

The relationship between education and fertility preferences in Mexico: Lessons from Italy*

Relación entre la educación y las preferencias de fecundidad en México: lecciones de Italia*

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Abstract: Education is an important determinant of reproductive preferences. However, few studies have examined the evolution of its role in countries with different levels of fertility transition, due to insufficient data. In this paper, we analyze the role of education as a determinant of fertility preferences in Mexico, a country that is rapidly approaching the end of fertility transition, albeit with substantial within-country territorial differences. Using survey data, we contrast the results with evidence from a very low fertility country, Italy. The findings indicate a persistent negative relationship between fertility preferences and education levels in Mexico. However, a more detailed analysis at the territorial areas reveals that in the most developed regions—such as Mexico City—the relationship is reversing, with more educated women showing a greater willingness to have another child, similarly to Italy, where the effect of higher levels of education on fertility intentions is positive.

Keywords: fertility transition, fertility preferences, fertility intentions, Mexico, Italy, education.

Resumen: La educación es un determinante importante de las preferencias reproductivas, pero la evolución de su papel en los países con diferentes niveles de transición de la fecundidad ha sido poco investigada, en gran medida debido a la falta de datos adecuados. Este documento analiza el papel de la educación como determinante de las preferencias de fecundidad en México, un país que se acerca rápidamente al final de la transición de la fecundidad, aunque con diferencias territoriales sustanciales. Esta información se contrasta con la evidencia de una nación con muy baja fecundidad, Italia, utilizando en ambos casos datos de encuestas. Los resultados indican que existe una relación negativa persistente en México entre las preferencias de fecundidad y el nivel educativo. Sin embargo, un análisis más refinado por áreas territoriales revela que, en las regiones más desarrolladas—como la Ciudad de México—, la relación se está revirtiendo, mostrando que, entre las mujeres con mayor nivel educativo, hay una actitud favorable a tener un hijo más, similar a la observada en Italia, donde el efecto de una mayor educación en las intenciones de fecundidad es positivo.

Palabras clave: transición de la fecundidad, preferencias de fecundidad, intenciones de fecundidad, México, Italia, educación.

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1. Introduction

Mexico has experienced a rapid fertility decline since the 1970s, although the total fertility rate (TFR) is still above replacement level. As in many countries with high fertility or in fertility transition, research has focused on actual fertility in order to measure which factors, including changes in childbearing preferences, are accelerating the speed of decline. In contrast, the achievement of very low fertility in Western Europe (below the replacement threshold of 2.1 children per woman) has led research to place a strong emphasis on women's intentions to have a first or subsequent birth, on the assumption that studying all the phases of the reproductive decision-making process would be key to understanding the persistent low fertility.

In the vast literature on fertility intentions, education has emerged as one of the many important factors in fertility decisions, and ultimately, family size. Women's emancipation and changing social roles, together with the development of a new industrialized mode of production in modern urban contexts, have made reproduction a conscious choice for the population. Highly educated individuals have been pioneers of new attitudes and behaviors controlling fertility (Livi Bacci, 1980). With more than one century since the initiation of the fertility decline for these forerunners, at present an opposite relationship holds true. Indeed, several studies show that the two-child norm is very strong among highly educated individuals, and that high-educated women are more prone to have one more child if they already have one, compared to their counterparts with lower levels of education (Testa, 2014). In this modern context, limiting fertility may be a more practical choice to low-educated people who may prefer to invest in only one child to achieve upward social mobility. This reversal may be attributable to the outsourcing of childcare tasks, which is more common among more educated women, and can be further supported and diversified by the welfare system.

However, few studies have focused on education's impact on the number of children, particularly on the intention to have another child, during the fertility transition, due to insufficient data. Moreover, there is a lack of research on this issue especially in Latin America.

This paper examines the impact of education on childbearing intentions in Mexico and Italy, two countries at different stages of fertility transition (Weeks, 2015). Italy reached replacement-level fertility in the mid-1970s, and in that period Mexico had just begun its fertility transition with a TFR of 6.3 children per woman (CEPALSTATS, 2019).

Italy currently is among the lowest-low fertility countries,¹ with a TFR of 1.25 children per woman in 2021. In contrast, Mexico's fertility rate is just over two children, although this average level conceals significant internal differences in terms of the demographic transition process, as well as economic, social, and cultural situations. These internal dif-

¹ In demography, fertility below 1.3 children per woman is known as "lowest-low fertility."

ferences, which are summarized in the distinct developmental areas, make Mexico a particularly interesting case. Our findings indicate that changes in the relationship between education and reproductive preferences follow the path of fertility transition and development levels in the diverse areas of the country. Based on the evidence of the demographic evolution of Italy, a high-income country that has completed fertility transition, we argue that the education-fertility intentions link should be negative in Mexico, a middle-income country with a less developed welfare system, and which is at an earlier stage of the demographic transition than Italy. In contexts where fertility transition is underway, such as in Mexico, fertility control is perceived as a new behavior. Therefore, it is accepted and adopted especially by more highly educated individuals.

This paper analyzes the link between education and fertility intentions in two contexts in which the relation is presumably the opposite. We do not have the ambition to compare two countries with extremely different demographic histories and current circumstances, but rather we investigate the Italian case as an example for Mexico in its transition, by questioning to what extent this could become true in the future along the same driving lines observed for Italy, and learn how the differential development that is taking place in the different parts of the country is accompanying this process.

The paper is structured as follows: Section 2 provides a broad description of the two selected countries; Section 3 presents evidence from previous research on the link between education and fertility intentions/desires, defines the theoretical background for the analysis of this association, and outlines the operative research questions of the study; Section 4 describes the datasets, our selection sample, and statistical models used; Section 5 gives the results; and Section 6 offers the main conclusions of the study.

2. Mexican and Italian fertility contexts

In Mexico, as well as in the rest of Latin America and the Caribbean,² a shift in the trend of the global fertility rates was only observed during the 1960s and early 1970s, with a decline that far exceeded expectations (CEPAL, 2012). Mexico's fertility rate was the highest in the region during the 1970s, and it began to drop off later than South America; once its rate began to fall, it reached fertility levels similar to the Latin American region as a whole, which currently ranges between 2.1 and 2.4 children per woman (United Nations, 2019). Mexico's TFR remained at around 7 children per woman with some fluctuations between 1895 (the earliest date of available fertility data) and 1970 (Zavala, 2014). Between 1970 and 1975, the TFR was still 6.3 children per woman. Since 1976, the country experienced a rapid decline in fertility. By 1995, the rate had dropped to just 3 children and in 2017 it reduced further to 2.2 children per woman (CEPALSTATS, 2019; CONAPO,

² With the exception of Argentina and Uruguay, which initiated the fertility transition earlier.

2020; Hernández et al., 2015; Juárez et al., 2013; Juárez, 2018, own calculations; United Nations, 2019).³ In Mexico, childbearing mainly occurs within a formal union (marriage) (Quilodrán, 2011). However, the prevalence of consensual unions has been increasing and is relatively high; additionally, marriage rates have decreased between 1995 and 2016 (from 6 to 4 per 1,000 people). Meanwhile, divorce rates have been on the rise (from 0.5 per 1,000 in 1995 to 1.1 per 1,000 people in 2017) although they remain at very low levels (OECD, 2019). The timing of fertility has changed very little in Mexico: the mean age at first birth increased slightly between 1997 and 2014 from 21.6 (ENADID 1997, own calculations) to 22.4 (ENADID 2014, own calculations), though the ages remained very young. Additionally, the mean age at childbearing (the mean age of mothers at the birth of their children) decreased from 30.2 to 26.6 between 1970 and 2017 (OECD, 2019). Mexico is the only OECD country with a mean age at childbearing below 30. This is due to a combination of a reduction of fertility (the lower number of births means that women complete their reproductive activity at an early age) and a high adolescent fertility rate of 66.2 births per 1,000 women aged 15–19. This rate is over five times higher than the OECD average (OECD, 2019).

The history of fertility declines in Italy, as in all Western European countries, dates back to the second half of the nineteenth century (Coale & Watkins, 1986). Italy initiated its fertility transition later than France, England and Wales, and Germany (Chenais, 1992; UNFPA, 2018). Estimates suggest that fertility began to decline in around 1913 in Italy, and that the fall was very rapid after the end of the Second World War (Delgado & Livi Bacci, 1992). In the second half of the 1970s, the TFR dropped below replacement level, reaching 1.6 children in 1980 and falling to 1.2 in 1995. Since then, the rate has slightly increased to 1.4 by 2012, followed by another drop to 1.25 in 2021 (ISTAT, 2022a). As in many other European countries, the decline in fertility has been accompanied by an increase in childlessness and a continuous postponement of childbearing (Frejka & Sobotka, 2008). The mean age at childbearing increased from 28 in 1970, to 32 in 2017; and consistently, for the most recent period, the mean age at first birth is 31 (OECD, 2019). In Italy, formal marriage remains a prerequisite for parenthood until the start of the twenty-first century. However, marriage rates have declined, with fewer than 3.5 marriages per 1,000 people in 2016, compared to 7 marriages per 1,000 people in 1970, while the proportion of informal unions is increasing. The percentage of out-of-wedlock births has increased dramatically as a result, accounting for up to 40% of live births, compared to only 10% in the early 2000s (ISTAT, 2022b). Although divorce rates are low compared to other European Union (EU) countries (1.4 divorces per 1,000 people in 2019, compared to the

³ INEGI, Mexico's official statistics agency, has made tremendous efforts to improve vital statistics; however, this source remains inaccurate. The number of births per year in Mexico presents different figures depending on the data source used—birth registration, census, government birth certificate (*acta de nacimiento*); Ministry of Health attestation of birth (*certificado de nacimiento*) and surveys—and the different birth estimates of the various data sources result in dissimilar TFRs that could vary by up to half a child.

EU average of 1.8), they are on the rise (0.4 divorces per 1,000 people in 1995).

Fertility decline has been differentiated within the territory in both countries. In Italy, the South and Islands regions lagged behind for a long time to those in the North and Center. Only recently, after reaching the negative peak of the lowest-low fertility level in 1995 (TFR=1.19) and a slight recovery in the first decade of the 2000s, the inter-regional differences have narrowed and reversed: the Northeast region has the country's highest fertility rates, but still far below replacement level (Billari & Tomassini, 2021; De Rose & Strozza, 2015). According to ISTAT data, the overall TFR in 2021 was 1.25 children per woman and is the result of 1.23 in the South and Islands, 1.18 in the Center and 1.28 in the North (accessed at dati.istat.it).

Mexico's fertility levels also vary by territorial area, reflecting different stages of fertility transition. Mexico City began its fertility transition earlier than the rest of the country and by 1992 the fertility rate was 2 children per woman. Since then, the TFR has continued to decline to very low levels not seen elsewhere in the country, corresponding to a replacement level of at least 28 years earlier compared to the country as a whole. Furthermore, fertility in poor areas of Mexico began to decline later than in the rest of the country. For instance, whereas Mexico City had reached fertility replacement level in 1992, Chiapas, one of the poorest states in Mexico, still had a TFR of 4.0 (CONAPO, 2020). As of 2014, Mexico City's fertility rate reached 1.4 children per woman (CONAPO, 1997, 2020; Juarez, 2018) while for the state of Chiapas, it was slightly below 3 children (CONAPO, 2020). Another source of differences in fertility behavior in Mexico is the distinction between rural and urban populations, as well as the significant socioeconomic inequalities between states (Juárez & Gayet, 2020). For the same year 2014, the total fertility rate in rural areas remained at 3 children per woman.

Italy's fertility transition followed the traditional pattern of demographic transition in Western societies (Caldwell, 1976, 1982, 2006; Chesnais, 1992; Seccombe, 1993). It occurred after the decline of (infant) mortality and was accelerated by changes in the social environment caused by industrialization and urbanization in the second half of the nineteenth century. The motivation for small families in Italy was such that the fall in fertility was achieved even without the diffusion modern contraceptive methods (Dalla-Zuanna et al., 2005; Leridon, 1987). Similarly, Mexico's decline in fertility was accelerated by urbanization and modernization, and rapid economic growth, which triggered and reinforced ongoing changes and social norms around childbearing (UNFPA, 2018). Unlike Italy, Mexico, like most Latin American countries, implemented family planning policies in order to lower the fertility (Juarez & Gayet, 2015). As consequence, the emergence of a small family size model benefited of a massive campaign promoting effective methods of birth control.

In both countries, the expansion of education for women and girls has been instrumental in the changes in reproductive intentions and behaviors and in fertility transition as a whole (Altbach et al., 2009; World Bank, 2012; Caldwell, 1980; Cochrane, 1979; De

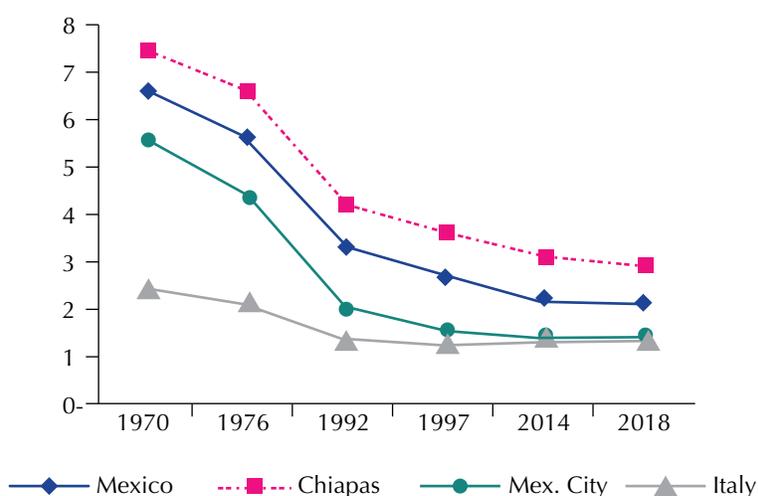
Rose et al., 2008; Impicciatore & Dalla-Zuanna, 2017; Juarez & Gayet, 2015). However, a stark contrast still exists between the current educational attainment of the two populations. According to OECD 2020 estimates, only 40% of 25–64 year olds in Mexico have a high school or university level education compared to 62% in Italy. Conversely, about 30% of 25–64 year olds in Mexico have completed primary-level schooling, compared to only 5% in Italy (OECD, 2020).

In conclusion, the data from Mexico, Mexico City, Chiapas, and Italy (Figure 1) clearly demonstrate the different stages of fertility transition. Italy had already reached a TFR of 2.4 children per woman by 1970 (OECD, 2019) and a below-replacement level in 1977. In Mexico, the TFR reached 2.2 in 2017 and varies widely within the country; Mexico City’s fertility level is rapidly approaching Italy’s, while the country’s poorest regions are still at an earlier stage of fertility transition.

3. Fertility intentions and education: evidence from previous research

Norms regarding family size are important in determining fertility behavior and are linked to a society’s economic organization, cultural situation, and family structure. Childbearing aspirations and decisions of individual women and/or couples strongly influence their actual reproductive behaviors (Philipov, 2011; Schoen et al., 1999; Westoff & Ryder, 1977; Westoff, 1990). Numerous empirical studies have found that fertility preferences—whether

Figure 1
Total fertility rate: Italy, Mexico, Mexico City, and Chiapas, 1970-2018



Source: Italy: OECD, 2019; Mexico: CONAPO, 1997, 2020; Juarez, 2018.

measured in terms of intentions, ideal family size, or desire for additional children—strongly predict future reproductive behavior (Casterline & Agyei-Mensah, 2017; Morgan & Rackin, 2010; Philipov, 2009). The decrease in demand for children is a crucial factor for a fertility transition to occur and can be used as a proxy for the stage of fertility transition (Bongaarts & Casterline, 2018).

The debate on the best approach to the study of fertility preferences is still ongoing: the concept itself does not offer a sole interpretation (Aiken et al., 2016; Ambrosetti et al., 2021; Blake, 1966; Kost & Lindberg, 2015; Potter et al., 2019; Ryder & Westoff, 1969). Kost et al. (2018) and Kost & Zolna (2019), in particular, call for clear and precise language as the terms “intentions,” “desires,” and “preferences” are not interchangeable, and they are often used ambiguously and inaccurately. In general, questions about the ideal family size help understand the social fertility norms that are evolving together with major societal changes (Goldstein et al., 2003; Hagemen & Morgan, 2005; Philipov & Bernardi, 2012; Sobotka & Beaujouan, 2014; Trent, 1980). Fertility intentions refer to the additional children that women and men plan to have, a goal-oriented action or a determination to act in a certain way (Morgan, 2001). Intended births reflect the combined effect of fertility demand as well as the individual and contextual constraints on achieving the desired fertility (McClelland, 1983; Thomson & Brandreth, 1995). The literature on low fertility in contemporary Western countries has a strong focus on fertility intentions. In contrast, in developing countries where fertility transition is underway, most studies on the issue concentrate more on childbearing desires and ideals (Ambrosetti et al., 2021). The variation may indicate not only a terminological issue but also a significant shift in the approach taken in studying reproductive decision-making. Post-transition countries focus more on the agency of individuals in controlling childbearing, while mid-transition countries are more interested in the societal influence exerted on childbearing choices.

Social, educational, cultural, and economic conditions modify and constrain intentions and desires (Becker, 1981; Lesthaeghe & Vanderhoeft, 1999). Among the aspects influencing changes in reproductive intention and behaviors, education is a predominant influential factor. An extensive demographic literature has been devoted to examining the role of female education as an indicator of socioeconomic development in structural explanations of the demographic transition, because it relates to women’s improved status and empowerment (Castro & Juarez, 1995).

Using surveys from Mexico (1976, 1987, 1995, 1997, 2003),⁴ various authors have studied changes in the level of desired fertility in Mexican women (Zúñiga, 1993; Menkes & Mojarro, 2003; Paz-Gómez, 2010). Different indicators have been used and compared—

⁴ Mexican Fertility Survey 1976 (EMF-1976) (DGE, 1976), National Fertility and Health Survey 1987 (ENFES-1987) (Secretaría de Salud, 1987), National Family Planning Survey 1995 (ENAPLAF-1995) (CONAPO, 1995), National Demographic Dynamic Survey (ENADID-1997) (INEGI, 1997) and National Reproductive Health Survey 2003 (ENSAR-2003) (DGSR, 2003).

total fertility rate, average parity, desired fertility rate, ideal average number of children—and the results are broadly similar. The findings of these studies for Mexico are relevant. They show that during the transitional phase, marital fertility declined rapidly when fertility started to decline in 1976, so as the desired fertility.

Education levels also show an influence on decreasing fertility and desired fertility, but the gap between achieved and desired fertility is much smaller for more educated women. Clearly, more educated women have better control over their fertility and apply their fertility preferences more successfully than women in rural areas and/or with less education. Higher levels of education, both among males and females, facilitates gender equity (McDonald, 2000a, 2000b, 2006), which may encourage childbearing at a certain stage of gender equality. However, since highly educated women also have greater aspirations to participate in the labor market, childbearing represents greater opportunity costs for them (Becker & Lewis, 1973; Becker, 1981; Oppenheimer, 1972, 1994).

Children have played an important economic and social function in rural pre-transitional societies. In these contexts, women with primary education tend to have higher fertility rates than women with secondary or higher levels of education; similarly, women with no schooling generally have higher fertility rates than women with primary education. This reverse education-fertility relationship is present in countries that have initiated the transition, including Mexico (Bongaarts & Hodgson 2022; Mier & Terán, 2014; United Nations, 1987, 1995). Comparing countries at different stages of fertility transition, Bongaarts (2003) showed that educational differentials are slightly larger in countries in the earlier rather than later stages of the transition. Bongaarts also noted that differences emerge if fertility preferences are taken into account: that is, distinguishing between wanted and unwanted fertility. Both wanted and unwanted components of fertility are inversely associated with education levels, so more educated women have lower wanted and unwanted fertility than women with low levels of education. Furthermore, the role of the wanted and unwanted components on the educational fertility differences vary depending on the stage of the transition. And at the end of the transition, educational differentials in wanted fertility are small and in unwanted fertility large; this pattern relates to Latin American countries toward the end of their transition (Bongaarts, 2003).

What is the relationship between education and fertility in the post-transition stage, i.e. when fertility has fallen well below the replacement level? The abundant literature on Western European countries regarding the relationship between education and fertility has indicated that more educated women tend to have lower fertility. However, some studies have shown a positive association between the likelihood of childbearing a first, second, and in some cases even a third birth and education level, as in the case of Austria, West Germany, Italy, and the Scandinavian countries (Hoem & Hoem, 1989; Hoem et al., 2001; Impicciatore & Dalla-Zuanna, 2017; Kreyenfeld, 2002; Kravdal, 1992; Kravdal & Rindfuss, 2008). It has been argued that more educated women may end up with fewer children due to their delayed transition to motherhood, which is not necessarily inten-

tional (Berrington & Pattaro, 2014; Blossfeld & Huinink, 1991; Sobotka, 2009; Sobotka et al., 2017). This highlights the importance of taking childbearing intentions into account while studying the reproductive process, as well as the complex linkage between attitudes, desires, intentions, behaviors, and the different influences of multiple explanatory factors (Ajzen & Klobas, 2013).

A positive relationship between education and fertility intentions has emerged in cross-country comparative analyses (Testa, 2014; Testa & Stephany, 2017) as well as in single-country case studies (De Wachter & Neels, 2011; Mills et al., 2008; Ruokolainen & Notkola, 2002). This finding holds true regardless of the diverse measures used to explore the association of fertility intentions and education, whether they were concentrated on the intention to have another child, to have it in a given temporal frame, or rather on the intention to have a certain number of children. Therefore, studies indicate that being highly educated and living in a country where a large proportion of women have a university-level education is positively associated with fertility intentions, although the direction of this relationship strongly depends on parity. A meta-analysis of 86 studies published between 1990 and 2011, covering 13 European countries, found that both first and second birth intentions are positively correlated with women's educational attainment, although this positive relationship was mainly driven by women who have only one child (for more details, refer to this meta-analysis of European countries on the educational gradient of fertility intentions, Testa & Stephany, 2017). The common interpretation for the positive relationship between education and childbearing intentions is that more highly educated individuals have higher earnings, potentially better housing conditions, more stable partnerships, and more resources to access assisted reproduction services, if needed, than individuals with lower education levels. In low-fertility societies that facilitate the reconciliation between work and family duties, highly educated women are encouraged to plan an ambitious career both in the family and in the labor market and can afford a relatively large family (Testa & Stephany, 2017). In line with this interpretation, research has shown a positive relationship between fertility intention and female education in Italy (Fiori et al., 2017; Mills et al., 2008; Novelli et al., 2021; Pinnelli & Fiori, 2008; Testa & Stefany, 2017).

As mentioned earlier, in Mexico and in the rest of Latin America, few studies have focused on childbearing preferences because the concern in this region is the persistence of high fertility—in particular, adolescent fertility—and the major emphasis is on research and policy interventions promoting optimal contraceptive use and on the widespread availability of family planning programs in order to achieve and monitor further fertility decline (Mundigo, 1992; United Nations, 2020). As in many high-fertility countries, data on fertility preferences are considered fundamental for assessing the need for family planning services (Westoff & Bankole, 2002) and research on these issues is mostly aimed at understanding how a reduced desire for children negatively impacts the achieved fertility (Ambrosetti et al., 2021). The reasons underlying fertility intentions, that is, the

childbearing plans under actual individual and contextual conditions (Morgan, 2001), have rarely been explored in Mexico. More specifically, to our knowledge no study has been conducted in Mexico on the association between women's education levels and their fertility intentions by parity. This paper seeks to fill this gap by addressing the following research questions:

1. How does the proportion of women intending to become a first-time mother or to give birth to another child vary in Mexico?
2. How does the proportion of women intending to give birth to a first-, second-, or higher-birth order child differ according to women's education level?
3. Is the role of education a fertility intention predictor? And is it different in developmental areas characterized by being at various stages of the fertility transition?
4. And do the role of education and fertility intentions turns positive in a post-transitional stage as it occurred in Italy?

We expect that in transitional societies, like Mexico, the prevalence of still-large families is coupled with a negative relationship between education level and fertility intentions, with more educated women intending to have fewer children than those with a lower education. This inverse relationship may be challenged in some areas of Mexico that have already reached a high development status and a very low fertility level (i.e. Mexico City), in which case the association may become positive, as in post-transitional countries such as Italy.

4. Data and methods

Surveys and target samples

We use secondary cross-sectional data for both Italy and Mexico: the National Multipurpose Survey of Households of Family and Social Subjects (NMS) 2009 for Italy and the National Survey on Demographic Dynamics (ENADID) 2014 for Mexico.⁵ In both surveys we selected women in formal marriages or in consensual union aged 18 to 49.

The Italian survey, which is representative of the Italian population by age, gender, education, and region, provides information on 18,000 families and 43,850 individuals: 51.9% women and 48.1% men. For our analysis, we select only those women of reproductive age (18–49) living in a union, either in formal marriage or cohabitation, at the time of the survey (5,086 women). We excluded from the target sample those women who did

⁵ Both surveys offered the most recent available data sources, providing comparable information on fertility intentions and wantedness of a(nother) child in the respective countries when this project began.

not give a valid response to the fertility intention item (9.4% of the aforementioned sample). In total, 4,608 women form part of the study sample.

The Mexican survey is a random sample with national, state-level, and urban/rural representation conducted by the National Institute of Statistics and Geography (INEGI). The sample provides information on 101,389 households and 98,711 women aged 15 to 54. Among women in the 18–49 group (80,629 women), those currently married or living in a union (51,199) represent 63.5%. We further removed from this selected group those women who did not answer the two fertility intention items (4,660), who were pregnant at the time of the survey (2,217),⁶ and who reported to have been sterilized (292).⁷ A total of 44,030 women entered in this study.

The Italian and Mexican surveys differ in the number of cases and focus: the Mexican sample size was significantly larger and centered on contraceptive use and maternal child-care, whereas the Italian had a small sample size and focused on family structure and working careers. However, both sets of data provide information on demographic and socioeconomic variables as well as on fertility intentions and wantedness of a(another) birth.

Fertility intentions variable

The dependent variable is a dichotomous variable indicating whether women intend/want to have a(nother) child. Hence, our childbearing intention measures simply reflect the intention to have a(nother) child *at some time*. This is different from the intention of having a child in a given time frame (i.e. child-timing intentions) and from the intention of having a family with a certain number of children (i.e. child-number intentions).

In the Italian survey, information on fertility intentions is gathered through the following questions: “Do you intend to have a child in the next three years?” Response options to this question were “certainly not,”⁸ “possibly not,” “possibly yes,” and “certainly yes.” Women indicating the options “possibly not” and “certainly not” were asked an additional question: “Do you intend to have a child in the future?” Responses options to this question were “certainly not,” “possibly not,” “probably yes,” and “certainly yes.” Thus, a wom-

⁶ It has been argued that answers to questions related to future births might be affected by women’s health condition and social vulnerability during pregnancy (Lafaurie et al., 2020; Muñoz et al., 2013); for example, if the woman experiences health problems during pregnancy or lacks adequate access to health services during pregnancy or other negative specific situations related to the pregnancy. This explains why this very small group of women (4.3% of the study sample) was not considered in the study.

⁷ Few women did not clearly understand the questions because being sterilized means they cannot have another child or say when they wanted the child. In Mexico, female sterilization is carried out via hysterectomy or tubal ligation, making a reversal procedure unlikely. These women represent a very insignificant part of the sample (0.5%) and do not affect the analysis.

⁸ Corresponds to “Certamente no” in the Italian questionnaire.

an answering “possibly yes” or “certainly yes” either to the first or second question is a woman intending to have a child, either as a short- or a long-term intention.

In the Mexican survey, questions on fertility refer to wantedness and were phrased as follows: “Would you want to have a(nother) child?” In case of a positive answer, the follow-up question was “How many years would you want to wait to having a(nother) child?”

As mentioned in the previous section, the concept of intentions refers to *planning*, and that word includes an awareness of future childbearing. However, in the Mexican survey, the wording is different, which requires caution (Kost et al., 2018; Kost & Zolna, 2019) in comparing the Italian and the Mexican measures. On the other hand, we should emphasize that in the Spanish language there are two expressions for saying “desires”: “*querer*” and “*desear*”, and the word “*querer*”—which is the one used in the questionnaire—is closer to “intend” (“*intendi*” in Italian) than simply the expression of “desire” (“*desideri*” in Italian). This is especially supported because the question about wanting a(nother) child is immediately followed in the Mexican questionnaire by the item requiring the specification of a temporal frame (six months, one year, two years, and so on), a circumstance that might have forced respondents to think more concretely about having a first or subsequent child. Given that women entering in the study needed to have answered both questions (one after the other), they had to rationalize when they wanted to have the next child which may make the measure closer to a plan.

Another difference relates to the questionnaire design. In the Italian survey, women are required to respond first to their short-term intentions and next to their long-term intentions; in the Mexican survey, the questions are ordered the other way around. We are aware that the differences in the questions’ wording as well as in the questionnaire design might raise issues of comparability. For this reason, we will look at the analyses of the two case studies separately, and consider the above issues while interpreting the results, even when—for the sake of simplicity—we just use the term “intention” both for the Italian and the Mexican data. Indeed, we believe that our indicator, which combines the desires/wantedness of a(nother) child with respondents answering when they want that child in the Mexican survey, may be considered as a proxy variable of intentions, so the surveys’ differences do not prevent a parallel analysis of fertility preferences in the two countries.

Education and control variables

We include education levels in the analysis as well as other demographic and socioeconomic variables that are proven to be relevant predictors of childbearing intentions: age, parity, type of union, employment status, and territorial areas.

Education level. We calculate a four-category variable: primary (elementary), secondary (lower-secondary), high school (upper-secondary), and university or higher. The Mexican survey provides information on both the education level and the highest completed school year of that level. In contrast, the Italian survey only reports information on the education level. For purposes of comparability, we combine individuals who have completed the corresponding education level with those who have completed at least one year within that education level, at each of the four levels of education.

Age. We treat age as a categorical variable encompassing six groups: ages 18–24, 25–29, 30–34, 35–39, 40–44, and 45–49. The age limits of 18 and 49 reflect reasonably well the ages normally used to define the reproductive period of women, which is ages 15–49. We start from 18 rather than 15 because of data constraints: the Italian sample includes only women aged 18–49.

Parity. We calculate this variable using the information on the number of children ever born alive grouped in four-categories: 0, 1, 2, or 3 or more children. Each category corresponds to a different status of the woman, defined as parity. Women at parity 0 have no children, those with one child are at parity 1, women with two children are at parity 2, and those with three or more children are at parity 3.

Type of union. We include a dichotomous variable equal to 1 for informal unions and 2 for formal unions (i.e. marriage). For Mexico, the variable was computed using the response to the related question item in the survey. In the Italian survey, there is no direct information enabling us to distinguish between marriage and consensual union. We calculated it by combining three variables: kinship with the reference person in the household; type of family (i.e. two parents or nuclear; childless, single parent; extended family: that is, two or more adults from different generations of a family); and marital status.

Employment status. We code the activity condition of women as a dummy variable indicating whether the woman worked in the week before the date of the interview. Women answering “yes” to this survey item were considered employed, and those answering “no” were considered unemployed.

Territorial areas. Since Mexico does not have an official geographical definition of regions, we calculate a categorical variable that identifies different areas of the country based on their socioeconomic level. We classified the 32 states in large territorial areas, considering the official poverty-level criterion of each state (CONEVAL, 2015). We group states by examining the percentages of the population living in poverty in each state. We referred to the government’s official statistics on poverty released by the National Council of Evaluation of the Social Development Policy (CONEVAL, 2015).⁹ For this study, the states were categorized into four geographical areas. We kept Mexico City as one territo-

⁹ The 2015 CONEVAL poverty index considers nine indicators: current income per capita; average educational level of the household members; access to healthcare; access to social security; quality of housing and spaces; access to basic services in housing; access to food; degree of social cohesion; degree of accessibility to paved roads.

rial unit because of its marked differences from the rest of the country in both fertility and reproductive health, and with less than 28% of the population living in poverty. Additionally, we identified three large areas: (1) states in which less than 40% of the population lives in poverty; (2) states in which 40% to 64% of the population live in poverty; and (3) states in which 65% or more of the population lives in poverty. After a first round of exploratory analysis, we decided to pool together the two areas with intermediate levels of poverty because of their similarities in economic conditions, fertility level (TFR was 2.2 children in both areas in 2014), and findings. The Italian regions (21 in total) were grouped into five large territorial areas, according to the standard classification adopted by ISTAT: Northwest, Northeast, Center, South, and Islands. We merged South and the Islands into one category because of their smaller sample size and because they have many similarities. In contrast to Mexico, the Italian territorial areas are identified according to a criterion of geographical contiguity. This geographic divisions, however, well reflects the different levels of socioeconomic development in the country, ranging from the Northwest (most-affluent) to the South and the Islands (least-affluent), with the Northeast and the Center in intermediate positions.¹⁰

Statistical methods

We use logistic regression models for the intention to have a(nother) child. The explanatory and control variables—education level, age, parity status, type of union, employment status and territorial area—are all included as a set of $n-1$ dummy variables. We run pooled models (combining all parities) as well as separate models by parity (parity 1, parity 2, and parity 3). In addition, we estimated models by territorial area for Mexico while the limited sample size prevented us from stratifying the analysis of Italy by territorial area. Logistic regression models estimate the likelihood of an outcome variable—i.e. intentions to have a(nother) child—holding constant all the other variables included in the model. We present the estimates in odds ratios, that is, the exponential form of the beta coefficients. For further information on the statistical models, see Hosmer and Lemeshow (2004) or Agresti (2002).

¹⁰ Another indicator that could have been considered in the territorial context is the place of residence, distinguishing between rural and urban areas of residence. Unfortunately, the Italian survey does not include the urban-rural variable in the dataset, so we were unable to consider this factor since we needed variables that were common to both surveys.

5. Results

Descriptive findings

The Italian and Mexican analytical samples refer to women in union and differ by age distribution, parity distribution, and education level distribution. In Italy, the proportion of woman is very small in the youngest age group (18–25 years) and increases with age. The largest proportions are found in the 40–49 age group. For Mexico, the proportion of women in the different age groups are relatively close to one another, with a non-pronounced peak at 35–39 (Appendix, Figure A1).

With regard to the proportion of women by children ever born alive, in the case of Italy this increases from parity 0 up to parity 2, whereas for Mexico it continues to increase up to parity 3 or more. Proportions are somewhat similar in both countries except for parity 3 or more, which is lower in Italy than in Mexico (Appendix, Figure A2).

In contrast, there are marked differences between the two countries in terms of education level, with Italian women being more educated than Mexican women. The most striking difference is that 27% of women in Mexico attain only primary education, compared to 5% of Italian women (Appendix, Figure A3).

In both countries, motherhood continues to be an important goal in a woman's life: 74.5% of childless women in Italy and 83.0% of childless women in Mexico intend to have a child. However, women in Mexico more frequently plan the transition to a second child than in Italy: 66.4% of women at parity 1 intend to have another child in Mexico compared to 47.1% in Italy. Finally, only 9.2% of women at parity 2 intend to have another child in Italy, as opposed to 20.8% in Mexico. Among women with three or more children, few intend to have another child, 4.2% in Italy and 5.6% in Mexico (Table 1a & 1b). Appendix Table A1 includes the proportion of women who intend to have another child by parity, for all variables included in our statistical model.

Table 1a

Proportions of women who intend to have a(nother) child by parity status. Women in reproductive ages, married or in union. Italy

<i>Women's Parity</i>	<i>Women intending a(nother) child</i>	
	(%)	(N)
Parity zero	74.5	644
Parity one	47.1	1 349
Parity two	9.2	2 002
Parity three or above	4.2	613
All parities	28.8	4 608

Source: Own calculations using the NMS 2009 (ISTAT, 2009) of Italy.

Table 1b

Proportions of women who want to have a(nother) child by parity status. Women in reproductive ages, married or in union. Mexico

<i>Women's Parity</i>	<i>Women wanting a(nother) child</i>	
	(%)	(N)
Parity zero	83.0	2 861
Parity one	66.4	8 276
Parity two	20.8	13 799
Parity three or above	5.6	19 094
All parities	26.8	44 030

Note: These estimates use two questions: wanting another child and when.

Source: Own calculations using the ENADID 2014 (INEGI, 2014) of Mexico.

If we examine the relationship between education level and fertility intentions (Figure 2a & 2b) at low parities (women with 0 or 1 child), two findings are observed: a positive association for Italy and an inverse U-shaped relationship for Mexico. However, fertility intentions for parity 2 and 3 in Mexico present a negative association, yet no clear pattern is observed for Italy at higher parities.

In Mexico, fertility intentions vary considerably across territorial areas by parity (Table 2b). For each parity, Mexico City presents a systematically lower proportion of women intending to have a(nother) child when compared to areas with intermediate levels of development; similarly, women residing in areas with intermediate levels of development have lower intentions to have another child compared to those living in least-developed

Table 2a

Proportions of women who want to have a(nother) child by parity status and territorial area. Women in reproductive ages, married or in union. Italy

<i>Italy and Territorial areas</i>	<i>Women intending a(nother) child by parity (%)</i>			
	<i>P0</i>	<i>P1</i>	<i>P2</i>	<i>P3</i>
<i>Italy</i>	74.5	47.1	9.2	4.2
<i>Territorial areas</i>				
Northwest	69.7	35.6	8.9	5.2
Northeast	70.4	39.7	10.8	3.1
Center	74.8	48.6	7.4	3.8
South & Islands	82.2	57.8	11.5	9.0

* P0: parity zero; P1: parity one; P2: parity two; P3: parity three or higher.

Source: Own calculations using the NMS 2009 (ISTAT, 2009) of Italy

Table 2b

Proportions of women who want to have a(nother) child by parity status and territorial area. Women in reproductive ages, married or in union. Mexico

<i>Mexico and Territorial areas</i>	<i>Women wanting a(nother) child by parity (%)</i>			
	<i>P0</i>	<i>P1</i>	<i>P2</i>	<i>P3</i>
<i>Mexico</i>	83.0	66.4	20.8	5.6
<i>Territorial areas</i>				
Mexico City	76.1	41.4	6.1	2.6
Middle-developed	83.3	67.9	21.1	5.1
Least-developed	88.6	76.6	30.5	10.1

* P0: parity zero; P1: parity one; P2: parity two; P3: parity three or higher.

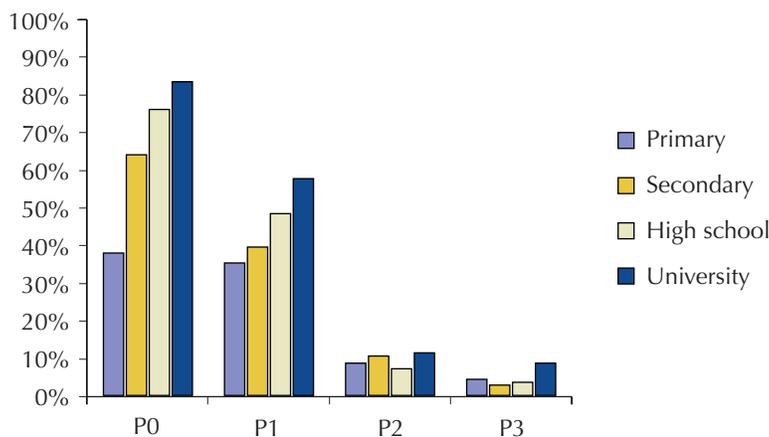
Note: These estimates use two questions: wanting another child and when.

Source: Own calculations using the ENADID 2014 (INEGI, 2014) of Mexico.

areas. In Italy, we observe smaller territorial differences than in Mexico, although the percentage of women intending to have a(nother) child is consistently higher in the South and Islands than elsewhere in the country (Table 2a). When looking at the geographical areas of Mexico, an important finding is that the distribution of fertility intentions by parity in Mexico City is more similar to that of Italy than to other regions in Mexico (Table 2a & 2b). For both Italy and Mexico City, the proportion of women intending/wanting to have another child at parity 3 is very small. The small sample size prevents us from conducting an in-depth analysis at parities higher than 2.

Figure 2a

Proportions of women who intend to have another child by parity status and level of education. Women in reproductive ages, married or in union. Italy

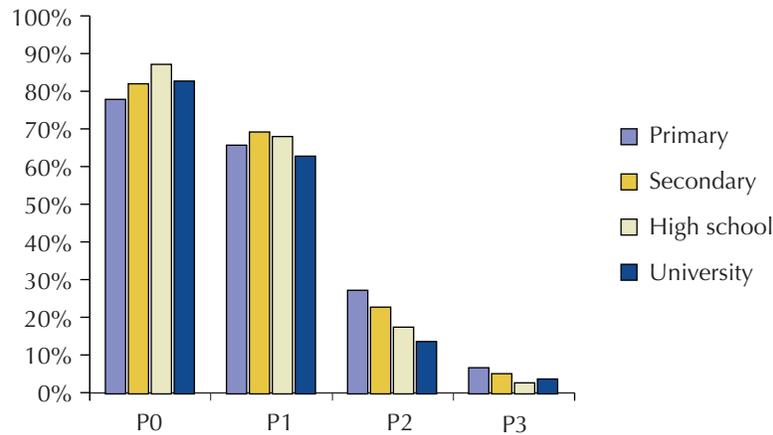


* P0: parity zero; P1: parity one; P2: parity two; P3: parity three or higher.

Source: Own calculations using the NMS 2009 (ISTAT, 2009) of Italy.

Figure 2b

Proportions of women who want to have another child by parity status and level of education. Women in reproductive ages, married or in union. Mexico



* P0: parity zero; P1: parity one; P2: parity two; P3: parity three or higher.

Note: These estimates use two questions: wanting another child and when.

Source: Own calculations using the ENADID 2014 (INEGI, 2014) of Mexico.

In Mexico City, women at parity 1 present a positive association between education and fertility intentions. This descriptive analysis of fertility preferences by education level and parity (Figure 3) supports the existence of diverse patterns of this relationship at different stages of fertility transition. Italy and Mexico City, with below-fertility replacement levels, present a similar positive association between education and fertility intentions for parity 1 and somewhat similar to parity 0. In the areas with intermediate levels of development and the least-developed of Mexico, an inverse association between education and fertility intentions is observed at parity 2 and 3 or more.

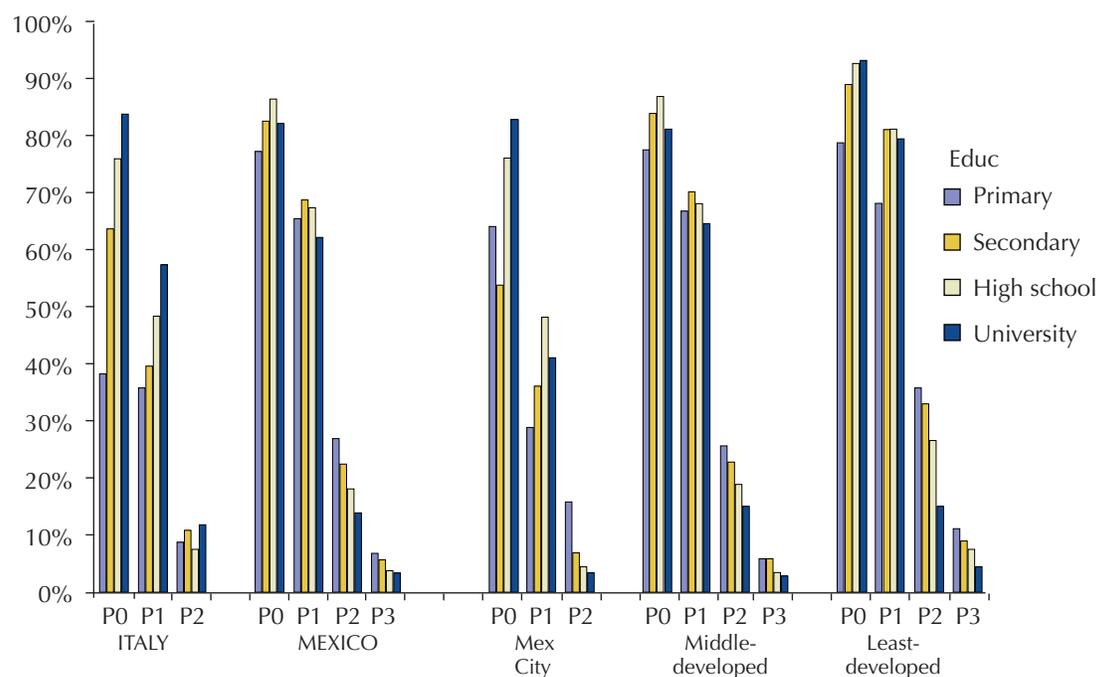
Multivariate findings

Using logistic regression models, we examine the association between fertility intentions and education holding all the other remaining factors constant: age; type of union; employment status; and where appropriate, parity status and territorial areas. Models are estimated for the two countries (Italy and Mexico) independently, first for all parities (Table 3)¹¹ and then separately by each parity and for the territorial areas (Table 4). As

¹¹ Results are presented as odds ratios. For reasons of space, we use asterisks to mark the level of statistical significance of parameters. The overall results, including the standard errors and confidence intervals, are reported in Appendix Table A2a and b. The goodness of fit of all models (measured by pseudo R²) is sound, but is reduced for parity 3 models, which are affected by a reduced sample size.

Figure 3

Proportions of women who intend/want to have another child by parity status, level of education, and territorial areas. Women in reproductive ages, married or in union. Italy and Mexico



* P0: parity zero; P1: parity one; P2: parity two; P3: parity three or higher.

Source: Own calculations using the NMS 2009 (ISTAT, 2009) of Italy and the ENADID 2014 (INEGI, 2014) of Mexico.

mentioned in the methodology, models of Mexico use want a(nother) child as a dependent variable, which represents a proxy of intentions. To simplify the reading of the estimates, we will be referring to odds ratios for intentions to have a(nother) child for both countries.

Considering the summary measure of all parities for Italy and Mexico nationally, both countries show a different pattern associated with women's education (Table 3). In Italy, the most educated women (university level) show a higher likelihood of intending to have a(nother) child than women with a secondary level of education (OR = 1.979). In contrast, in Mexico, women with lower education levels present higher odds of intending to have a(nother) child (the odds ratio for women with primary education is 1.405, for those with secondary education it is 1.000, and for women with high school education .809). Controlling for other factors, the findings indicate a positive association between education and fertility intentions for Italy and a negative association for Mexico.

Table 3

Odds ratios for intending a(nother) by education, all parities.
Italy and Mexico nationally

<i>Education Covariate</i>	<i>All parities Exp(B)</i>
<i>Country with fertility below replacement</i>	
<i>Italy national level</i>	
Education	
Primary	0.908
Secondary	1.000
High school	1.109
University	1.979 ***
N	4608
<i>Country with fertility in transition</i>	
<i>Mexico national level</i>	
Educación	
Primaria	1.405 ***
Secundaria	1.000
Media superior	0.809 ***
Universidad	0.984
N	44 030

* p< .10; ** p< .05; *** p< .01.

Note: Models control for other factors: age, type of union, employment status, parity status, and territorial areas.

Source: Own calculations using the NMS 2009 (ISTAT, 2009) of Italy and the ENADID 2014 (INEGI, 2014) of Mexico.

Analyzing the models stratified by parity (Table 4), and controlling for all other factors, we can argue that the association between fertility intentions and education is undoubtedly parity-specific. Women without children in Italy and Mexico do not present statistically significant differences, a finding that indicates the importance of motherhood for women of any education level. For women with parity 1 in both countries, the differences in education level become significant but in a different way. In Italy, the odds ratio of intending to have a second child is 2.335 for women with university-level education and 1.433 for women with high school education compared to women with secondary education. In Mexico, an inverse association between fertility intentions and education is observed for women with parity 2 or 3 or higher. For example, at parity 2 the odds ratios for women intending to have a third child are 1.475, 1.000, and 0.770, for primary, secondary, and high school, respectively. At parity 1, the only statistically significant category concerns women with high school education, who have a lower risk of intending to have a second child when compared with women with secondary-level education (OR = 0.869) (Table 4).

Table 4

Odds ratios for intending a(nother) child by parity and education: Italy, Mexico, and territorial areas of Mexico

<i>Education Covariate</i>	<i>P1</i>	<i>P2</i>	<i>P3</i>
	<i>Exp(B)</i>	<i>Exp(B)</i>	<i>Exp(B)</i>
<i>Country with fertility below replacement</i>			
<i>Italy national level</i>			
Primary	0.990	0.857	
Secondary	1.000	1.000	
High school	1.433 **	0.732	
University	2.335 ***	1.477	
<i>Country with fertility in transition</i>			
<i>Mexico national level</i>			
Primary	1.147	1.475 ***	1.365 ***
Secondary	1.000	1.000	1.000
High school	0.869 **	0.770 ***	0.609 ***
University	1.082	0.888	0.828
<i>Mexico City</i>			
Primary	1.445	2.802 ***	
Secondary	1.000	1.000	
High school	1.598 **	0.516 *	
University	1.584 *	0.988	
<i>Mexico, Middle-developed</i>			
Primary	1.246 **	1.476 ***	1.308 ***
Secondary	1.000	1.000	1.000
High school	0.838 **	0.785 ***	0.613 ***
University	1.040	0.915	0.714 *
<i>Mexico, Least-developed</i>			
Primary	0.605 *	1.314	1.450 **
Secondary	1.000	1.000	1.000
High school	0.656	0.731	0.667
University	1.335	0.582 **	0.641

* p < .10; ** p < .05; *** p < .01.

Note: Models control for other factors: age, type of union, employment status, parity status, and territorial areas.

Source: Own calculations using the NMS 2009 (ISTAT, 2009) of Italy and the ENADID 2014 (INEGI, 2014) of Mexico.

Could the country and the parity-specific patterns of the intention-education link indicate a gradual transition from a negative to a positive association? That is, is the relationship reversing from the most affluent to the least affluent socioeconomic contexts, or from higher fertility to lower fertility settings? An analysis differentiated by regions might help answer this research question. Table 4 shows separate models estimated by territorial repartition in Mexico, controlling for other factors. For childless women, the likelihood of intending to have a first child does not change by education level in any of Mexico's regional developmental areas, a finding similar to that observed for the entire country and for Italy. Thus, having at least one child is an important value for these two societies, regardless of the woman's education level or the area where they live.

As shown above (Table 2b), the proportion of women intending to have a second-, third-, or higher-birth order child is higher in areas with intermediate levels of development compared to Mexico City (the most developed area) and even higher in the least developed area of the country, which reflects a specific pattern for the various stages of fertility transition. The multivariate analysis further suggests the emergence of a distinct regional pattern of the effect of education (Table 4). In Mexico City, the odds of intending to have a second child shows a U-shaped pattern, with women having primary education and those with high school or university-level education displaying the highest odds (women of secondary level are the reference category). At parity 2, the contrast goes in the opposite direction, suggesting that women with a high level of education are less likely to intend to have a third child than those with a low level of education. In areas with intermediate levels of development, the odds of intending to have another child are lower for highly educated women; conversely, they are higher for less educated women compared to women with secondary level education. Each parity-specific model suggests this same pattern, although not always showing statistically significant results for each education level category. Finally, in the areas with the lowest levels of development, we detect an inverse association between education and fertility intentions, as women with primary level education have higher odds of intending to have another child. On the whole, this pattern holds for this territorial area but not for parity 1, for whom women with primary education have lower odds of intending to have another child (Table 4).

In terms of control variables, in both countries being in a formal union (i.e. marriage) has a positive effect on the likelihood of planning a(nother) child, and being unemployed increases the likelihood only for Mexican women, regardless of the development area considered.

6. Discussion and conclusion

In recent decades, Mexico, like other Latin American countries, has experienced a decline in fertility, converging towards replacement levels; this trend is similar to that of the most

industrialized nations (Bongaarts, 2003; Van de Walle & Knodel, 1980). However, it is unclear what will happen in the years ahead, after the end of the demographic transition, when fertility will be close to or below replacement level, because a non-negligible variability persists within countries (Castiglioni et al., 2020). In order to contribute to this debate, we examine fertility desires, and use them as a proxy variable for intentions to have a(nother) child in Mexico. We look at Italy as a country which could provide an example of future paths since the two countries share similar traditional values in terms of partnership formation and dissolution even though both nations are at different stages of the fertility transition. Italy is in a post-transitional phase, with a TFR equal to 1.27 children per woman in 2019; while Mexico is still reaching replacement level (with a TFR of 2.2 children per woman in 2019). We investigate on how intentions (or desires) to have a first, second, third (or higher-birth order) child vary by education level and whether educational attainment is differently associated with fertility intentions, or wantedness, in the two countries. Changes in childbearing intentions and desires play an important role in the path toward lower fertility levels (Bongaarts & Casterline, 2018); on the other hand, the linkage to education level shows an interesting reversal during the fertility transition stages: it is definitely negative in the early stages while it tends to be positive in the most mature stages of the transitional path (Novelli et al., 2021; Testa & Stephany, 2017).

Research findings have shown that women in Mexico and Italy have a similar overall level of ideal family size, slightly above two children per woman, but with important parity-specific differences regarding intentions: having at least one child is an important goal for most women of reproductive age—independently of education level both in Mexico and Italy—but the intention to have a second-, third-, or higher-birth order child is higher in Mexico than in Italy. Similarly, within regions of Mexico, the intention to have a second-, third-, or higher-birth order child is higher in the least-developed areas as compared to areas with intermediate levels of development, and this intention is lowest in Mexico City, the most developed area of the country. These gradients well reflect existing differences in actual fertility levels.

Moreover, fertility intentions are linked differently to women's education level. In Italy, the relationship is positive, in line with the findings of literature on the country. In Mexico, the association is negative but with striking inter-states differences. In Mexico City, a positive intention-education relationship is emerging, at least among parity 1 women; the more educated have a higher propensity to have a second child than the less educated. By contrast, in Mexico's least-developed areas and its regions with intermediate levels of development, the relationship between intentions and education is decidedly negative.

Although our analysis is cross-sectional and its findings cannot be interpreted as evolving in time, the comparison between contemporary settings at different stages of transition allows us to envisage what the process could have been (Bongaarts, 2003). Unfortunately, we lack data on fertility intentions for Italy at the start of its fertility transition. For Mexico,

we can observe striking contrasts between territories of the same country, but with markedly different fertility and development conditions. So, for Mexico, this is the only way to evaluate the eventual change in the role of education in shaping childbearing attitudes. Therefore, we can only speculate about possible changes during the transition process. The main findings of our research remain the differential association between fertility and education in two countries at different stages of demographic transition. In both countries, the increase in female education preceded the start of the fertility decline by around a decade (Allewaert & Barbieri, 2016; Robles & Pérez, 2019; Juárez & Gayet, 2005; ISTAT, 2016; SEP, 1999). Female education in Mexico has increased since the 1960s, but gains have been greater in Mexico City, with a relatively large proportion of educated women (28% of women with university-level education compared to 10% in the least-developed areas). This, in turn, has resulted in more women in formal and professional employment. As in Italy, the increase in education has given women economic independence, greater autonomy, and a closing of the gender gap imbalance: in couples where the women's education level is high, both partners tend to contribute to the household income and share power, resources, and responsibilities. Increased gender equality is seen as a potential factor that will drive fertility recovery in high-income countries (Esping-Andersen & Billari, 2015). In principle, highly educated women may decide more frequently to have a second child because they have more financial resources to outsource childcare and more possibilities to reconcile work and family life, especially in family-friendly institutional contexts (Testa & Stephany, 2017). The higher fertility intentions in Mexico City among more educated women may be interpreted with a similar rationale. The circumstances of these better-educated women tend to result in better housing conditions, higher incomes for them and their partners, more stable partnerships, more resources to access high-quality childcare, and domestic services, thus making it easier to combine work and family life and decide to have one more child.

The study is not without limitations. One relates to the differences in the wording of the dependent variable, which has to be interpreted as fertility "intention" in the Italian survey and as fertility "desire" in the Mexican survey. We are aware of this circumstance and we refrain from making a cross-country comparison by focusing instead on the parallel cases offered by the two countries. We acknowledge that the variable of desire and its use for the case of Mexico may well be considered as a proxy variable for intentions. Another problem with the study is that it focuses exclusively on women and does not take into account the impact of the education level of couples on reproductive intentions. Unfortunately, the data on Mexico only provides information about women. Another weakness is that an accurate territorial analysis was not possible in Italy, unlike in Mexico. On the one hand, we could argue that the differences in reproductive behavior between the Italian regions, which were very marked in the past (De Rose et al., 2008; De Rose & Vignoli, 2011), have become much less important in the current phase; on the other hand, future surveys on reproductive decision-making will hopefully include larger samples of women at high parities.

Overall, our analysis confirms that the link fertility education-intentions at the various stages of the fertility transition. Our findings suggest that at the end of the reproductive transition, the role of education on fertility intentions reverses when fertility falls well below the replacement level, hence at the advanced stage of socioeconomic development.

Given that this is the first comparison of a high-income country with post-transitional fertility and a middle-income country still in transition but already nearing the end of the process, we do not claim to have demonstrated any regularity that can be extrapolated to situations and contexts other than those examined. However, we believe that our data and our calculations provide an illustration of how a key mechanism of demographic transition acts. Within Mexico, the three diverse development areas seem to be converging with respect to their fertility intentions and the link between education and fertility intention. Certainly, Mexico presents a very interesting case study because of the high internal variability in terms of development level and stage of change in reproductive behaviors.

We do not currently know whether the pattern found in Mexico City is unique or whether findings could be generalized to other middle-income countries or territorial areas with below-replacement fertility. For the case of Mexico, though, we expect that when the entire country has completed its fertility transition—as shown by the changes in fertility intentions at each stage of the transition—the association between fertility intentions and education might reverse. Whether this is the consequence of a larger proportion of women achieving higher levels of education, or of an attitudinal change linked with the different socioeconomic context of areas at an advanced stage in demographic transition, remains a question for further study.

Finally, by proposing a parallel analysis of the reproductive preferences of women from a country in the Global North and another in the Global South, this paper represents a step toward closing the gap in fertility research, which tends to clearly separate the two areas. The field has far too few comparisons between high-income countries and LMICs based on survey data from an individual perspective: this study could inspire further insights in this direction.

APPENDIX

Table A1

Proportions of women who intend to have another child by parity status and area.
Women in reproductive ages, married or in union. Italy and Mexico

<i>Selected variables</i>	<i>% Women intending to have a(nother) child</i>					<i>N total (yes/no intending to have a(nother) child)</i>				
	<i>ALL</i>	<i>P0</i>	<i>P1</i>	<i>P2</i>	<i>P3</i>	<i>ALL</i>	<i>P0</i>	<i>P1</i>	<i>P2</i>	<i>P3</i>
<i>Italy (intention)</i>	28.8	74.5	47.1	9.2	4.2	4 608	644	1 349	2 002	613
<i>Age</i>										
18-24	87.4	91.2	97.5	46.2	-	87	34	40	13	-
25-29	75.9	99.3	82.1	32.5	20.0	390	144	151	80	15
30-34	60.7	96.3	80.1	28.2	12.5	751	164	272	259	56
35-39	32.9	80.5	58.3	12.9	6.8	1 055	118	307	497	133
40-44	10.4	42.9	20.4	1.7	3.9	1 180	98	314	588	180
45-49	2.4	12.8	4.2	0.9	0.0	1 145	86	265	565	229
<i>Type of union</i>										
Consensual union	27.3	73.3	47.0	9.0	4.4	4 319	532	1 248	1 945	594
Formal marriage	51.2	80.4	48.5	15.8	0.0	289	112	101	57	19
<i>Education</i>										
Primary	14.2	38.5	35.6	8.9	5.2	247	13	45	112	77
Secondary	22.9	64.1	39.7	10.8	3.1	1 523	153	426	688	256
High school	29.8	76.1	48.6	7.4	3.8	2 087	314	627	933	213
University	42.6	84.1	57.8	11.5	9.0	751	164	251	269	67
<i>Employment status</i>										
Employed	29.5	74.5	41.4	6.6	2.5	2 342	428	727	986	201
Unemployed	28.0	74.5	53.7	11.7	5.1	2 266	216	622	1 016	412
<i>Territorial areas</i>										
Northwest	28.9	69.7	35.9	8.9	2.5	958	178	329	370	81
Northeast	28.3	70.4	43.3	7.1	7.0	1 007	162	307	396	142
Center	29.2	74.8	41.8	9.0	10.0	782	107	263	332	80
South & islands	28.7	82.2	60.9	10.3	1.9	1 861	197	450	904	310

(continued)

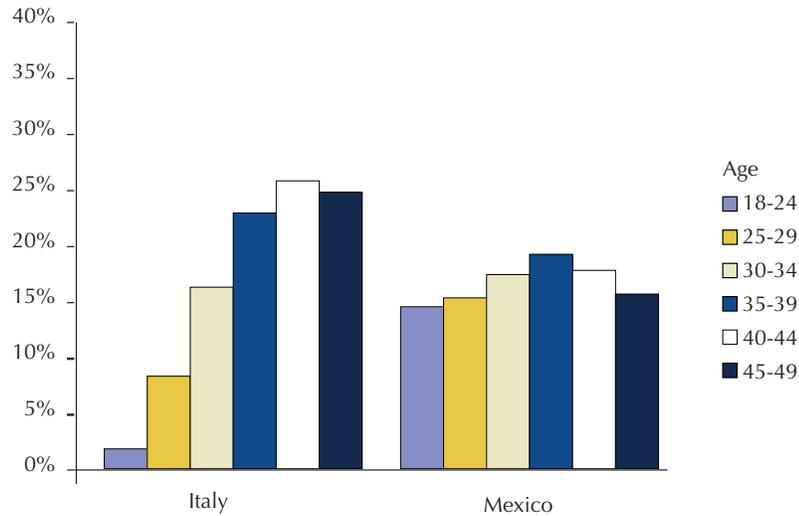
Table A1
(continued)

<i>Selected variables</i>	<i>% Women intending to have a(nother) child</i>					<i>N total (yes/no intending to have a(nother) child)</i>				
	<i>ALL</i>	<i>P0</i>	<i>P1</i>	<i>P2</i>	<i>P3</i>	<i>ALL</i>	<i>P0</i>	<i>P1</i>	<i>P2</i>	<i>P3</i>
Mexico (want)	26.8	83.0	66.4	20.8	5.6	44 030	2 861	8 278	13 799	19 092
<i>Age</i>										
18-24	68.4	93.6	80.5	43.8	22.0	6 418	994	3 237	1 695	492
25-29	48.7	94.7	77.3	37.9	16.6	6 800	677	1 846	2 520	1 756
30-34	29.6	84.5	68.3	25.3	9.5	7 687	498	1 255	2 732	3 202
35-39	15.6	73.9	51.6	12.9	5.3	8 376	330	912	2 778	4 356
40-44	5.1	47.7	16.6	4.2	2.2	7 860	197	614	2 332	4 717
45-49	1.9	26.7	8.2	1.4	0.7	6 889	165	413	1 742	4 569
<i>Type of union</i>										
Consensual union	22.9	83.0	65.8	18.5	4.9	29 070	1 497	4 517	9 604	13 453
Formal marriage	34.5	83.0	67.2	26.0	7.4	14 959	1 364	3 758	4 195	5 642
<i>Education</i>										
Primary	18.1	77.4	65.7	27.0	6.7	11 751	296	1 051	2 536	7 869
Secondary	25.6	82.8	68.8	22.6	5.5	16 538	814	2 758	5 499	7 466
High school	33.3	86.6	67.4	18.1	3.5	9 149	722	2 570	3 332	2 525
University	36.4	82.3	62.2	13.9	3.2	6 592	1 028	1 897	2 432	1 234
<i>Employment status</i>										
Employed	25.5	80.4	59.9	14.7	3.9	17 179	1 640	3 321	5 530	6 688
Unemployed	27.7	86.3	70.8	24.9	6.5	26 851	1 221	4 957	8 269	12 404
<i>Territorial areas</i>										
Mexico City	21.9	76.1	41.4	6.1	2.6	2 782	310	705	1 034	733
Middle-developed	26.7	83.3	67.9	21.1	5.1	36 799	2 322	6 795	11 621	16 059
Least-developed	31.0	88.6	76.6	30.5	10.1	4 448	228	775	1 143	2 302

Note: ALL: all births; P0: parity zero; P1: parity one; P2: parity two; P3: parity three or higher.

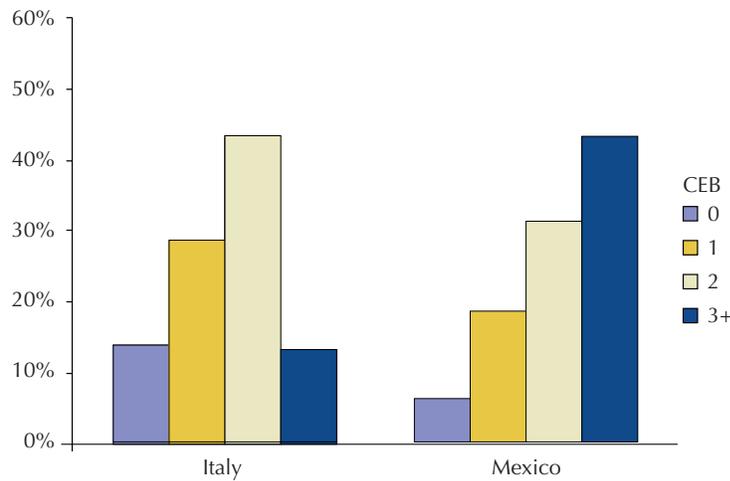
Source: Own calculations using the NMS 2009 (ISTAT, 2009) of Italy and the ENADID 2014 (INEGI, 2014) of Mexico.

Figure A1
 Distribution of women by age, currently married or in union 18–49 years.
 Italy and Mexico



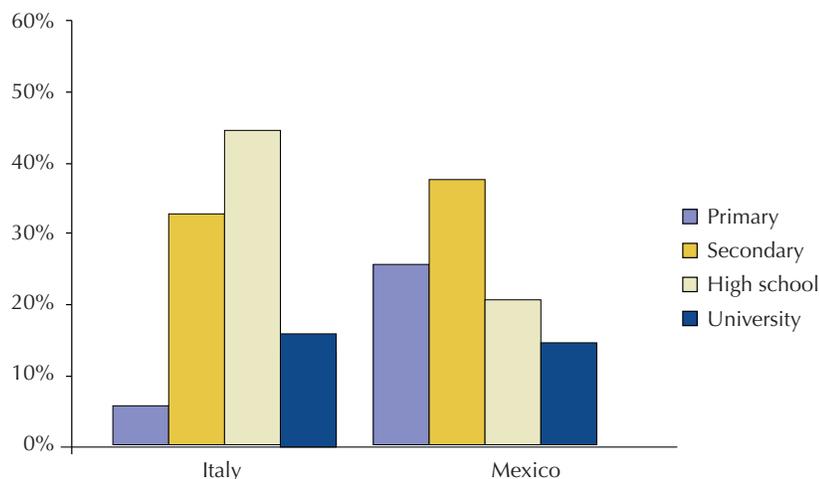
Source: Own calculations using the NMS 2009 (ISTAT, 2009) of Italy and the ENADID 2014 (INEGI, 2014) of Mexico.

Figure A2
 Distribution of women by children ever born, currently married or in union 18–49 years.
 Italy and Mexico



Source: Own calculations using the NMS 2009 (ISTAT, 2009) of Italy and the ENADID 2014 (INEGI, 2014) of Mexico.

Figure A3
Distribution of women by educational level, currently married or in union 18–49 years.
Italy and Mexico



Source: Own calculations using the NMS 2009 (ISTAT, 2009) of Italy and the ENADID 2014 (INEGI, 2014) of Mexico.

Table A.2a
Models results stratified by parity, Italy*

Equation variables	B	Standard error	Wald	gl	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Inferior	Superior
Parity 0								
Education (ref. secondary)			3.714	3	0.294			
Primary	-0.667	0.833	0.640	1	0.424	0.513	0.100	2.630
High school	0.304	0.322	0.889	1	0.346	1.355	0.721	2.546
University	0.617	0.391	2.491	1	0.114	1.853	0.861	3.984
Constant	1.687	0.738	5.228	1	0.022	5.401		
Parity 1								
Education (ref. secondary)			15.403	3	0.002			
Primary	-0.010	0.468	0.000	1	0.984	0.990	0.395	2.481
High school	0.360	0.176	4.179	1	0.041	1.433	1.015	2.024
University	0.848	0.219	14.975	1	0.000	2.335	1.520	3.588
Constant	2.580	1.042	6.126	1	0.013	13.200		
Parity 2								
Education (ref. secondary)			8.376	3	0.039			
Primary	-0.154	0.402	0.147	1	0.701	0.857	0.389	1.885
High school	-0.312	0.196	2.533	1	0.111	0.732	0.498	1.075
University	0.390	0.262	2.223	1	0.136	1.477	0.884	2.467
Constant	-0.319	0.718	0.197	1	0.657	0.727		

* Controlling for other factors: age, type of union, employment status, parity status, and territorial areas.

Table A.2b
Models results stratified by parity, Mexico*

<i>Equation variables</i>	<i>B</i>	<i>Standard error</i>	<i>Wald</i>	<i>gl</i>	<i>Sig.</i>	<i>Exp(B)</i>	<i>95% C.I. for EXP(B)</i>	
							<i>Inferior</i>	<i>Superior</i>
<i>Parity 0</i>								
Education (ref. secondary)			4.055	3	0.256			
Primary	0.264	0.207	1.627	1	0.202	1.302	0.868	1.954
High school	0.248	0.167	2.203	1	0.138	1.281	0.924	1.778
University	-0.007	0.153	0.002	1	0.965	0.993	0.736	1.341
Constant	1.979	0.236	70.059	1	0.000	7.232		
<i>Parity 1</i>								
Education (ref. secondary)			13.275	3	0.004			
Primary	0.137	0.091	2.250	1	0.134	1.147	0.959	1.372
High school	-0.140	0.067	4.432	1	0.035	0.869	0.763	0.990
University	0.079	0.076	1.071	1	0.301	1.082	0.932	1.257
Constant	0.538	0.115	21.935	1	0.000	1.712		
<i>Parity 2</i>								
Education (ref. secondary)			89.365	3	0.000			
Primary	0.389	0.062	39.445	1	0.000	1.475	1.307	1.665
High school	-0.261	0.060	19.205	1	0.000	0.770	0.685	0.866
University	-0.119	0.074	2.537	1	0.111	0.888	0.768	1.028
Constant	-1.598	0.151	112.577	1	0.000	0.202		
<i>Parity 3</i>								
Education (ref. secondary)			52.857	3	0.000			
Primary	0.311	0.073	18.306	1	0.000	1.365	1.183	1.573
High school	-0.496	0.122	16.498	1	0.000	0.609	0.480	0.774
University	-0.188	0.175	1.163	1	0.281	0.828	0.588	1.167
Constant	-2.131	0.267	63.776	1	0.000	0.119		

* Controlling for other factors: age, type of union, employment status, parity status, and territorial areas.

References

- Agresti, A. (2002). *Categorical data analysis*. Hoboken, NJ: Wiley-Interscience.
- Aiken, A. R., Borrero, S., Callegari, L. S., & Dehlendorf, C. (2016). Rethinking the pregnancy planning paradigm: Unintended conceptions or unrepresentative concepts? *Perspectives on Sexual and Reproductive Health*, 48(3). <https://doi.org/10.1363/48e10316>
- Ajzen, I., & Klobas, J. (2013). Fertility intentions: An approach based on the theory of planned behavior. *Demographic Research*, 29(8), 203-232. <https://www.demographic-research.org/articles/volume/29/8/>
- Alleva, G., & Barbieri, G. A. (2016). *Generazioni. Le italiane e gli italiani di oggi attraverso le statistiche*. Donzelli.
- Altbach, P. G., Reisberg, L., & Rumbley, L. E. (2009). *Trends in global higher education: Tracking an academic revolution. A report prepared for the UNESCO 2009 World Conference on Higher Education*. Paris: United Nations Educational, Scientific and Cultural Organization. <http://unesdoc.unesco.org/images/0018/001831/183168e.pdf>
- Ambrosetti, E. Angeli, A., & Novelli, M. (2021). Childbearing intentions among Egyptian men and women: The role of gender-equitable attitudes and women's empowerment. *Demographic Research*, 44(51), 1229-1270. <https://www.demographic-research.org/articles/volume/44/51>
- Becker, G. S. (1981). *A treatise on the family*. Cambridge, MA: Harvard University Press.
- Becker, G. S., & Lewis, H. G. (1973). On the interaction between the quantity and quality of children. *Journal of Political Economy*, 81(2), S279-S288. <https://www.jstor.org/stable/1840425>.
- Berrington, A., & Pattaro, S. (2014). Educational differences in fertility desires, intentions and behaviour: A life course perspective. *Advances in Life Course Research*, 21, 10-27. <https://doi.org/10.1016/j.alcr.2013.12.003>
- Billari, F. C., & Tomassini, C. (eds.) (2021). *Rapporto sulla popolazione. L'Italia e le sfide della demografia*. Bologna: Il Mulino.
- Blake, J. (1966). Ideal family size among white Americans: A quarter of a century's evidence. *Demography*, 3(1): 154-173. <https://doi.org/10.2307/2060069>
- Blossfeld, H. P., & Huinink, J. (1991). Human-capital investments or norms of role transition? How women's schooling and career affect the process of family formation. *American Journal of Sociology*, 97(1), 143-168. <https://www.jstor.org/stable/2781641>
- Bongaarts, J. (2003). Completing the fertility transition in the developing world: The role of educational differences and fertility preferences. *Population Studies*, 57(3), 321-335. <https://doi.org/10.1080/0032472032000137835>
- Bongaarts, J., & Casterline, J. B. (2018). From fertility preferences to reproductive outcomes in the developing world. *Population and Development Review*, 44(4), 793-809. <https://doi.org/10.1111/padr.12197>
- Bongaarts, J., & Hodgson, D. (2022). *Fertility transition in the developing world*. Springer Nature. <https://link.springer.com/book/10.1007/978-3-031-11840-1>
- Caldwell, J. (1976). Toward a restatement of demographic transition theory. *Population and Development Review*, 2(3/4), 321-366. <https://doi.org/10.2307/1971615>
- Caldwell, J. (1980). Mass education as a determinant of the timing of fertility decline. *Population and Development Review*, 6(2), 225-255. <https://doi.org/10.2307/1972729>

- Caldwell, J. (1982). *Theory of fertility decline*. London: Academic Press.
- Caldwell, J. (2006). *Demographic transition theory 2006*. Netherlands: Springer.
- Casterline, J. B., & Agyei-Mensah, S. (2017). Fertility desires and the course of fertility decline in Sub-Saharan Africa. *Population and Development Review*, 43, 84-111. <https://doi.org/10.1111/padr.12030>
- Castiglioni, M., Dalla-Zuanna, G., & Tanturri, M. L. (2020). Post-transitional demography and convergence: What can we learn from half a century of world population prospects? In S. Mazzucco & N. Keilman (eds.), *Developments in Demographic Forecasting* (pp. 63-87). Cham: Springer. https://doi.org/10.1007/978-3-030-42472-5_4
- Castro, T., & Juarez, F. (1995). The impact of women's education on fertility in Latin America: Searching for explanations. *International Family Planning Perspectives*, 21(2), 52-80. <https://doi.org/10.2307/2133523>
- CEPAL. (2012). Capítulo II. Panorama actual y perspectivas futuras de la fecundidad en América Latina. In *Panorama social de América Latina 2011* (pp. 81-105). <https://www.cepal.org/es/publicaciones/44395-panorama-social-america-latina-2018>
- CEPALSTAT. (2019). *Base de datos y publicaciones estadísticas*. Comisión Económica para América Latina y el Caribe. https://estadisticas.cepal.org/cepalstat/WEB_CEPALSTAT/estadisticasIndicadores.asp?idioma=e
- Chesnais, J. C. (1992). *The demographic transition: Stages, patterns and economic implications. A longitudinal study of sixty-seven transition countries covering the period 1720-1984*. New York: Clarendon Press.
- Coale, A. J., & Cotts Watkins, S. (eds.) (1986). *The decline of fertility in Europe*. Princeton: Princeton University Press.
- Cochrane, S. H. (1979). *Fertility and education: What do we really know?* Washington, D.C.: World Bank.
- CONAPO. (1995). *Encuesta Nacional de Planificación Familiar 1995*. Mexico City: Consejo Nacional de Población.
- CONAPO. (1997). *La situación demográfica de México 1997*. Mexico City: Consejo Nacional de Población. https://www.gob.mx/cms/uploads/attachment/file/233226/SDM_1997.pdf
- CONAPO. (2020). *Indicadores demográficos de México de 1950 a 2020*. Mexico City: Consejo Nacional de Población. http://www.conapo.gob.mx/work/models/CONAPO/Mapa_Ind_Dem18/index_2.html
- CONEVAL. (2015). Resultados de pobreza en México 2014 a nivel nacional y por entidades federativas. Cuadro resumen. Evolución nacional y por entidad federativa. In *Medición de la pobreza*. Consejo Nacional de Evaluación de la Política de Desarrollo Social. <http://www.coneval.org.mx/Medicion/Paginas/PobrezaInicio.aspx>
- Dalla-Zuanna, G., De Rose, A., & Racioppi, F. (2005). Low fertility and limited diffusion of modern contraception in Italy during the second half of the twentieth century. *Journal of Population Research*, 22(1), 21-47. <https://www.jstor.org/stable/41110821>
- De Rose, A., Racioppi, F., & Zanatta, A. (2008). Italy: Delayed adaptation of social institutions to changes in family behaviour. *Demographic Research*, 19(19), 665-704. <https://www.demographic-research.org/articles/volume/19/19>
- De Rose, A., & Strozza, S. (2015). Economic crisis and demographic dynamics. *Annali del Diparti-*

- mento di Metodi e Modelli per l'Economia, il Territorio e la Finanza, 1, 145-154. https://rosa.uniroma1.it/rosa02/annali_memotef/article/view/671/568
- De Rose, A., & Vignoli, D. (2011). Families "all'italiana": 150 years of history. *Rivista Italiana di Economia, Demografia e Statistica*, 65(2), 121-144. http://www.sieds.it/listing/RePEc/journal/2011LXV_2rieds.pdf
- De Wachter, D., & Neels, K. (2011). Educational differentials in fertility intentions and outcomes: Family formation in Flanders in the early 1990s. *Vienna Yearbook of Population Research*, 9, 227-258. <https://www.jstor.org/stable/41342812>
- Delgado Perez, M., & Livi-Bacci, M. (1992). Fertility in Italy and Spain: The lowest in the world. *Family Planning Perspectives*, 24(4), 162-171. <https://doi.org/10.2307/2136019>
- DGE. (1976). *Encuesta Mexicana de Fecundidad 1976*. Mexico: Dirección General de Estadística.
- DGSR. (2003). *Encuesta Nacional de Salud Reproductiva 2003*. Mexico: Dirección General de Salud Reproductiva.
- Esping-Andersen, G., & Billari, F. C. (2015). Re-theorizing family demographics. *Population and Development Review*, 41(1), 1-31. <https://doi.org/10.1111/j.1728-4457.2015.00024.x>
- Fiori, F., Rinesi, F., & Graham, E. (2017). Choosing to remain childless? A comparative study of fertility intentions among women and men in Italy and Britain. *European Journal of Population*, 33, 319-350. <https://doi.org/10.1007/s10680-016-9404-2>
- Frejka, T., & Sobotka, T. (2008). Fertility in Europe: Diverse, delayed and below replacement. *Demographic Research*, 19(3), 15-46. <https://www.demographic-research.org/articles/volume/19/3/>
- Goldstein, J., Lutz, W., & Testa, M. R. (2003). The emergence of sub-replacement family size ideals in Europe. *Population Research and Policy Review*, 22(5-6), 479-496. <https://doi.org/10.1023/B:POPU.0000020962.80895.4a>
- Hagewen, K. J., & Morgan, S. P. (2005). Intended and ideal family size in the United States. *Population and Development Review*, 31(3), 507-527. <https://doi.org/10.1111/j.1728-4457.2005.00081.x>
- Hernández, M. F., Tapia, G., Alarcón, X., & Muradás, M. C. (2015). Aproximaciones al nivel de la fecundidad en México, 1990-2014. In CONAPO, *La situación demográfica de México 2015* (pp. 17-42). Consejo Nacional de Población.
- Hoem, B., & Hoem, J. M. (1989). The impact of women's employment on second and third births in modern Sweden. *Population Studies*, 43(1), 47-67. <https://www.jstor.org/stable/2174237>
- Hoem, J. M., Prskawetz, A., & Neyer, G. (2001). Autonomy or conservative adjustment? The effect of public policies and educational attainment on third births in Austria, 1975-96. *Population Studies*, 55(3), 249-261. <https://www.jstor.org/stable/3092864>
- Hosmer, D. W. Jr., & Lemeshow, S. (2004). *Applied logistic regression*, New York: John Wiley & Sons.
- Impicciatore, R., & Dalla-Zuanna, G. D. (2017). The impact of education on fertility in Italy. Changes across cohorts and south-north differences. *Quality and Quantity*, 51, 2293-2317. <https://doi.org/10.1007/s11135-016-0388-0>
- INEGI. (1997). *Encuesta Nacional de la Dinámica Demográfica 1997*. Mexico: Instituto Nacional de Estadística y Geografía.

- INEGI. (2014). Presentación. In *Encuesta Nacional de la Dinámica Demográfica (ENADID)*. Mexico: Instituto Nacional de Estadística y Geografía.
- ISTAT. (2009). *Famiglia e soggetti sociali*. Rome: Istituto Nazionale di Statistica.
- ISTAT (2016). *Rapporto annuale 2022. La situazione del Paese*. Rome: Istituto Nazionale di Statistica.
- ISTAT. (2022a). *Demographic indicators*. Rome: Istituto Nazionale di Statistica.
- ISTAT. (2022b). *Rapporto annuale 2022. La situazione del Paese*. Rome: Istituto Nazionale di Statistica.
- Juarez, F. (2018). *Tables unpublished, total fertility rate and age specific fertility rates, ENADID 1992, 1997 and 2014*. Mexico.
- Juárez, F., & Gayet, C. (2005). Salud sexual y reproductiva de los adolescentes en México: un nuevo marco de análisis para la evaluación y diseño de políticas. *Papeles de Población*, 11(45), 177-219. https://www.scielo.org.mx/scielo.php?script=sci_arttext&pid=S1405-74252005000300008
- Juarez, F., & Gayet, C. (2015). Fertility transition: Latin America and the Caribbean. In J. D. Wright (ed.), *International Encyclopedia of the Social and Behavioral Sciences* (pp. 68-72). Oxford: Elsevier. <http://dx.doi.org/10.1016/B978-0-08-097086-8.31087-X>
- Juárez, F., & Gayet, C. (2020). Capítulo 4. De la fecundidad a la salud reproductiva: tendencias y temas actuales. In S. Giorguli, & J. Sobrino (eds.), *Dinámica demográfica de México en el siglo XXI* (vol. 1, pp. 163-208). Mexico City: El Colegio de México, A.C.
- Juarez, F., Singh, S., Maddow-Zimet, I., & Wulf, D. (2013). *Unintended pregnancy and induced abortion in Mexico*. New York: Guttmacher Institute.
- Kost, K., & Lindberg, L. (2015). Pregnancy intentions, maternal behaviors, and infant health: Investigating relationships with new measures and propensity score analysis. *Demography*, 52(1), 83-111. <https://doi.org/10.1007/s13524-014-0359-9>
- Kost, K., Maddow-Zimet, I., & Kochhar, S. (2018). *Pregnancy desires and pregnancies at the state level: Estimates for 2014*. New York: Guttmacher Institute. <https://www.guttmacher.org/report/pregnancy-desires-and-pregnancies-state-level-estimates-2014>
- Kost, K., & Zolna, M. (2019). Challenging unintended pregnancy as an indicator of reproductive autonomy: A response. *Contraception*, 100(1), 5-9. <https://doi.org/10.1016/j.contraception.2019.04.010>
- Kravdal, Ø. (1992). The emergence of a positive relation between education and third birth rates in Norway with supportive evidence from the United States. *Population Studies*, 46(3), 459-475. <https://doi.org/10.1080/0032472031000146456>
- Kravdal, Ø., & Rindfuss, R. R. (2008). Changing relationship between education and fertility: A study of women and men born 1940 to 1964. *American Sociological Review*, 73(5), 854-873. <https://doi.org/10.1177/000312240807300508>
- Kreyenfeld, M. (2002). Time-squeeze, partner effect or self-selection? An investigation into the positive effect of women's education on second birth risks in West Germany. *Demographic Research*, 7(2), 15-48. <https://www.demographic-research.org/articles/volume/7/2>
- Lafaurie Villamil, M. M., Angarita de Botero, M. D. P., & Chilatra Guzmán, C. I. (2020). Atención humanizada del embarazo: la mirada de gestantes que acuden a una unidad hospitalaria de salud. *Enfermería Actual de Costa Rica*, 38, 180-195. <http://dx.doi.org/10.15517/revenf.v0i38.38376>

- Leridon, H. (1987). *La seconde révolution contraceptive: la régulation des naissances en France de 1950 à 1985 (vol. 117)*. Paris: INED.
- Lesthaeghe, R., & Vanderhoeft, C. (1999). Une conceptualisation des transitions vers de nouvelles formes de comportements. In D. Tabutin (ed.), *Théories, paradigmes et courants explicatifs en démographie*. Chaire Quetelet: Institut de Démographie, Université Catholique de Louvain-la-Neuve.
- Livi Bacci, M. (1980). *Donna, fecondità e figli: due secoli di storia demografica italiana*. Il Mulino.
- McClelland, G. H. (1983). Family-size desires as measures of demand. In R. A. Bulatao & R. D. Lee (eds.), *Determinants of fertility in developing countries: A summary of knowledge* (pp. 288-343). Washington, D.C.: National Academy Press.
- McDonald, P. (2000a). Gender equity in theories of fertility transition. *Population and Development Review*, 26(3), 427-439. <https://doi.org/10.1111/j.1728-4457.2000.00427.x>
- McDonald, P. (2000b). Gender equity, social institutions and the future of fertility. *Journal of Population Research*, 17(1), 1-16. <https://doi.org/10.1007/BF03029445>
- McDonald, P. (2006). Low fertility and the state: The efficacy of policy. *Population and Development Review*, 32(3), 485-510. <https://doi.org/10.1111/j.1728-4457.2006.00134.x>
- Menkes Bancet, C., & Mojarro, O. (2003). Preferencias reproductivas en el último tramo de la transición. In A. M. Chávez Galindo, P. Uribe Zúñiga & Y. Palma Cabrera (eds.), *La salud reproductiva en México. Análisis de la Encuesta Nacional de Salud Reproductiva* (pp. 107-113). Mexico City: UNAM / Secretaría de Salud. http://www.salud.gob.mx/unidades/cdi/documentos/salud_reproductivadf_mexico.pdf
- Mier y Terán, M. (2014). Pautas reproductivas: la escolaridad y otros elementos explicativos. In C. Rabell (eds.), *Los mexicanos. Un balance del cambio demográfico* (pp. 306-349). Mexico City: Fondo de Cultura Económica.
- Mills, M., Mencarini, L., Tanturri, M. L., & Begall, K. (2008). Gender equity and fertility intentions in Italy and the Netherlands. *Demographic Research*, 18(1), 1-26. <https://www.demographic-research.org/articles/volume/18/1/>
- Morgan, S. P. (2001). Should fertility intentions inform fertility forecasts? *Proceedings of US Census Bureau Conference: The direction of fertility in the United States*. Washington, D.C.: US Census Bureau.
- Morgan, S. P., & Rackin, H. (2010). The correspondence between fertility intentions and behavior in the United States. *Population and Development Review*, 36(1), 91-118. <https://doi.org/10.1111/j.1728-4457.2010.00319.x>
- Mundigo, A. I. (1992). Los programas de planificación familiar y su función en la transición de la fecundidad en América Latina. *Notas de Población*, 20(55), 11-40. <https://www.cepal.org/es/publicaciones/38229-notas-poblacion-vol20-ndeg-55>
- Muñoz, L. A., Sanchez, X., Arcos, E., Vollrath, A. & Bonatti, C. (2013). Vivenciando la maternidad en contextos de vulnerabilidad social: un enfoque comprensivo de la fenomenología social. *Revista Latino-Americana de Enfermagem*, 21(4), 913-919. <https://doi.org/10.1590/S0104-11692013000400012>
- Novelli, M., Cazzola, A., Angeli, A., & Pasquini, L. (2021). Fertility intentions in times of rising economic uncertainty: Evidence from Italy from a gender perspective. *Social Indicators Research*, 154, 257-284. <https://doi.org/10.1007/s11205-020-02554-x>

- OECD. (2019). *Family database*. Paris: Organisation for Economic Co-operation and Development. <http://www.oecd.org/els/family/database.htm>
- OECD. (2020). *Education attainment*. Paris: Organisation for Economic Co-operation and Development. <https://data.oecd.org/education.htm>
- Oppenheimer, V. K. (1972). Rising educational attainment, declining fertility and the inadequacies of the female labor market. *Research Reports* (Vol. 1, pp. 305-28). USA: Commission on Population Growth and the American Future. <https://play.google.com/books/reader?id=V0tN-AQAAMAAJ&hl=es&pg=GBS.PA112>
- Oppenheimer, V. K. (1994). Women's rising employment and the future of the family in industrial societies. *Population and Development Review*, 20(2), 293-342. <https://doi.org/10.2307/2137521>
- Paz-Gómez, L. (2010). Tamaño de familia deseado. Un análisis sobre los ideales de fecundidad en Colombia y México. *Papeles de Población*, 16(65), 105-130. https://www.scielo.org.mx/scielo.php?script=sci_arttext&pid=S1405-74252010000300004
- Philipov, D. (2009). Fertility intentions and outcomes: The role of policies to close the gap. *European Journal of Population*, 25(4), 355-361. <https://www.jstor.org/stable/27772391>
- Philipov, D. (2011). Theories on fertility intentions: A demographer's perspective. *Vienna Yearbook of Population Research*, 9, 37-45. <http://www.jstor.org/stable/41342801>
- Philipov, D., & Bernardi, L. (2012). Concepts and operationalisation of reproductive decisions: Implementation in Austria, Germany and Switzerland. *Comparative Population Studies*, 36(2-3), 495-530. <https://doi.org/10.12765/CPoS-2011-14>
- Pinnelli, A., & Fiori, F. (2008). The influence of partner involvement in fatherhood and domestic tasks on mothers' fertility expectations in Italy. *Fathering: A Journal of Theory, Research & Practice about Men as Fathers*, 6(2), 169-191. http://www.mensstudies.info/OJS/index.php/FATHERING/article/view/274/pdf_90
- Potter, J. E., Stevenson, A. J., Coleman-Minahan, K., Hopkins, K., White, K., Baum, S. E., & Grossman, D. (2019). Challenging unintended pregnancy as an indicator of reproductive autonomy. *Contraception*, 100(1), 1-4. <https://doi.org/10.1016/j.contraception.2019.02.005>
- Quilodrán, J. (ed.). (2011). *Parejas conyugales en transformación*. Mexico City: El Colegio de México, A.C.
- Robles Vásquez, H., & Pérez Miranda, M. G. (eds.). (2019). *Panorama educativo de México. Indicadores del Sistema Educativo Nacional 2018. Educación básica y media superior*. Mexico City: Instituto Nacional para la Evaluación de la Educación. <https://www.inee.edu.mx/wp-content/uploads/2019/08/P1B117.pdf>
- Ruokolainen, A., & Notkola, I. L. (2002). Familial, situational and attitudinal determinants of third-birth intentions and their uncertainty. *Yearbook of Population Research in Finland*, 38, 179-206. <https://doi.org/10.23979/fypr.44976>
- Ryder, N. B., & Westoff, C. F. (1969). *Relationships among intended, expected, desired, and ideal family size: United States 1965*. U.S. Department of Health, Education, and Welfare, Public Health Service, National Institutes of Health, National Institute of Child Health and Human Development, Center for Population Research.
- Schoen, R., Astone, N. M., Kim, Y. J., Nathanson, C. A., & Fields, J. M. (1999). Do fertility intentions affect fertility behavior? *Journal of Marriage and the Family*, 61(3), 790-799. <https://doi.org/10.2307/353578>

- Secombe, W. (1993). *Weathering the storm: Working-class families from the industrial revolution to the fertility decline*. London: Verso.
- Secretaría de Salud. (1987). *Encuesta Nacional sobre Fecundidad y Salud de México 1987*. Mexico: Dirección General de Planificación Familiar, Secretaría de Salud.
- SEP. (1999). *El perfil de la educación en México*. Mexico City: Secretaría de Educación Pública.
- Sobotka, T. (2009). Sub-replacement fertility intentions in Austria / Intentions de fécondité inférieures au seuil de remplacement en Autriche. *European Journal of Population / Revue Européenne de Démographie*, 25, 387-412. <https://doi.org/10.1007/s10680-009-9183-0>
- Sobotka, T., & Beaujouan, É. (2014). Two is best? The persistence of a two-child family ideal in Europe. *Population and Development Review*, 40(3), 391-419. <https://doi.org/10.1111/j.1728-4457.2014.00691.x>
- Sobotka, T., Beaujouan, E., & Van Bavel, J. (2017). Introduction: Education and fertility in low-fertility settings. *Vienna Yearbook of Population Research*, 15, 1-16. <https://www.jstor.org/stable/26506094>
- Testa, M. R. (2014). On the positive correlation between education and fertility intentions in Europe: Individual- and country-level evidence. *Advances in Life Course Research*, 21, 28-42. <https://doi.org/10.1016/j.alcr.2014.01.005>
- Testa, M. R., & Stephany, F. (2017). The educational gradient of fertility intentions: A meta-analysis of European studies. *Vienna Yearbook of Population Research*, 15, 293-330. <https://www.jstor.org/stable/26506109>
- Thomson, E., & Brandreth, Y. (1995). Measuring fertility demand. *Demography*, 32(1), 81-96. <https://doi.org/10.2307/2061898>
- Trent, R. B. (1980). Evidence bearing on the construct validity of "ideal family size". *Population and Environment*, 3(3-4), 309-327. <https://doi.org/10.1007/BF01255345>
- UNFPA. (2018). *The state of the world. The power of choice. Reproductive rights and demographic transition*. New York: United Nations Population Fund.
- United Nations. (1987). *Fertility behavior in the context of development: Evidence from the World Fertility Surveys*. (Population Studies, 100, ST/ESA/SER.A/100). New York: United Nations. <https://shorturl.at/tul09>
- United Nations. (1995). *Women's education and fertility behavior: Recent evidence from the demographic and health surveys*. New York: United Nations, Department of Economic and Social Affairs Population Division. <https://digitallibrary.un.org/record/209794?ln=en>
- United Nations. (2019). *World population prospects: The 2019 revision*. New York: United Nations, Population Division, Department of Economic and Social Affairs. <https://population.un.org/wpp/>
- United Nations. (2020). *World fertility and family planning 2020: Highlights*. New York: United Nations, Population Division, Department of Economic and Social Affairs. https://www.un.org/en/development/desa/population/publications/pdf/family/World_Fertility_and_Family_Planning_2020_Highlights.pdf
- Van De Walle, E., & Knodel, J. (1980). Europe's fertility transition: New evidence and lessons for today's developing world. *Population Bulletin*, 34(6), 3-44. <https://pubmed.ncbi.nlm.nih.gov/12309786/>
- Weeks, J. (2015). *Population: An introduction to concept and issues*. Cengage Learning.

- Westoff, C. F. (1990). Reproductive intentions and fertility rates. *International Family Planning Perspectives*, 16(3), 84-96. <https://doi.org/10.2307/2133304>
- Westoff, C. F., & Bankole, A. (2002). *Reproductive preferences in developing countries at the turn of the century*. (DHS Comparative Reports, 2). Calverton, MD: ORC Macro. <https://dhsprogram.com/publications/publication-cr2-comparative-reports.cfm>
- Westoff, C. F., & Ryder, N. B. (1977). The predictive validity of reproductive intentions. *Demography*, 14(4), 431-453. <https://doi.org/10.2307/2060589>
- World Bank. (2012). *World development indicators 2012*. Washington, D.C.: World Bank. <http://documents.worldbank.org/curated/en/553131468163740875/World-development-indicators-2012>
- Zavala, M. E. (2014). La transición demográfica de 1895-2010. ¿Una transición original? In C. Rabell (ed.), *Los mexicanos. Un balance del cambio demográfico* (pp. 80-114). Mexico City: Fondo de Cultura Económica.
- Zúñiga, E. H. (1993). Cambios en el nivel de la fecundidad deseada en las mujeres mexicanas, 1976-1986. *Revista Mexicana de Sociología*, 55(1), 83-96. <https://doi.org/10.2307/3540996>

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