaarts 1987). However, as union breakdown became more common, so did repartnering, which, at least in theory, put back separated women at risk of becoming pregnant as if they were still in their first union (Leone and Hinde 2007; Thomson and Li 2002; Jansen, Wijckmans, and van Bavel 2008; van Bavel, Jansen, and Wijckmans 2012; Cherlin 2016, 2017; Creighton et al. 2013). Thus, at least in theory, family changes and more specifically ‘union flexibility’ (Billari 2005a, 2005b) may not be the main cause of the recent decrease in fertility.

In Uruguay, fertility decreased as union breakdown became more common and there is an interest in understanding whether or not the decrease is attributable to ‘union flexibility.’ Thus, the purpose of this article is to examine the role of union dissolution and repartnering in the fertility of Uruguayan women. We use data from a biographical survey and focus on the contribution to fertility of the reproductive years lived after the end of the first union. Given that in Uruguay, union formation and dissolution as well as childbearing are known to be strongly related to education, we pay special attention to the variation of this contribution by educational levels.

## **2. Background**

### **2.1 Dissolution and fertility**

Forming a union and having children are events that are usually interrelated, but, in a context of high levels of union dissolution, the effects of each one on the other are not easy to disentangle (Leone and Hinde 2007; Guzzo 2014). In theory, ending a union may decrease or increase a woman’s fertility. Without a spouse or a partner, a woman is less exposed to becoming pregnant. However, having lost the possibility of having a child while not having a spouse or a partner, she may try to make up for this ‘lost time’ as soon as she enters a new union. She might even have a child she would not have had

in the previous one, or she might enter a new union because she wants another child. Over the last decades, research has moved from the simplest to more nuanced views of the relationship between dissolution and fertility (Leone and Hinde 2007).

Demography has first taken up the notion that conjugal dissolutions must decrease fertility because they reduce the time of exposure to pregnancy (Davis and Blake 1956; Bongaarts 1987). The increasing occurrence of separations during the 1970s in developed countries fostered a series of studies on the negative effect of separation on fertility (Lauriat 1969; Thornton 1978; Cohen and Sweet 1974). For instance, Lauriat (1969), using census data from the United States, showed that separation had a negative effect on the total fertility rate, mainly for women who did not remarry. The women who entered a second union achieved 79% of the fertility of those who did not put an end to their marriage. However, the author states that the effect varied according to race, cohorts, age at first union, and time since the end of the first union. Using data from 1965–1975, Thornton (1978) compared the fertility of women who had ended their first union and that of women who had not, and argued that marital conflicts and conjugal dissolutions had an impact on the reproductive behaviour of couples. His research showed that women who ended their first union ‘lost’ fertility in the years following the separation immediately and that this reduction was maintained until the end either of their reproductive years or the beginning of a new union. Cohen and Sweet (1974) studied the effect of dissolution and subsequent unions on fertility among US women aged between 25 and 54 years in 1965. They found that women who divorced accumulated 0.6 fewer children than women who did not. Decomposing this difference, they found it was attributable to factors that increased or decreased fertility: divorced women had married earlier and had longer exposure, and childlessness was a bit higher among the divorcees. Overall, the difference came down to 0.1 children when they controlled for exposure time to marriage, first or subsequent.

However, the spread of separations and divorces in recent decades and their increasing social acceptance raised doubts about the relevance of this assertion (Leone and Hinde 2007; Thomson and Li 2002; Pasteeles and Mortelmans 2015; Cherlin 2017; Jansen, Wijckmans, and van Bavel 2008; van Bavel, Jansen, and Wijckmans 2012; Cherlin 2016; Creighton et al. 2013). New empirical findings led to the consideration of alternative views. The increasing occurrence of dissolutions at young and reproductive ages increased the exposure time during later unions. Thus, it started to look as if children ‘lost’ to the dissolution of the first union could be ‘compensated’ by children from later unions. Furthermore, the diffusion of consensual unions, the increasing number of later unions, and the growing social acceptance of both has diversified the context in which it is socially acceptable to have and to raise children, as well as the motivations to have them in later unions (Buber and Fürnkranz-Prskawetz 2000; Toulemon and Knudsen 2006; Leone and Hinde 2007; Beaujouan and Solaz 2008; Persson and Tollebrant 2013; Spijker, Solsona, and Simó 2012).

A new series of studies starting in the mid-2000s, on the relationship between union stability and fertility, showed that the relationship was not as simple as previously held. The common concern of these studies was to show whether children born into post-dissolution unions compensated the fertility 'lost' to time spent outside a union. The evidence they provided did not allow firm conclusions: whether dissolution increased or decreased fertility was not settled, nor was it possible to determine which one truly influenced the other. In some studies, in developed countries with high levels of gender equity in employment and income, the effect of instability on fertility seemed to be positive rather than negative (Creighton et al. 2013; Thomson et al. 2012; Rijken and Thomson 2011; Thomson 2002). Other studies still from developed countries found that conjugal dissolutions brought down the level of incomplete fertility. In Italy, for instance, the incomplete fertility of women who end their first union is 27% lower than that of women who do not (Meggiolaro and Ongaro 2010; Coppola and Di Cesare 2008). Still, other studies, such as that by Beaujouan and Solaz (2008), as well as that by Spijker, Simó, and Solsona (2012), showed that dissolutions do not have much impact on the level of fertility: The fertility of women who enter post-dissolution unions is similar to that of women who do not put an end to their first union. Finally, another group of studies showed that the negative or positive effect of dissolution on fertility depended on the age at which conjugal and reproductive events occur (van Bavel, Jansen, and Wijckmans 2012; Jansen, Wijckmans, and van Bavel 2008).

## **2.2 Dissolution and fertility in Latin America**

Evidence on the effect of union dissolution on fertility in Latin America and the Caribbean is scarce. A few studies from the 1960s and 1970s showed that there is a positive relationship between dissolution and fertility in some populations (Ebanks, George, and Nobbe 1974; Downing and Yaukey 1979; Rosero Bixby 1978). For example, Ebanks et al. (1974) found a positive correlation between the number of unions and the number of children born alive in Barbados. In their study on the effect of conjugal dissolutions on fertility in five Latin American cities, Downing and Yaukey (1979) showed that later unions could have a positive impact on completed fertility and that the desire to have children in a later union increased the hazard of having more children. However, this form of fertility recovery was not found in all populations; its presence depended on the level and control of fertility. For example, in Buenos Aires – which had the lowest fertility among the five cities – remarried women had fewer children than those who had only one union. Downing and Yaukey (1979) concluded that in such populations, the positive effect of dissolution in later unions is weaker and perhaps a consequence of the postponement of the first birth in the first union. They

also found that the positive or negative effect of union dissolution on fertility varied according to women's level of education. 'Losing' time had a greater negative impact on completed fertility for more educated women than for less educated ones. Among low-educated women, complete fertility increases with the number of unions. Finally, Rosero Bixby (1978) found that in Latin America, for all age groups, on average, women with more than one union had more children than those who never had a husband or a partner and more than those who had only one union. Nevertheless, when studying complete fertility by conjugal status, he concluded that there is a 0.8 reduction due to time 'lost' between unions.

Recent evidence from the region is almost non-existent. One study in Brazil, reported in Leone and Hinde (2007) and Leone (2002), showed that women who remarried or repartnered had more children than those who had only one union.

### **2.3 Fertility and social strata in Uruguay**

Over half of the Uruguayan population, about 59%, lives in Montevideo and its metropolitan area, which is the largest urban centre in the country (UEGE 2013). Various studies have shown that Montevideo's fertility level is somewhat lower than the rest of the country and that there is little territorial heterogeneity in reproductive behaviour (Varela, Pollero, and Fostik 2008; Cardelliac, Nathan, and Juncal 2018). For the five-year period 2011–2015, the estimate of the TFR was 1.89 in Montevideo and 1.93 for the rest of the country (Blanes et al. 2018).

As we wrote in the introduction, the main changes that altered the Uruguayan family life over the last decades – mainly the decrease of fertility, increase in divorces and separations, and the spread of cohabitation – occurred in all social strata. However, although fertility decreased in all social strata, the decrease did not unfold in the same way in all of them, and the resulting differences became an important structural feature of fertility.

In Uruguay, fertility decreased gradually throughout the 20<sup>th</sup> century. The rhythm of the decrease accelerated in recent decades, and rates have been below the population replacement level since 2004: the period total fertility rate stood at 2.45 in 1996, whereas it now stands at 1.71 (Pellegrino 2013, 2010). During the last inter-census period, that is between 1996 and 2011, fertility decreased throughout the whole country and in all socioeconomic strata (Varela et al. 2014). However, numerous studies showed that this decline unfolded differently across social strata: the gaps in the intensity and timing of fertility between women from different educational levels increased as fertility rates went down (Varela, Pollero, and Fostik 2008; Varela et al. 2014; Pellegrino 2010; Nathan, Pardo, and Cabella 2016; Nathan 2013, 2015a, 2015b).



Using census data, Nathan (2015b) even found that fertility rates increased among very young women across the birth cohorts of 1974–1976, 1979–1981, and 1984–1986. Such a finding suggests that women who have not completed secondary education have their first child younger than those who complete it – and might never complete it as a result – entrenching the association between educational level and fertility.

A flurry of other studies points in the same direction: the reproductive behaviour of young cohorts is more polarised than that of old ones. Low-educated women have their first child younger than highly educated women do, and the difference in the age at first birth is increasing rather than diminishing from one cohort to the next (Fostik 2014; Varela, Fostik, and Fernández Soto 2012; Videgain 2007; Cardozo and Iervolino 2009; Cabella 2009; Filardo 2011). The Uruguayan fertility curve is bimodal: the first peak is located around age 20 and the second one around age 30. The distributions of the conditional fertility rates of the first- and second-order births are asymmetric and bimodal as well (Nathan, Pardo, and Cabella 2016, Nathan 2015b). The increasing polarisation of fertility behaviour has become the most salient feature of Uruguayan fertility.

### **3. Objective and hypotheses**

The purpose of this article is to assess whether or not the changes in the family dynamics that took place in Uruguay are the likely cause of fertility dropping below population replacement level. In order to do this, we examine the role of union dissolution and repartnering in the fertility of Uruguayan women. We use data from a biographical survey and a longitudinal approach, and we focus on the contribution to fertility of the part of the life course that follows the end of the first union. Given that in Uruguay, childbearing is known to be strongly related to education, we pay special attention to this source of variation in our estimations.

Operationally, we are interested in the contribution of births occurring after the end of the first union to fertility, and in the variation of this contribution by birth cohort and by educational levels.

Our general hypothesis is that given the increasing occurrence of separation and divorce at younger ages, and given the increasing occurrence of repartnering after separation or divorce, the negative effect of union dissolution on fertility should be compensated by increasing probabilities of having a child after the first union and especially within the second or higher order unions.

We rely on the following assumptions about the mechanism that relates separation and fertility: (1) The dissolution of the first union usually leads to a reduction of the exposure time to childbearing, which leads to a decrease in the level of fertility. We call

this the *negative effect* of dissolution on fertility. (2) As repartnering becomes more common, the reduction of exposure time becomes smaller, reducing the magnitude of the negative effect. (3) The number of second or higher order unions depends on the level and timing of the dissolution of the first union: the greater the proportion of separated and divorced women at younger ages, the greater the probability of observing second or higher unions.

Given these assumptions and as dissolution and repartnering are more common and occurring at younger ages among recent cohorts, the contribution of second and higher order unions to fertility should have increased across cohorts. Women from recent cohorts should have fewer children in their first union but more in a second or higher order union, and so they compensate the fertility 'lost' to the time spent out of a union after the dissolution of their first union. Thus, the negative effect of union dissolution on fertility should be greater in ancient cohorts than in recent ones.

Given our assumptions, as union dissolution and repartnering have become more common in all educational levels, but as low-educated women still have more children than highly educated women in recent cohorts, the negative effect of the dissolution on fertility should vary with the educational level. Specifically, we focus on the two following hypotheses:

- 1) The negative effect of the dissolution of the first union is smaller for the most educated women belonging to the most recent cohorts than for women from older cohorts and for less educated women of the same cohort.
- 2) The negative effect of the dissolution of the first union is greater for the low-educated women of the oldest cohort than for the more educated women and for those belonging to the younger cohorts.

#### **4. Data and method**

We use data from the Family Situations Survey (*Encuesta sobre Situaciones Familiares*, ESF), a retrospective survey conducted in 2008 on a sample of women aged between 25 and 57 years from Montevideo and its metropolitan area. The survey collected the detailed conjugal and childbearing histories of the respondents as well as a series of sociodemographic characteristics, among which was their educational level at the time of the survey. The questionnaire requested the month and the year of the beginning and end of each coresidential union; for our purposes, there would be no point in dealing separately with married and unmarried coresidential unions. Given the high number of cases for which only the year was recorded, we used only the year. The original sample contains 1,201 cases; we use the 1,026 cases whose information on the

beginning and end of their conjugal unions is known. Table 1 provides a summary description of the sample we use.

**Table 1: Absolute distribution and weighted relative distribution of the sample by birth cohorts and educational levels**

Educational level	1950–1959		1960–1969		1970–1979		Total	
	Number	Proportions	Number	Proportions	Number	Proportions	Number	Proportions
Low	87	0.32	108	0.35	109	0.36	304	0.35
Medium	114	0.31	97	0.25	96	0.30	307	0.29
High	158	0.37	160	0.40	97	0.34	415	0.37
Total	359	1.00	365	1.00	302	1.00	1026	1.00

Source: Encuesta sobre Situaciones Familiares, Montevideo (Uruguay), 2008. Women aged between 25 and 57 at the time of survey.

We operationalise our hypothesis first by grouping the various stages of the conjugal history into three broad steps: (1) before the first union, (2) during the first union, and (3) after the first union. The third step groups together all stages of the conjugal history that take place after the end of the first union, which includes all higher order unions and all intervals between unions. For the sake of simplicity, we will sometimes refer to these steps by their number.

We use a three-pronged approach. First, we use the decomposition technique of period fertility measures introduced by Laplante and Fostik (2015). This technique allows the decomposition of fertility measures – age-specific fertility rates, cumulative fertility at any age, the total fertility rate – according to the states of a state space so that the contribution of each state to any of these measures are estimated. It was introduced to estimate the relative contribution of unmarried cohabitation and marriage to fertility using census data. Here, we adapt this technique to cohort data and to the three steps we are interested in. We estimate the contribution of each step to the age-specific fertility rates, to cumulative fertility at age 30, and to the cohort total fertility rate.

The technique involves estimating conditional, or within state, age-specific fertility rates. Weighting these rates by the age-specific proportion of individuals located in the corresponding state gives the contribution of each state to the age-specific fertility rates. These contributions may be scaled to 1 and interpreted as proportions of the age-specific fertility rates. Summing them over age allows computing contributions to cumulative fertility at any age or to the total fertility rate; scaling the sums to 1 allows computing contributions as proportions. In Laplante and Fostik (2015), the contributions to the TFR may be interpreted as the proportions of the completed fertility of a synthetic woman assignable to the periods of her reproductive life when she was not in a conjugal union, living in a cohabiting union or being married. Here, these

contributions may be interpreted as the proportions of the completed fertility of the average woman assignable to each of the three steps we defined. We estimate the contribution of each state to the age-specific fertility rates (CASFRs) and the contributions to the total fertility rate (CTFRs) for all women and by birth cohort. Table A-2 of the Appendix reports the proportion of women aged 20–49 years in each step of the conjugal history according to age by birth cohorts that are used as weights. Table A-3 reports the age-specific fertility rates by steps of the conjugal history and birth cohorts.

Formally, adapting Laplante and Fostik’s (2015) period approach to a cohort leads to the following four relations:

$$f_{sx}^A = p_{sx} f_{sx},$$

$$f_x = \sum_{s=1}^3 f_{sx}^A,$$

$$F_s^A = \sum_{x=15}^{49} f_{sx}^A,$$

and

$$F = \sum_{s=1}^3 F_s^A = \sum_{s=1}^3 \sum_{x=15}^{49} f_{sx}^A$$

where  $f_{sx}^A$  is the weighted – or ‘adjusted’ – (conditional) age-specific fertility rate at age  $x$  for step  $s$ ,  $p_{sx}$  is the proportion of women living in step  $s$  at age  $x$ ,  $f_{sx}$  is the (conditional) age-specific fertility rate at age  $x$  for step  $s$ ,  $f_x$  is the age-specific fertility rate,  $F_s^A$  is the (conditional) total fertility rate for step  $s$ , and  $F$  is the overall total fertility rate.

Second, we use a survival model based on Poisson regression to estimate the effect of each step of the conjugal history on the hazard of giving birth to the next child. We specify the relationship between age and the hazard as curvilinear. Given the importance of the variation of fertility patterns across cohorts and educational levels, we stratify the estimation according to these two variables. Thus, we estimate a different curvilinear relationship for each of the nine combinations of a cohort and an educational level. We use the estimates of the ASFRs from the Poisson regression to predict the incomplete and completed fertility of women.

The equation we use may be written as

$$\ln(\lambda_{ijk}) = \sum_{i=1}^3 \sum_{j=1}^3 \beta_{ij} C_i N_j + \beta_{ij1} C_i N_j A + \beta_{ij2} C_{ji} N_j A^2 + \sum_{k=2}^3 \gamma_k U_k,$$

where  $\lambda_{ijk}$  is the hazard of having the next child,  $C_i$  is the logical variable representing cohort  $i$ ,  $N_j$  is the logical variable representing educational level  $j$ ,  $U_k$  is the logical variable representing step  $k$  of the conjugal history,  $\beta_{ij}$  is the intercept of the equation for birth cohort  $i$  and educational level  $j$ ,  $A$  is the age of the woman,  $\beta_{ij1}$  is the intercept of the curvilinear relation between age and the hazard in birth cohort  $i$  and educational level  $j$ ,  $\beta_{ij2}$  is half the slope of the curvilinear relation between age and the hazard in birth cohort  $i$  and educational level  $j$ , and  $\gamma_k$  is the effect of step  $k$  of the conjugal history.

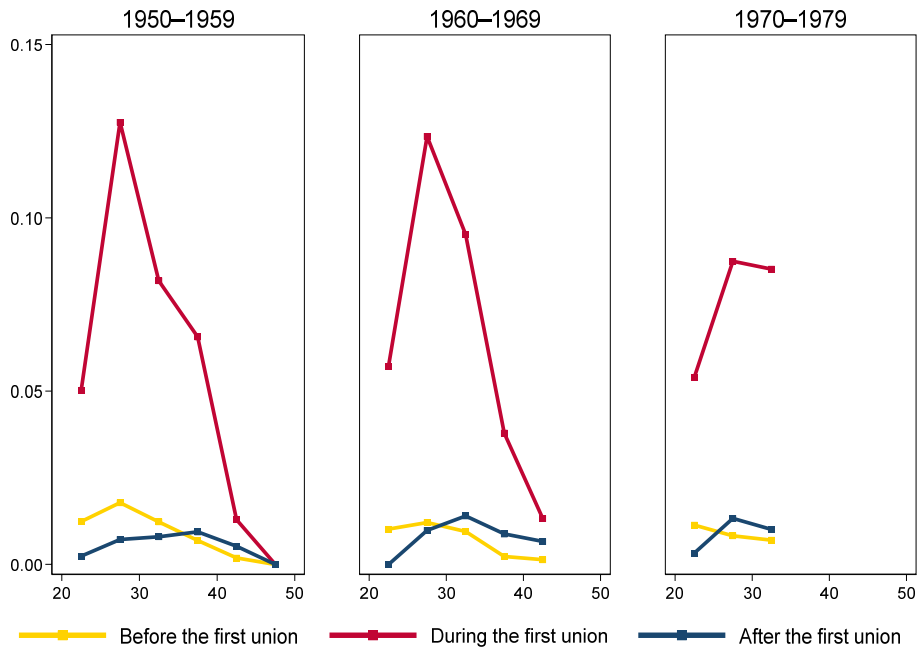
Third, we use a counterfactual approach to estimate what would have been the incomplete and completed fertility of women who experienced a dissolution if they had remained in their first union. We do this by predicting the incomplete and completed fertility of women who ended their union using the ASFRs estimated with the Poisson regression for women who did not put an end to their first union for the portion of their conjugal history that comes after the end of their first union. This prediction is done separately for the lowest and highest educational level within each birth cohort.

## 5. Results

### 5.1 The contribution of the steps of the conjugal history to fertility

Figure 1 reports the contributions of each step of the conjugal history to age-specific fertility rates by age groups and cohorts. The first union has the highest contribution in all age groups and in all cohorts. In the oldest cohort, the contribution of the first step is greater than that of the third until age 35. In the middle cohort, the contribution of the third step is greater than that of the first from age 25 onwards, while it is greater from about age 23 onwards in the youngest one. Furthermore, the contributions of the second step are smaller in the most recent cohort than in the other two, making the contributions of the time spent out of union and after the end of the first union proportionally greater in this cohort than in the other two. This is a consequence of unions ending at a younger age or in greater numbers in the youngest cohort than in the older ones.

**Figure 1: Contribution of each step of the conjugal history to age-specific fertility rates by birth cohorts**

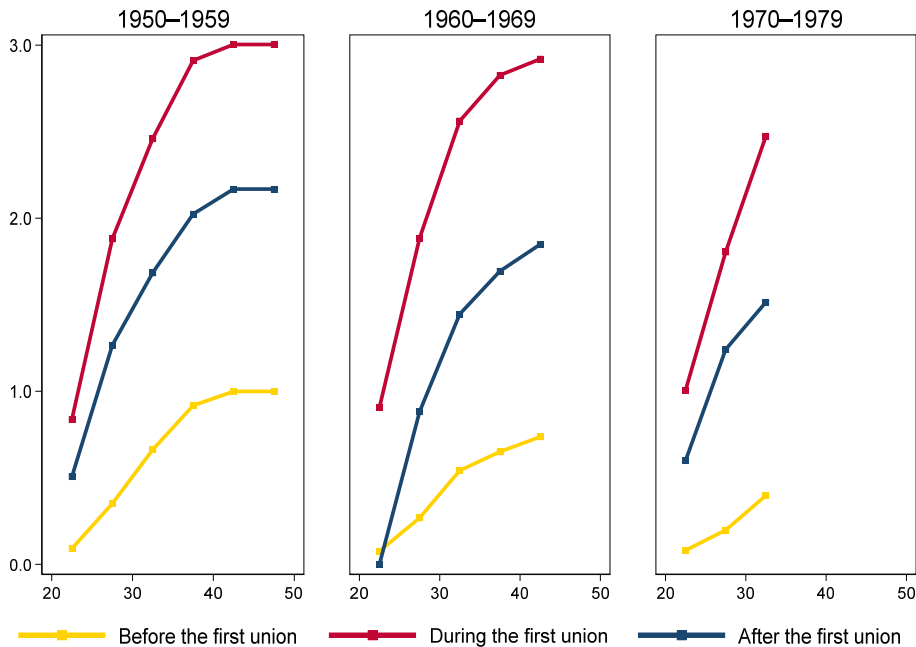


Source: *Encuesta sobre Situaciones Familiares*, Montevideo (Uruguay), 2008. Women aged between 25 and 57 years at the time of survey. Detailed results in Table A-4 of the Appendix.

Figure 2 represents the cumulative fertility by steps of the conjugal history and birth cohort – or ‘conditional on’ each step and birth cohort in statistical parlance – which is the number of children a woman of a given cohort would have had if she would spend all her reproductive years in the same step. Although they may look theoretical, these figures are measures of the cumulative intensity of fertility in each step. Because they start at age 20, the curves make clear that in all three cohorts, before age 20, fertility comes almost completely from marriage or cohabitation.

Few births occur to unpartnered very young women, and thus, births at an early age occur almost completely within unions that started early. Unlike in the oldest and youngest cohorts, in the second one, the cumulative fertility at age 20 is close to zero for the third step. Ending the first union before age 20 is more common in the third cohort than in the other two.

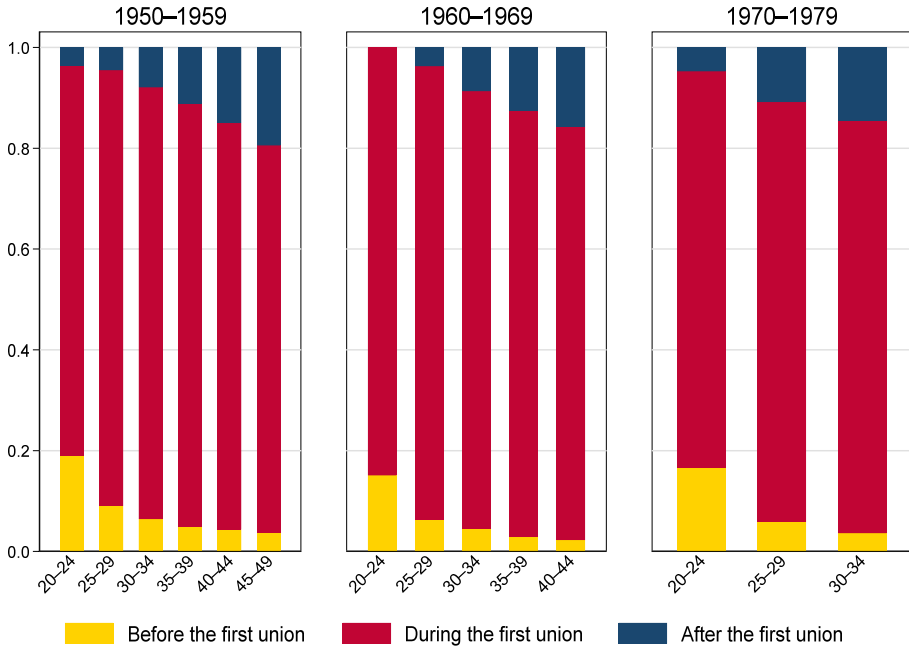
**Figure 2: Cumulative fertility by steps of the conjugal history and birth cohorts**



Source: *Encuesta sobre Situaciones Familiares*, Montevideo (Uruguay), 2008. Women aged between 25 and 57 years at the time of survey. Detailed results in Table A-5 of the Appendix.

Finally, Figure 3 shows the contributions of each step of the conjugal history to cumulative fertility by birth cohorts. The relative contribution to the fertility of the third step increases with age and does so in all cohorts. This contribution is the highest in the youngest cohort but higher in the older cohort than in the middle one. For instance, at age 30, it is about the same in the oldest and middle cohort – 8% and 9% – but 15% in the youngest one. Not surprisingly, it is almost zero in the middle cohort before age 25. The contribution of the first union is always the highest, by far and large, but that of the time lived after the first union steadily increases.

**Figure 3: Relative contribution of each step of the conjugal history to cumulative fertility by birth cohorts (Proportions)**



Source: *Encuesta sobre Situaciones Familiares*, Montevideo (Uruguay), 2008. Women aged between 25 and 57 years at the time of survey. Detailed results in Table A-6 of the Appendix.



**Table 2: TFR, contribution to TFR, and contribution to TFR as proportions by steps of the conjugal history**

Contributions		Before the first union	During the first union	After the first union	Total
<b>All cohorts</b>	To cohort TFR	0.19	1.58	0.19	1.97
	As a proportion	0.10	0.80	0.10	1.00
	To cumulative fertility at 30	0.17	1.26	0.12	1.54
	As a proportion	0.11	0.82	0.07	1.00
<b>1970–1979</b>	To cohort TFR	0.15	1.44	0.15	1.75
	As a proportion	0.09	0.83	0.09	1.00
	To cumulative fertility at 30	0.13	1.13	0.13	1.40
	As a proportion	0.10	0.81	0.10	1.00
<b>1960–1969</b>	To cohort TFR	0.18	1.64	0.20	2.01
	As a proportion	0.09	0.81	0.10	1.00
	To cumulative fertility at 30	0.16	1.38	0.12	1.66
	As a proportion	0.10	0.83	0.07	1.00
<b>1950–1959</b>	To cohort TFR	0.26	1.69	0.16	2.11
	As a proportion	0.12	0.80	0.08	1.00
	To cumulative fertility at 30	0.21	1.30	0.09	1.60
	As a proportion	0.13	0.81	0.05	1.00

Source: *Encuesta sobre Situaciones Familiares*, Montevideo (Uruguay), 2008. Women aged between 25 and 57 years at the time of survey.

Table 2 summarises the contributions of each step of the conjugal history to the cohort TFR and to cumulative fertility at age 30. When looking at the TFR for all cohorts, the largest share of the cohort TFR – 1.58 children or 80% – comes from the first union, while the remainder comes equally from steps of the conjugal history where women had not yet been in a union or had put an end to their first union. The picture is different when looking at cumulative fertility at 30. The proportion that comes from the first union is about the same as it is for all reproductive years – 82% – but the contribution of the other two steps are very different: only 11% from births occurring before the first union and 7% from births occurring after it ended.

The largest differences between the cohorts are in the proportion of the cumulative fertility at age 30 that comes from births occurring after the end of the first union. This proportion is gradually increasing from 5% in the oldest cohort to 10% in the youngest one. This suggests that the end of the first union occurs earlier in the youngest cohort than in the older ones and might signal that by the end of its reproductive period, the contribution of births occurring after the end of the first union to the TFR will be larger in the youngest cohort than in the older ones.

## **5.2 The effect of the dissolution of the first union on the hazard of having the next child**

We study the effect of the dissolution of the first union on fertility by estimating the effect of several variables of the hazard of having the next child using Poisson regression.

Figures 4, 5 and 6 are grouped together at the end of the section. In Figure 4, we model the hazard of having the next child as a function of age and cohort without controlling or modelling the effects of other factors. Age is a time-varying covariate and its effect is modelled as a quadratic function whose parameters vary by cohort. In other words, the estimation is stratified by cohorts, and there is a separate fertility function – a smoothed series of age-specific fertility rates – for each cohort. The curves of the two older cohorts are very close; rates are somewhat lower from age 30 onwards in the middle cohort than in the oldest. The curve of the most recent cohort is different: its rates are close to those of the other cohorts up to about the mid-20s but are lower afterwards. However, these curves hide stark differences between educational levels and conjugal history.

These differences become obvious when looking at the results from an equation in which we estimate the effect of being in any of the three steps of the conjugal history using a separate fertility function for each combination of a cohort and an educational level. This allows us to explicitly model the fertility schedule of each educational level as well as the postponement of the fertility schedule from the oldest to the youngest cohort. In this equation, age and the step of the conjugal history are time-varying covariates. The detailed results of this equation are reported in Table A-8 in the Appendix.

Net effects of age, birth cohort, and educational level moving out of the first union decreases fertility rates by 29%, that is 1 minus the quotient of the coefficient of ‘After the first union’ (3.772) and of the coefficient of ‘During the first union’ (5.307). Figure 5 shows the fertility functions of being in the first union and having dissolved the first union for the lowest and highest educational levels within each cohort using the estimates of Table A-8. The most salient feature of the figure is the differences between the fertility schedules of the low and the highly educated, and the differences in the way these schedules changed from the oldest to the youngest cohort. In all cohorts, the peak of the fertility function of the low educated is higher than that of the highly educated. In all cohorts, the peak of the fertility function of the low educated is located before age 25, while the peak of the fertility function of the highly educated is located after age 25 in the oldest cohort, is around 30 in the middle cohort, and is likely to be around 35 in the youngest cohort. This pattern is the graphic expression of the strong social polarisation of the reproductive behaviour in the Uruguayan society.

Figure 6 reports the results of our counterfactual analysis. Here, we are primarily interested in what would have been the incomplete and completed fertility of women who ended their first union if they had not done so. Thus, the curves of Figure 6 are not the integrals of age-specific fertility rates functions similar to those depicted in Figure 5: They do not represent the cumulative fertility associated with steps of the conjugal history. In Figure 6, each dotted line is the actual or counterfactual predicted incomplete fertility of an individual woman, which is the number of children she should have given birth to over her reproductive years according to the equation we estimated. The value of this function at age 49 is the individual woman's predicted completed fertility. Our equation contains six baseline fertility functions, one for each combination of a cohort and an educational level, and one set of coefficients for the steps of the conjugal history. The 'uniqueness' of each woman's curve comes from her unique sequence of spells in each of the three steps of the conjugal history, each spell having its own timing and duration. Each solid line is the average of the predicted incomplete fertility of women who did not end their first union or of women who did, and each dashed line is the average of the counterfactual predicted incomplete fertility of women who ended their first union. The curves are averaged within groups defined by one cohort and one educational level.

To keep things tractable, we contrast the highest and lowest educational levels within each cohort, and we exclude women who never lived in a conjugal union. Thus, there are six groups of women in Figure 6, and there are three sets of values: one for the women who did not end their first union, one for women who ended their first union, and for women who ended their first union assuming they had not.

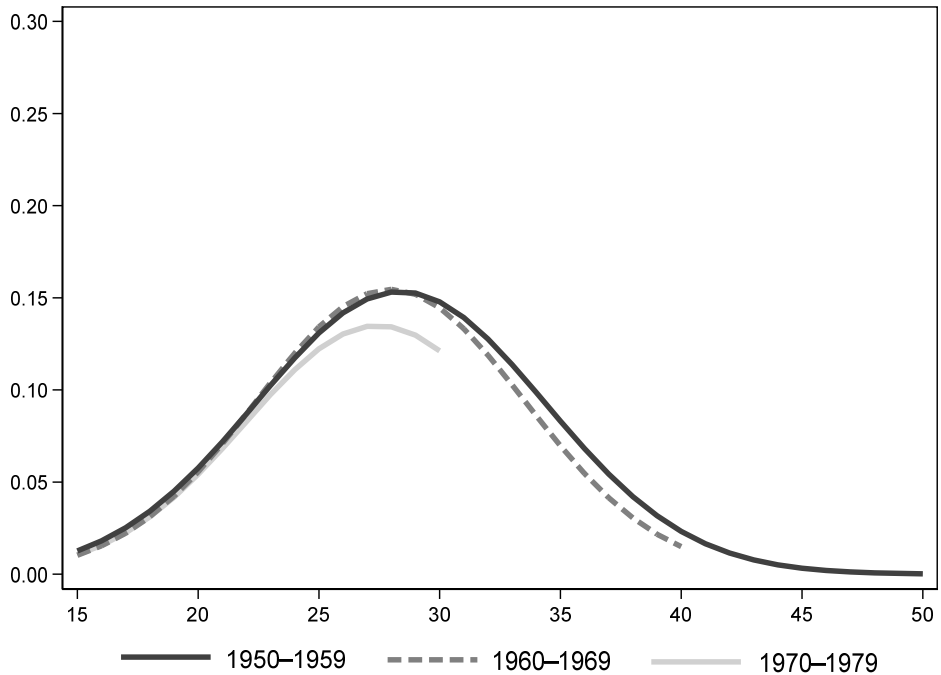
Within most groups, the actual average predicted incomplete fertility of the women who ended their first union is less than that of the women who did not, and the average counterfactual predicted incomplete fertility of the former lies in between the two average actual predicted incomplete fertility.

In the oldest cohort, the average predicted incomplete fertility of low-educated women who did not end their first union is greater than the average predicted incomplete fertility of women who did end their first union. However, the average counterfactual predicted incomplete fertility of women who ended their first union is greater than the actual predicted incomplete fertility of women who did not end their first union. Thus, in this group, post-dissolution fertility is relatively high, but the loss due to union dissolution is not compensated by post-dissolution fertility despite its magnitude.

The highly educated women of the same cohort are an example of the most common pattern. The average predicted incomplete fertility of women who did not end their first union is greater than that of the women who ended their first union. In addition, the average counterfactual predicted incomplete fertility of those who ended their first union is slightly less than the average actual predicted incomplete fertility of

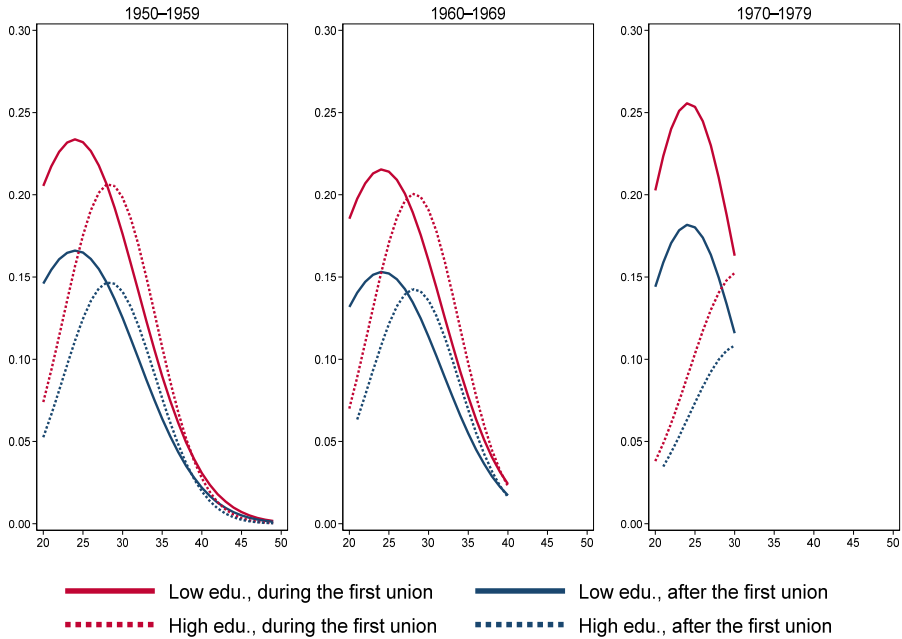
those who did not end their first union. Drawing definitive conclusions on the youngest cohort would be presumptuous because its members are not observed after age 30. That said, among the highly educated, the three curves are almost impossible to distinguish.

**Figure 4: Age-specific fertility rates by birth cohorts. Predicted values from Poisson regression estimates**



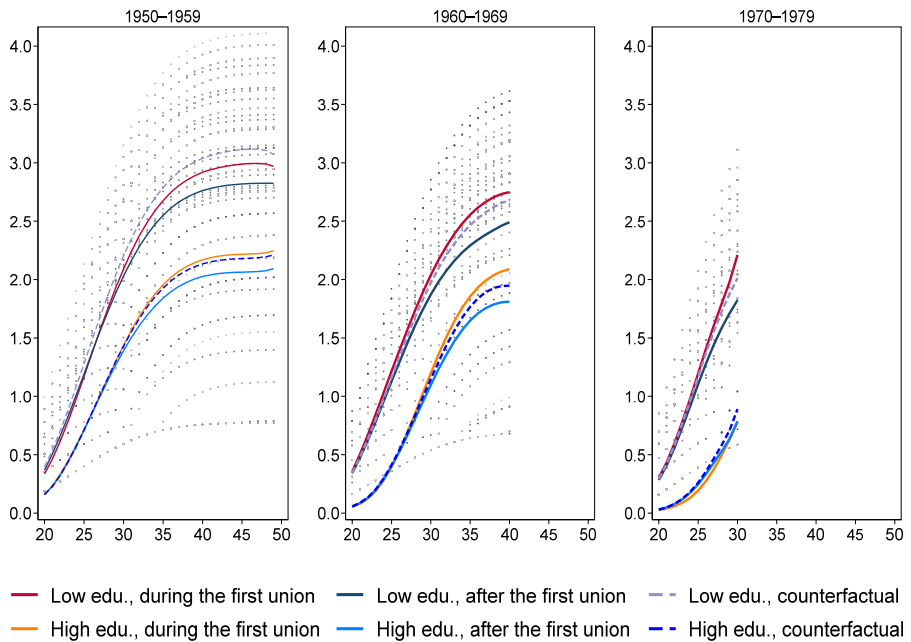
Source: *Encuesta sobre Situaciones Familiares*, Montevideo (Uruguay), 2008. Women aged between 25 and 57 years at the time of survey. Estimates are reported in Table A-7 of the Appendix.

**Figure 5: Age-specific fertility rates by steps of the conjugal history for selected educational levels by birth cohorts. Predicted values from Poisson regression estimates**



Source: *Encuesta sobre Situaciones Familiares*, Montevideo (Uruguay), 2008. Women aged between 25 and 57 years at the time of survey. Estimates are reported in Table A-8 of the Appendix.

**Figure 6: Predicted incomplete fertility for selected educational levels by birth cohorts. Counterfactual predicted incomplete fertility of women who ended their first union for selected educational levels by birth cohorts. Predicted values from Poisson regression estimates**



*Note:* Dotted lines represent the actual or counterfactual predicted incomplete fertility of individual women. Each solid line is the average of the predicted incomplete fertility of women who did not end their first union or of women who did. Each dashed line is the average of the counterfactual predicted incomplete fertility of women who ended their first union.  
*Source:* *Encuesta sobre Situaciones Familiares*, Montevideo (Uruguay), 2008. Women aged between 25 and 57 at the time of survey. Based on the estimates reported in in Table A-8 of the Appendix.

## 6. Discussion and conclusion

In Uruguay, as in many other countries, union dissolution has become more common over the last decades and has been occurring more often over the life course. Putting an end to the first union has also been occurring earlier. Thus, dissolving the first union is more common in our youngest cohort, born between 1970 and 1979, than in older cohorts: The proportion of unions ended before age 30 is higher in this cohort than in older ones and is twice the proportion of the oldest cohort, born between 1950 and

1959. Overall, the time spent over the life course after the end of the first union has been increasing from our oldest cohort to our youngest.

Obviously, by itself, ending the first union decreases the exposure to the hazard of having a child and, thus, should decrease completed fertility. However, more time spent after the end of the first union means more exposure to repartnering and eventually to childbearing in a later union. Whether or not union dissolution has an overall decreasing effect on completed fertility becomes an empirical question that translates to whether or not, in a given society, the time spent in a later union and fertility rates within later unions combine in a way that ‘compensates’ for the shortened duration of the first union.

In order to answer this question, we decomposed the cohort age-specific fertility rates and total fertility rate according to each step of the conjugal history, we estimated the effect of being in each of these steps on the hazard of giving birth to the next child, and we used these estimates to predict and compare the incomplete fertility of women who remained in their first union, that of women who ended their first union, and in a counterfactual fashion, that of women who ended their union if they had not.

Not unsurprisingly, age-specific fertility rates are much higher during the first union than either before its beginning or after its end, and the contribution of the first union to the cohort total fertility rate is higher than those of the previous and following steps of the conjugal history. A hypothetical woman who would spend all her reproductive years in the last step of the conjugal history would have, on average, 8.3 times fewer children than one who would have spent her reproductive years in her first union. That said, there are differences between the cohorts, as the ASFRs decrease from the oldest one to the youngest. As expected, the proportion of women who reach the step of having ended their first union at a given age increases from the oldest to the youngest cohort, although this increase mainly occurs between the 1960–1969 and the 1970–1979 cohorts. This increase is noticeable even if the women of the youngest cohort are not observed later than age 30. On average, women from this cohort end their first union at an earlier age and thus spend more time at risk of repartnering and having a child in a later union. Given this, the relative contribution of the last step of the conjugal history to cumulative fertility is higher in the youngest cohort than in the older ones.

We modelled our estimation of the effect of each step of the conjugal history on the hazard of having the next child with a special attention for the social polarisation of the fertility behaviour as it is known to exist in Uruguay: we estimated the fertility functions of each step of the conjugal history by educational levels and cohort. The resulting curves show the striking differences between the fertility schedules of the low and the highly educated, and the differences in the way these schedules changed from the oldest to the youngest cohort.

The model allows the prediction of each woman's incomplete and completed fertility from the rates, from the age at which she entered into each step of the conjugal history, and from the amount of time she spent in each of them. Averaging the resulting individual curves within each educational level and each cohort shows that, in most cases, dissolving the first union reduces the incomplete and completed fertility, the largest decrease occurring among the low-educated women from the oldest cohort and the smallest one among the highly educated women of the youngest cohort. Using the rates to predict what would have been the incomplete and completed fertility of the women who ended their first union if they had not ended it and comparing these counterfactual predicted values with the actual ones leads to similar qualitative results. This comparison provides an additional result: among the highly educated women of the youngest cohort, the differences between the incomplete fertility of the women who remained in their first union, that of women who ended it, and the counterfactual prediction are so small as to conclude that at least until age 30, the incomplete fertility of these women seems insensitive to union instability.

The overall conclusion is that union instability does reduce fertility, but that the reduction was larger in the older cohorts than it is in the youngest one and could be very small among the highly educated women of the youngest cohort, at least until age 30. The difference in the effect of union instability is a consequence of women from the younger cohort ending their first union more often and at an earlier age than women from the older cohorts, thus spending less time in the first union and more in later unions. Thus, changes in the family dynamics, such as the rise in the number of separations and divorce and repartnering, are not likely to have been the cause of the drop of Uruguayan fertility below replacement level.



## References

- Beaujouan, E. and Solaz, A. (2008). Childbearing after separation. Do second unions make up for earlier missing births? Evidence from France. Paris: INED (Documents de travail 155).
- Billari, F. (2005a). Europe and its fertility. From low to lowest low. *National Institute Economic Review* 194: 56–73. doi:10.1177/0027950105061496.
- Billari, F. (2005b). Partnership, childbearing and parenting. Trends of the 1990s. In: Macura, M., MacDonald, A.L., and Haug, W. (eds.). *The new demographic regime. Population challenges and policy responses*. New York and Geneva: United Nations: 63–94.
- Binstock G., Cabella, W., Salinas, V., and López-Colás, J. (2016). The rise of cohabitation in the Southern Cone. In: Esteve, A. and Lesthaeghe, R. (eds.). *Cohabitation and marriage in the Americas: Geo-historical legacies and new trends*. Cham: Springer: 247–268. doi:10.1007/978-3-319-31442-6\_9.
- Binstock, G. and Cabella, W. (2011). La nupcialidad en el Cono Sur. Evolución reciente en la formación de uniones en Argentina, Chile y Uruguay. In: Binstock, G. and Melo Vieira, J. (eds.). *Nupcialidad y familia en la América Latina actual*. Río de Janeiro: Asociación Latinoamericana de Población (Serie de investigaciones N° 11): 35–59.
- Blanes, A., Koolhaas, M., Nathan, M., and Pardo, I. (2018). Las tendencias demográficas a nivel subnacional en Uruguay. ¿Convergencia o divergencia? In: Simpson, L. and González, L. (eds.). *¿Convergencia demográfica? Análisis comparativo de las tendencias demográficas subnacionales en América Latina y el Caribe*. Río de Janeiro: Asociación Latinoamericana de Población (Serie de investigaciones N°5): 295–326.
- Bongaarts, J. (1987). Data and perspectives. The proximate determinants of exceptional fertility. *Population and Development Review* 13(1): 133–139. doi:10.2307/1972125.
- Buber, I. and Fürnkranz-Prskawetz, A. (2000). Fertility in second unions in Austria. Findings from the Austrian FFS. *Demographic Research* 3(2). doi:10.4054/DemRes.2000.3.2.
- Cabella, W. (1998). La evolución del divorcio en Uruguay (1950–1995). *Notas de Población* 26(67–68): 209–245.

- Cabella, W. (2007). *El cambio familiar en Uruguay. Una breve reseña de las tendencias recientes*. Montevideo: Fondo de Población de las Naciones Unidas (Serie Divulgación).
- Cabella, W. (2008). Dissoluções e formação de novas uniões. Uma análise demográfica das tendências recentes no Uruguai [PhD thesis]. Campinas: Universidade Estadual de Campinas, Núcleo de Estudos de População.
- Cabella, W. (2009). Dos décadas de transformaciones de la nupcialidad uruguaya. La convergencia hacia la segunda transición demográfica. *Estudios Demográficos y Urbanos* 24(2): 389–427. doi:10.24201/edu.v24i2.1338.
- Cabella, W. and Fernández Soto, M. (2017). Evolución reciente de las uniones consensuales entre los jóvenes del Uruguay. *Notas de Población* 105: 107–132. doi:10.18356/d37e518d-es.
- Cardeillac, J., Nathan, M., and Juncal, A. (2018). Comportamiento reproductivo y lugar de residencia. Algunas reflexiones para el caso de Uruguay desde un enfoque de las ruralidades. *Revista Latinoamericana de Población* 23: 36–61. doi:10.31406/n23a3.
- Cardozo, S. and Iervolino, A. (2009). Adiós juventud. Tendencias en las transiciones a la vida adulta en Uruguay. *Revista de Ciencias Sociales* 25: 60–81.
- Cerrutti, M. and Binstock, G. (2009). Familias latinoamericanas en transformación. Desafíos y demandas para la acción pública. Santiago de Chile: Comisión Económica para América Latina y el Caribe (Serie Políticas Sociales 147).
- Cherlin, A. (2016). A happy ending to a half-century of family change? *Population and Development Review* 42(1): 121–129. doi:10.1111/j.1728-4457.2016.00111.x.
- Cherlin, A. (2017). Introduction to the special collection on separation, divorce, repartnering, and remarriage around the world. *Demographic Research* 37(38): 1275–1296. doi:10.4054/DemRes.2017.37.38.
- Cohen, S.B. and Sweet, J.A. (1974). The impact of marital disruption and remarriage on fertility. *Journal of Marriage and Family* 36(1): 87–96. doi:10.2307/350998.
- Coppola, L. and Di Cesare, M. (2008). How fertility and union stability interact in shaping new family patterns in Italy and Spain. *Demographic Research* 18(4): 117–144. doi:10.4054/DemRes.2008.18.4.

- Creighton, M., Esping Andersen, G., Rutigliano, R., and van Damme, M. (2013). ¿Influye la inestabilidad de la pareja en la fecundidad? In: Esping Andersen, G. (ed.). *El déficit de la natalidad en Europa*. Barcelona: Fundación “la Caixa.”: 112–131.
- Davis, K. and Blake, J. (1956). Social structure and fertility: An analytical framework. *Economic Development and Cultural Change* 4(3): 211–235. doi:10.1086/449714.
- Downing, D.C. and Yaukey, D. (1979). The effects of marital dissolution and re-marriage on fertility in urban Latin America. *Population Studies* 33(3): 537–547. doi:10.2307/2173897.
- Ebanks, G.E., George, P.M., and Nobbe, C.E. (1974). Fertility and number of partnerships in Barbados. *Population Studies* 28(3): 449–461. doi:10.1080/00324728.1974.10405192.
- Esteve, A. and Lesthaeghe, R. (2016). *Cohabitation and marriage in the Americas: Geo-historical legacies and new trends*. Cham: Springer. doi:10.1007/978-3-319-31442-6.
- Esteve, A., Lesthaeghe, R., and López-Gay, A. (2012). The Latin American cohabitation boom, 1970–2007. *Population and Development Review* 38(1): 55–81. doi:10.1111/j.1728-4457.2012.00472.x.
- Fernández Soto, M. (2010). Estudio sobre las trayectorias conyugales de las mujeres del Gran Montevideo. *Revista Latinoamericana de Población* 7(4): 79–110. doi:10.31406/relap2010.v4.i2.n7.2.
- Filardo, V. (2011). Transiciones a la adultez y educación. In: Filgueira, F. and Mieres, P. (eds.). *Jóvenes en tránsito. Oportunidades y obstáculos en las trayectorias hacia la vida adulta*. Montevideo: Fondo de Población de las Naciones Unidas y Ediciones Rumbos: 13–62.
- Filgueira, C. (1996). *Sobre revoluciones ocultas. La familia en Uruguay*. Montevideo: Comisión Económica para América Latina y el Caribe.
- Fostik, A.L. (2014). La naissance du premier enfant et la transition à la vie adulte en Uruguay. [PhD thesis] Quebec City: Université du Québec, Institut national de la recherche scientifique, Centre Urbanisation Culture Société, Doctorat en démographie.
- García, B. and Rojas, O. (2002). Cambios en la formación y disolución de las uniones en América Latina. *Papeles de Población* 8(32): 11–31.

- Guzzo, K. (2014). New partners, more kids: Multiple-partner fertility in the United States. *The Annals of the American Academy of Political and Social Science* 654(1): 66–86. doi:10.1177/0002716214525571.
- Jansen, M., Wijckmans, B., and Van Bavel, J. (2008). *The influence of divorce on the cumulated fertility of men and women across Europe*. Paper presented at the European Population Conference, Barcelona, Spain, July 8–11, 2008.
- Laplante, B., and Fostik, A.L. (2015). Two period measures for comparing the fertility of marriage and cohabitation. *Demographic Research* 32(14): 421–442. doi:10.4054/DemRes.2015.32.14.
- Lauriat, P. (1969). The effect of marital dissolution on fertility. *Journal of Marriage and the Family* 31(3): 484–493. doi:10.2307/349770.
- Leone, T. (2002). Fertility and union dynamics in Brazil [PhD thesis]. Southampton: University of Southampton, Faculty of Social Sciences, Department of Social Statistics.
- Leone, T. and Hinde, A. (2007). Fertility and union dissolution in Brazil: An example of multi-process modeling using the Demographic and Health Survey Calendar Data. *Demographic Research* 17(7): 157–180. doi:10.4054/DemRes.2007.17.7.
- Lesthaeghe, R. (1991). The second demographic transition in Western Countries: An interpretation. Brussels: Vrije Universiteit Brussel, Interuniversity Programme in Demography (IPD Working Paper 1991–2).
- Meggiolaro, S. and Ongaro, F. (2010). The implications of marital instability for a woman's fertility: Empirical evidence from Italy. *Demographic Research* 23(34): 936–996. doi:10.4054/DemRes.2010.23.34.
- Nathan, M. (2013). Inicio de la fecundidad en mujeres de Montevideo y área metropolitana. ¿Postergación?, ¿polarización? *Revista Latinoamericana de Población* 7(12): 33–58. doi:10.31406/relap2013.v7.i1.n12.2.
- Nathan, M. (2015a). La creciente heterogeneidad en la edad al primer hijo en el Uruguay. Un análisis de las cohortes de 1951 a 1990. *Notas de Población* 100: 35–60. doi:10.18356/ecf4b5ea-es.
- Nathan, M. (2015b). La lenta transición hacia un régimen de fecundidad tardía en Uruguay. Los cambios en la edad al primer hijo entre 1978 y 2011. *Revista Latinoamericana de Población* 9(17): 37–60. doi:10.31406/relap2015.v9.i2.n17.4.

- Nathan, M., Pardo, I., and Cabella, W. (2016). Diverging patterns of fertility decline in Uruguay. *Demographic Research* 34(20): 563–586. doi:10.4054/DemRes.2016.34.20.
- Paredes, M. (2003). Los cambios en la familia en Uruguay. ¿Hacia una segunda transición demográfica? In: *Nuevas formas de familia, perspectivas nacionales e internacionales*. Montevideo: Fondo de las Naciones Unidas para la Infancia y Universidad de la República: 73–101.
- Pasteels, I. and Mortelmans, D. (2015). Dyadic analysis of repartnering after divorce. Do children matter? In: Zartler, U., Heintz-Martin, V., and Arránz Becker, O. (eds.). *Family dynamics after separation. A life course perspective on post-divorce families*. Opladen, Berlin, Toronto: Barbara Budrich Publishers (Special issue of the *Journal of Family Research*): 143–164. doi:10.2307/j.ctvddzmht.11.
- Pellegrino, A. (2010). *La población de Uruguay. Breve caracterización demográfica*. Montevideo: Fondo de Población de las Naciones Unidas.
- Pellegrino, A. (2013). Uruguay. Cien años de transición demográfica. *Migración y Desarrollo* 11(20): 186–207. doi:10.35533/myd.1120.ap.
- Persson, L. and Tollebrant, J. (2013). Having children in new relationships. Stockholm: Statistics Sweden, Forecast Institute (Demographic Reports 2013: 2)
- Quilodrán, J. (2008). Los cambios en la familia vistos desde la demografía, una breve reflexión. *Estudios demográficos y urbanos* 23(1): 7–20. doi:10.24201/edu.v23i1.1301.
- Rijken, A.J. and Thomson, E. (2011). Partners' relationship quality and childbearing. *Social Science Research* 40(2): 485–497. doi:10.1016/j.ssresearch.2010.10.001.
- Rosero Bixby, L. (1978). *Nupcialidad y fecundidad en cuatro zonas rurales de América Latina*. Santiago de Chile: Centro Latinoamericano y Caribeño de Demografía.
- Spijker, J., Solsona, M., and Simó, C. (2012). Post first union repartnering and parenthood patterns in late 20<sup>th</sup> century Europe. Bellaterra: Centre d'Estudis Demogràfics (Papers de Demografia 399).
- Thomson, E. (2002). Her, his and their children. Influences on couple childbearing decisions. Madison: University of Wisconsin, National Survey of Families and Households (NSFH Working Paper 76).
- Thomson, E. and Li, J.A. (2002). Childbearing intentions and births in step-families. Madison: University of Wisconsin, National Survey of Families and Households (NSFH Working Paper 89).

- Thomson, E., Winkler-Dworak, M., Spielauer, M., and Prskawetz, A. (2012). Union instability as an engine of fertility? A micro-simulation model for France. *Demography* 49(1): 175–195. doi:10.1007/s13524-011-0085-5.
- Thornton, A. (1978). Marital dissolution, remarriage, and childbearing. *Demography* 15(3): 361–380. doi:10.2307/2060656.
- Toulemon, L. and Knudsen, L.B. (2008). *Stepfamilies in Denmark and France. Does the number of previous children from both partners and whether the previous children live with the couple influence fertility?* Paper presented at the Population Association of America, New Orleans, April 17–19, 2008.
- UEGE [Unidad de Estadística y Gestión Estratégica] (2013). Informe Censos 2011: Montevideo y área metropolitana. Montevideo: Unidad de Estadística y Gestión Estratégica, Intendencia de Montevideo.
- United Nations (2015). World Population Prospects. The 2015 Revision. New York: United Nation.
- Van Bavel, J., Jansen, M., and Wijckmans, B. (2012). Has divorce become a pro-natal force in Europe at the turn of the 21<sup>st</sup> century? *Population Research and Policy Review* 31(5): 751–775. doi:10.1007/s11113-012-9237-6.
- Varela, C., Fostik, A.L., and Fernández Soto, M. (2012). Maternidad en la juventud y desigualdad social. Montevideo: Fondo de Población de las Naciones Unidas (Cuadernos del UNFPA 6(6), Serie Divulgación).
- Varela, C., Pardo, I., Lara, C., Nathan, M., and Tenenbaum, M. (2014). La fecundidad en el Uruguay (1996–2011). Desigualdad social y diferencias en el comportamiento reproductivo. Montevideo: Instituto Nacional de Estadística (Atlas sociodemográfico, fascículo 3).
- Varela, C., Pollero, R., and Fostik, A.L. (2008). La fecundidad: evolución y diferenciales en el comportamiento reproductivo. In: Varela, C. (ed.). *Demografía de una sociedad en transición. La población uruguaya a inicios del siglo XXI*. Montevideo: Fondo de Población de las Naciones Unidas y Ediciones Trilce: 35–68.
- Videgain, A.K. (2007). Análisis de los cambios en la transición a la adultez en mujeres de distintas cohortes en contexto de cambios sociales en el Uruguay contemporáneo [PhD thesis]. Ciudad de México: El Colegio de México, Centro de Estudios Demográficos y Urbanos.

## Appendix

**Table A-1: Exposure time in years and number of births by steps of the conjugal history. Weighted proportions**

	Exposure		Births	
	Time	Proportions	Number	Proportions
Before the first union	12,533	0.42	184	0.10
During the first union	14,299	0.48	1481	0.81
After the first union	2,683	0.09	155	0.09
Total	29,515	1.00	1820	1.00

Source: Encuesta sobre Situaciones Familiares, Montevideo (Uruguay), 2008. Women aged between 25 and 57 at the time of survey.

**Table A-2: Proportion of women aged 20–49 in each step of the conjugal history according to age by birth cohorts**

Age	1950–1959			1960–1969			1970–1979		
	Before	During	After	Before	During	After	Before	During	After
15–19	0.98	0.02	0.00	0.97	0.02	0.01	0.97	0.03	0.00
20–24	0.68	0.30	0.02	0.67	0.32	0.01	0.70	0.27	0.03
25–29	0.34	0.61	0.05	0.31	0.63	0.06	0.35	0.55	0.10
30–34	0.20	0.71	0.10	0.17	0.70	0.12	0.18	0.64	0.19
35–39	0.14	0.73	0.14	0.11	0.72	0.18	--	--	--
40–44	0.11	0.70	0.18	--	--	--	--	--	--
45–49	0.10	0.67	0.23	--	--	--	--	--	--

Source: Encuesta sobre Situaciones Familiares, Montevideo (Uruguay), 2008. Women aged between 25 and 57 at the time of survey. Weighted estimates.

**Table A-3: Age-specific fertility rates by steps of the conjugal history and birth cohorts**

Age	1950–1959			1960–1969			1970–1979		
	Before	During	After	Before	During	After	Before	During	After
20–24	0.02	0.17	0.10	0.02	0.18	0.00	0.02	0.20	0.12
25–29	0.05	0.21	0.15	0.04	0.20	0.18	0.02	0.16	0.13
30–34	0.06	0.12	0.08	0.05	0.14	0.11	0.04	0.13	0.05
35–39	0.05	0.09	0.07	0.02	0.05	0.05	--	--	--
40–44	0.02	0.02	0.03	--	--	--	--	--	--
45–49	0.00	0.00	0.00	--	--	--	--	--	--

Source: Encuesta sobre Situaciones Familiares, Montevideo (Uruguay), 2008. Women aged between 25 and 57 at the time of survey. Weighted estimates.

**Table A-4: Contribution of each step of the conjugal history to age-specific fertility rates by birth cohorts**

Age	1950–1959			1960–1969			1970–1979		
	Before	During	After	Before	During	After	Before	During	After
20–24	0.06	0.25	0.01	0.05	0.29	0.00	0.06	0.27	0.02
25–29	0.09	0.64	0.04	0.06	0.62	0.05	0.04	0.44	0.07
30–34	0.06	0.41	0.04	0.05	0.48	0.07	0.04	0.43	0.05
35–39	0.03	0.33	0.05	0.01	0.19	0.04	--	--	--
40–44	0.01	0.06	0.03	--	--	--	--	--	--
45–49	0.00	0.00	0.00	--	--	--	--	--	--
Total	0.26	1.69	0.16	0.18	1.64	0.20	0.13	1.13	0.13

Source: Encuesta sobre Situaciones Familiares, Montevideo (Uruguay), 2008. Women aged between 25 and 57 at the time of survey. Weighted estimates.

**Table A-5: Cumulative fertility by steps of the conjugal history and birth cohorts**

Age	1950–1959			1960–1969			1970–1979		
	Before	During	After	Before	During	After	Before	During	After
20–24	0.09	0.84	0.51	0.08	0.91	0.00	0.08	1.01	0.60
25–29	0.35	1.88	1.27	0.27	1.88	0.88	0.20	1.81	1.24
30–34	0.66	2.46	1.68	0.54	2.56	1.45	0.40	2.47	1.51
35–39	0.92	2.91	2.02	0.65	2.83	1.69	--	--	--
40–44	1.00	3.00	2.17	--	--	--	--	--	--
45–49	1.00	3.00	2.17	--	--	--	--	--	--

Source: Encuesta sobre Situaciones Familiares, Montevideo (Uruguay), 2008. Women aged between 25 and 57 at the time of survey. Weighted estimates.

**Table A-6: Relative contribution of each step of the conjugal history to cumulative fertility by to birth cohorts (proportions)**

Age	1950–1959			1960–1969			1970–1979		
	Before	During	After	Before	During	After	Before	During	After
20–24	0.19	0.77	0.04	0.15	0.85	0.00	0.17	0.79	0.05
25–29	0.09	0.86	0.05	0.06	0.90	0.04	0.06	0.83	0.11
30–34	0.06	0.86	0.08	0.05	0.87	0.09	0.04	0.82	0.15
35–39	0.05	0.84	0.11	0.03	0.85	0.13	--	--	--
40–44	0.04	0.81	0.15	--	--	--	--	--	--
45–49	0.04	0.77	0.19	--	--	--	--	--	--

Source: Encuesta sobre Situaciones Familiares, Montevideo (Uruguay), 2008. Women aged between 25 and 57 at the time of survey. Weighted estimates.



**Table A-7: Hazard of having the next child as a function of age by birth cohorts.  
Poisson regression estimates**

Cohort and age	$e^{\beta}$
(Cohort 1950–1959)	0.001***
(Cohort 1950–1959) · Age	2.208***
(Cohort 1950–1959) · Age <sup>2</sup>	0.986***
(Cohort 1960–1969)	0.001***
(Cohort 1960–1969) · Age	2.465***
(Cohort 1960–1969) · Age <sup>2</sup>	0.984***
(Cohort 1970–1979)	0.001***
(Cohort 1970–1979) · Age	2.465***
(Cohort 1970–1979) · Age <sup>2</sup>	0.984***

\* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ .

Source: Encuesta sobre Situaciones Familiares, Montevideo (Uruguay), 2008. Women aged between 25 and 57 at the time of survey. Weighted estimates.

**Table A-8: Hazard of having the next child as a function of age, educational level, birth cohort, and step of the conjugal history. Poisson regression. Coefficients reported in exponential form**

Age and age squared by cohorts and steps of the conjugal history	$e^{\beta}$
(Cohort 1950–1959 and low level)	0.001***
(Cohort 1950–1959 and medium level)	0.001***
(Cohort 1950–1959 and high level)	0.001***
(Cohort 1950–1959, low level) · Age	1.465***
(Cohort 1950–1959, medium level) · Age	1.728***
(Cohort 1950–1959, high level) · Age	2.312***
(Cohort 1950–1959, low level) · Age <sup>2</sup>	0.992***
(Cohort 1950–1959, medium level) · Age <sup>2</sup>	0.990***
(Cohort 1950–1959, high level) · Age <sup>2</sup>	0.985***
(Cohort 1960–1969 and low level)	0.001***
(Cohort 1960–1969 and medium level)	0.001***
(Cohort 1960–1969 and high level)	0.001***
(Cohort 1960–1969, low level) · Age	1.523***
(Cohort 1960–1969, medium level) · Age	2.194***
(Cohort 1960–1969, high level) · Age	2.417***
(Cohort 1960–1969, low level) · Age <sup>2</sup>	0.991***
(Cohort 1960–1969, medium level) · Age <sup>2</sup>	0.985***
(Cohort 1960–1969, high level) · Age <sup>2</sup>	0.984***
(Cohort 1970–1979 and low level)	0.001***
(Cohort 1970–1979 and medium level)	0.001***
(Cohort 1970–1979 and high level)	0.001***
(Cohort 1970–1979 and low level) · Age	1.904***
(Cohort 1970–1979, medium level) · Age	1.783**
(Cohort 1970–1979, high level) · Age	2.115**
(Cohort 1970–1979, low level) · Age <sup>2</sup>	0.987***
(Cohort 1970–1979, medium level) · Age <sup>2</sup>	0.988***
(Cohort 1970–1979, high level) · Age <sup>2</sup>	0.988*
Step of the conjugal history [Before the first union]	
During the first union	5.307***
After the first union	3.772***

\* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ . Reference category between brackets.

Source: Encuesta sobre Situaciones Familiares, Montevideo (Uruguay), 2008. Women aged between 25 and 57 at the time of survey. Weighted estimates.