Fertility Decisions in Context

Individual and Couple Dynamics

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Chapter 1 Introduction and Background

1.1 Introduction

The growing public importance of fertility can be attributed to the steep fertility decline that has in the last four decades led to low fertility levels in most developed countries. This phenomenon is quite important in the light of increasing life expectancy and it is of widespread concern about the size and age structure of the population. These changes have a powerful impact on the pension and health care systems, in addition to the dimension and productivity of the workforce.

The decline in fertility has started in Northern European countries in the 1960s and it has since spread to all European countries. To explain the emergence of low fertility, many scholars have stressed the importance of the unprecedented pace and duration of the childbearing postponement (Bongaarts 2002; Billari 2008; Zeman et al. 2018). This has had a strong impact especially in Southern European countries, characterized by familistic welfare regimes with difficult family-work conciliation (Esping-Andersen 1999; Del Boca and Wetzels 2007; Barbieri and Scherer 2009). Italy and Spain reached the lowest fertility levels during the 1990s, with the TFR below 1.3 - *lowest-low fertility* - followed by Eastern European countries (Kohler et al. 2002; Sobotka 2004).

However, during the 2000s in most European countries the fertility rates rose until the onset of severe economic recession in 2008 (Sobotka et al. 2011; Bongaarts & Sobotka 2012; Matysiak et al. 2018). This trend has drawn considerable attention and it represents a strong upturn in contrast with the lowest levels reached during the 1990s (Myrskyla et al. 2009; OECD, 2011). Although many authors have explained how part

of this fluctuation can be attributed to the postponement process due to the *tempo effect* (see Bongaarts and Feney 1998 for an alternative measure known as 'adjusted-TFR'; Kohler et al. 2002; Goldstein et al. 2009), in 2018 all European countries showed below replacement fertility levels with an average TFR of 1.6. This is considered a critical level as fertility rates below 2.1 lead to each new generation being less populous than the older net migration.

Despite some common trends, due to important institutional and cultural heterogeneities a huge diversity in both the timing and quantity of childbirths persists among European countries. In the literature, low fertility has been mostly addressed following two perspectives. First, the different factors have been discussed as being fundamental for influencing an individual's fertility behavior and its change. On the one hand, economic theories focus on the rising opportunity-costs of childbearing, which have resulted mainly from increased women's education and labor market participation (Ahn and Mira 2002; Becker 1991; Del Boca and Wetzels 2007). The authors suggest that the benefits gained from having children have been reduced in favor of an increase in the *cost* of children, in light of women's increased educational attainment. The mechanism behind this is that highly educated women who have therefore invested in education lose most of their investment in human capital if they decide to have (many) children and consequently, they have to withdraw (at least temporarily) from the labor market. Thus, highly educated women face higher opportunity costs than their lower educated counterparts and therefore they tend to have less children, especially in countries with particularly difficult family-work conciliation due to the absence of a supporting social state and even higher opportunity costs. The institutional context, like childcare availability, can influence the amount of opportunity costs, underling the importance to also consider the contextual factors to understand

fertility behavior and its changes. On the other hand, the role of cultural factors has been stressed, such as changes in the norms, values and preferences, to explain individual reproduction choices and declining fertility. According to the theory of the Second Demographic Transition (SDT), the shift from tradition, family-oriented towards post-materialist values linked to self-fulfillment and individualism, induced by increased material well-being and educational expansion. This is at the basis of the overall declining fertility, in addition to increasing divorce-rates, cohabitation and extra-marital births (Inglehart 1971; Laesthaeghe and van de Kaa 1986; Bryant 2007; Kertzer 2009; Caldwell 2013). More recently some contributions underline the importance of the interaction of more institutional/economic and normative/values factors for determining individual's fertility choices (McDonald 2000, Esping-Andersen and Billari 2015).

Second, another important stream of research focuses on the 'fertility gap' that exists between desired family size and the actual number of children as a possible explanation for low fertility (Adserà 2006; Philipov 2009). Specifically, the 'unmet need for children' has led many researchers to examine which factors are responsible for the formation and subsequent realization of fertility intentions (Billari et al. 2009; Mencarini et al. 2011; Kapitany and Spéder 2009, 2012; Kuhnt and Trappe 2013; Donnermuth et al. 2015). The key importance of focusing on fertility intentions rather than fertility behavior is due to the fact that "people generally have greater control over performance of a behavior than they have over attaining a goal the behavior is intended to produce" (Ajzen and Klobas, 2013: 207). The majority of these studies have drawn upon the social-psychological model of the Theory of Planned Behavior (TPB; Ajzen, 1991). The assumption behind the application of the TPB to fertility behavior is that, at least in developed countries, having a child is mostly the result of a reasoned decision

(Ajzen and Klobas, 2013). Despite the importance of a partner's fertility intentions for the decision of having a child having been recognized in the literature, most of these studies have analyzed the transition to parenthood from the perspective of women. However, the TPB does not explicitly take into account the complexity of a dyadic decision-making process of reproduction (Philipov 2011; Testa et al. 2012), and it does not consider the potential effects of a disagreement within the couple either (Miller 2011). Indeed, only a relatively small number of studies have focused on the couple's fertility and decision-making process (Beckman 1984; Miller and Pasta 1994; Thomson 1997; Jansen and Liefbroer 2006; Bauer and Kneip 2014; Stein et al. 2014; Mencarini et al. 2014).

Besides potential dissimilarities within the couple in terms of fertility intentions, an additional source of heterogeneity can arise when the partners have different ethnic backgrounds. Indeed, by looking at intermarriage among persons of different backgrounds and, in specific, between migrants and natives, it has become an interesting topic as it allows us to study how this dissimilarity is related to fertility decisions. The topic has also become more relevant because the formation and duration of this type of union can be seen as the result of a successful integration especially in countries characterized by high levels of immigrant population (Kalmijn 1998). The relevance of focusing on the ethnic diversity of the couple for fertility decisions is twofold. First, mixed unions may differ from endogamous couples in the sense that the partners may have very different fertility intentions given their different ethnic backgrounds. Second, the ways in which the intentions translate into actual fertility may be different in couples that have a different origin because their cultural distance as well as their different socio-economic backgrounds may act as enablers or constraints to the realization of their fertility intentions.

1.2 Contribution

This thesis contributes to enhance our knowledge on fertility decisions by addressing two major issues. First, it contributes to the understanding of the factors behind the differences in fertility levels among European countries by adopting a *holistic* perspective. Second, it adds to the fertility topic by examining the whole fertility decision-making process using a dyadic and a life-course perspective to address the 'fertility gap' that exists between desired family size and the actual number of children. Specifically, three major contributions can be identified. The first lies in the combination of different insights from the relevant theoretical frameworks to tackle the challenging and much-debated '*economy vs culture*' dichotomy (Billari 2004). The integration of *structural* and *cultural* perspectives works as the leading thread throughout the thesis and it is addressed following two distinct strategies. In the first part, this combination is examined in terms of the influence of the macro-level contexts to shed light on the quantum of fertility at the individual-level among European countries. In the second part, the thesis focuses on the micro mechanisms by examining simultaneously each step of the fertility decision-making process from the measurement of benefits and costs towards the idea of having a child and their determinants, through to the formation and realization of fertility intentions. Within the development of the micro decision-making model, the structure-culture dichotomy is realized in the form of the perceived costs and expected benefits related to the idea of having a child examined as two complementary concepts influencing the final decision.

Second, the implementation of a fertility decision-making model reveals the need for a life-course perspective to build a chronological and causal path of the overall process. In this regard, longitudinal micro data are essential to disentangle how people make decisions about fertility. To develop a dynamic picture of the process, the richness and

uniqueness of the Australian longitudinal dataset represents a crucial aspect of the study of the decision-making process of having a child.

Third, this thesis contributes to the understanding of how people make decisions about their fertility by adopting a dyadic perspective. Most of the studies so far have analyzed the transition to parenthood from the perspective of women. The choice to look only at the characteristics of one partner has been justified by the fact that a person usually chooses a partner with the same values leading to a high level of homogamy within couples (Rosina and Testa 2009). However, empirical studies have highlighted how the homogamy within the couple is not complete and that looking only at the characteristics of one partner could be misleading (Corijin et al. 1996; Jansen and Liefbroer 2006). Given that family plans and fertility decisions have consequences for both partners, it seems relevant to consider not only the influence of each partner's evaluation of the perceived costs and expected benefits on her/his individual fertility intention but also the mutual value/costs of children and their effect on the partner's fertility intentions.

In order to provide these contributions, this thesis is structured as follows. After a detailed review of the literature, major attention is dedicated to the analysis of the differences in terms of fertility levels between the European countries (Chapter 2). Chapter 3 investigates the fertility decision-making process exploiting the unique information of HILDA, which allows for a dyadic as well as longitudinal analysis of the overall process. The last chapter examines in-depth the transition to parenthood among couples of diverse ethnic origins in Australia. In the remainder of this introduction, I first review the theoretical perspectives that address the topic of fertility and then I present a summary for each chapter highlighting the peculiar contributions and the key findings of the single parts of this dissertation. The last part presents the general conclusions of this thesis.

1.3 Theoretical Background

The aim of this overview is to introduce the reader to the main theoretical perspectives used for the development of the empirical chapters. The intent of this section is not to be exhaustive in terms of reviewing all of the approaches related to fertility but to discuss the prominent theories by elaborating on a narrative that can act as a support for the following empirical pieces.

The existing fertility research focuses mainly on two components that constitute human fertility: the timing of childbirth (*tempo*) and the total number of children (*quantum*). For instance, the Total Fertility Rate (TFR) is a quantum measure while the mean age at childbirth is a tempo measure of fertility. On the one hand, cohort fertility measures can be intuitively interpreted and analyzed following a specific cohort over time until the end of the fertile period. Whilst these measures are ideal for fertility, they can only be calculated with a lag, hence they are of limited use to study the ongoing trends and the year-to-year changes. On the other hand, period measures of fertility are more widespread in demographic analysis even though they may be subject to period tempo distortions (see Bongaarts and Feeney 1998). The tempo and quantum of fertility are clearly linked to each other. The postponement process (*tempo effect*) is interrelated with the total number of children. Many authors have stressed the importance of the unprecedented pace and duration of childbearing postponement to explain the emergence of low fertility (Bongaarts 2002; Billari 2008; Zeman et al. 2018). This process has had a strong impact especially in Southern European countries, characterized by familistic welfare regimes with difficult family-work conciliation (Esping-Andersen 1999; Del Boca and Wetzels 2007; Barbieri and Scherer 2009). Italy and Spain reached the lowest fertility levels during the 1990s, with a TFR below 1.3 - *lowest-low fertility* - followed by Eastern European countries (Kohler et al. 2002;

Sobotka 2004). However, during the 2000s in most European countries fertility rates have risen until the onset of severe economic recession in 2008 (Sobotka et al. 2011; Bongaarts & Sobotka 2012; Matysiak et al. 2018). The trend has drawn considerable attention and it represents a strong upturn in contrast with the lowest levels reached during the 1990s (Goldstein et al. 2009; Myrskyla et al. 2009; OECD, 2011). Part of this increase can be attributed to the *tempo effect* (see Bongaarts and Feney 1998 for an alternative measure known as 'adjusted-TFR'; Kohler et al. 2002; Goldstein et al. 2009). In 2018, all European countries showed below replacement fertility levels with an average TFR of 1.6. This is considered a critical level as fertility rates below 2.1 lead to each new generation being less populous than the older, net of migration.

The amount of research attributed to the fertility decline includes a variety of economic, social and cultural determinants. This section focuses on the two streams of research outlined above. In the first part, the most prominent theoretical views about the decline in fertility levels will be presented, i.e. the Economic Theory of Family (Becker 1981) and the Second Demographic Transition (Van de Kaa, 1987), which have in common lower fertility as the result of women's higher education and higher wages. The quality-quantity tradeoff of children will be introduced by examining the link between fertility intentions and their realization. The Theory of Planned Behavior will be presented as an example of a decision-making model that will represent the grounds for the implementation of a fertility decision-making model in **Chapter 3** based on the rational choice approach with the integration of the *Value of Children* theory (VOC; Hoffmann and Hoffmann 1973) as an intermediate element. Lastly, this chapter takes into account the considerable changes in the institutional context of childbearing that are identifiable with the transition from a 'male-breadwinner model' as the standard for the organization of family in the 1960s and the 1970s to more egalitarian societies where

dual earner couples have become the new standard. This process is still in progress and it shows a great amount of heterogeneity across countries. In this perspective, gender systems are considered to be a relevant element for explaining the differences in fertility levels at the institutional-level (**Chapter 2**) and through their manifestations in the public and private sphere such as the gender division of labor and the influence of gender attitudes.

1.3.1 The Economic Theory of Family

According to the Economic Theory of Family (ETF; Becker 1991), individuals gain direct pleasure from having and raising children, and their well-being is increased in terms of the perspective of a rational choice approach. According to the ETF, fertility rates decrease for the a) *postponement of the transition to childhood*, in particular due to the increase of women's age at the first birth and due to the b) *increase in female earning potential in the labor market*. According to this model, women are expected to schedule their work and family role over their life course: leaving their job for child rearing and returning in the LM when their children have grown older. In this model, the division of labor when the children are in their first year implies that women dedicate themselves full-time to the home and to childcare while the men work full-time in the LM. With the increased opportunity cost of child rearing, it does not come as a surprise that fertility rates have fallen in all OECD countries. This happened because women, employed or not, still tend to perform more household and childcare work than men (Steiber, 2007). Initially, this theory suggests a positive relationship between income and fertility quantum. Conversely, empirical evidence has recently shown there to be a negative link between wage and fertility. The latter body of literature emphasizes two relevant aspects. The first approach highlights the quality-quantity trade-off. In particular, a high income corresponds to fewer children because

the parents focus on the quality of their children (Becker et al., 1990). The second approach focuses on the opportunity cost of having children. This is valid especially for women. This is since they have more to lose if they are higher-income mothers as they are expected to have fewer children (Kravdal, 1992). Another similar approach has been developed related to the relationship between education, the labor market and the timing of childbearing. Women are more likely to pursue careers if they have a high human capital. Thus, highly educated women are more likely to postpone both marriage and birth due to the opportunity cost of having a child. Other studies found an opposite mechanism (Oppenheimer 1994; Mencarini and Tanturri 2006; Mills et al. 2008). Higher educated women are more likely to have a child, for three main reasons: a) they have higher wages because they are likely to have a highly educated partner; b) there is a more equal division of domestic labor because they have stronger bargaining power within the couple and c) they can outsource the housework. Finally, opportunity costs also depend on how supportive the social environment when it comes raising children. With long leave schemes and accessible (public) childcare, the cost of having children for higher educated women is lower. In **Chapter 2,** I will investigate the relevance of the institutional context in shaping fertility decisions.

1.3.2 Fertility Intentions and Their Realization

Becker suggests that the quality-quantity trade-off is at the core of the demographic transition from high to low fertility (Becker et al. 1990). An alternative approach has focused on the "*fertility gap*" existing between the desired family size and the actual number of children (Philipov 2009). The 'unmet need for children' has led many researchers to examine the factors that might influence people's fertility intentions and their (non-) realization. The focus here is on the decision-making process to have (or not) children in contemporary societies and to underlie the determinants of this process.

Many scholars have used fertility intentions as a determinant for actual fertility behavior, analyzing which factors are responsible for the formation and subsequent realization of fertility intentions. The key importance of focusing on fertility intentions rather than fertility behavior is due to the fact that "people generally have greater control over performance of a behavior than they have over attaining a goal the behavior is intended to produce" (Ajzen and Klobas, 2013: 207). The majority of the studies based on the decision-making process have drawn upon social-psychological theories such as the Theory of Planned Behavior (TPB; Ajzen, 1991). This theoretical framework has been recently employed to examine why some people manage to realize their fertility plans while others do not (Speder and Kapitany, 2009; Dommermuth et al., 2015; Mencarini et al., 2015). The assumption behind the application of the TPB related to fertility behavior is that, at least in developed countries, having a child is mostly the result of a reasoned decision (Ajzen and Klobas, 2013).

1.3.3 A Fertility Decision-Making Model

According to the TPB, intentions are formed through cognitive and emotive processes that lead to three antecedent evaluations: a) attitudes towards behavior (persons' internal evaluation of perceived costs and benefits); b) subjective norms (persons' perception of external social pressure such as friends and relatives) and c) perceived behavioral control (persons' perception to perform the behavior). This approach has been demonstrated to be relevant for explaining reproductive decision-making (Dommermuth et al., 2011). Billari et al. (2009) used the TPB to study the fertility timing intentions in Bulgaria. The authors found that positive and negative attitudes towards having a child, subjective norms, and perceived behavioral control have an impact on fertility intention.

The TPB provides a suitable theoretical framework for the development of a fertility decision-making model in **Chapter 3**. In this regard, it is important to underline that within the existing literature on the topic two types of fertility intentions can be identified: (a) quantum intentions and (b) parity-progression intentions. The first is not a strong predictor of the total number of children (Quesnel-Vallee and Morgan, 2003) because it is not stable over the life-course as Liefbroer (2009) showed. Conversely, parity-progression intentions are considered more reliable (Schoen et al., 1999). Furthermore, if a time period is specified, then this improves the predictive power of fertility intention (Billari et al., 2009, Philipov et al., 2009). In **Chapter 4,** the focus will be on parity-progressions since the research interest is focused on the factors that might hinder or foster the realization of fertility intentions.

Although the importance of the partner's fertility intentions for fertility decisions is recognized in the literature, only a few studies have analyzed the transition to parenthood from a couple's perspective (Beckman 1984; Miller and Pasta 1994; Thomson 1997; Jansen and Liefbroer 2006; Bauer and Kneip 2014; Stein et al. 2014; Mencarini et al. 2014). Specifically, the TPB does not explicitly take into account the couple's nature of the decision-making process and the potential interaction between partners' fertility intentions. Among advanced societies, childbearing is a joint decision between partners. Therefore, it is important to take into consideration the partner's fertility intentions because they play a determining role in the understanding of fertility intentions as a whole. In this regard, empirical evidence shows that not being in a stable relationship reduces the chances of having a child (Testa, 2006, Philipov et al., 2006). When there is a mismatch regarding the ideal number of children within the couple, the more positive fertility intentions are less likely to be realized (Thomson, 1997, Schoen et al., 1999). Although overall it is more likely for a couple to have a first child within

marriage rather than when cohabiting (Philipov et al., 2006; Testa, 2006), the role of non-marital childbearing (Zuanna, 2001, Billari, 2004) varies across countries. In France, married and cohabiting couples have the same chances of having a child (Toulemon and Testa, 2005), while in the U.S., non-marital unions have lower probability of childbearing.

The aim of **Chapter 3** is to build a model to study the whole fertility-decision making process. To do so, the integration of a rational choice model and the TPB seems to be a suitable strategy to incorporate in a unique model the individual preferences with the economic constraints of both partners (Opp 2019). The starting point for integrating the TPB with a rational choice approach is that the fertility decision-making process is considered to be as an intentional and reasoned process. In the literature rational choice models are built using two types of determinants. On the one hand, people face *constraints* related to their actions which are external conditions. In this regard, the ETF provides a well-known example of a rational choice approach to fertility (Becker 1981). The author suggests that the benefits gained from having children have been reduced, in favor of an increase in the *cost* of children, in the light of women's increased educational attainment. The mechanism behind this is that highly educated women who have invested in education, would lose most of their investment in human capital if they decide to have children and consequently withdraw (at least temporarily) from the labor market. As a result, highly educated women face higher opportunity costs than their low educated counterparts. On the other hand, individuals also take into account their internal state – *preferences* - to evaluate their action in terms of desirability. One of the most problematic aspects of applying rational choice models is that constraints are observable, while values and preferences need to be measured. Therefore, they have always represented a challenge within the social sciences. In this regard, the VOC

theory (Hoffmann and Hoffmann 1973) is a good example of how to integrate the ETF with cultural factors. VOC considers explicitly that individuals are heterogeneous with regard to the values that they assign to having children. Within the VOC theory, the 'value of children' is considered to be as the main mediator between individual socio-demographic and dispositions, and family planning. According to this perspective, changes in socio-economic condition at the individual-level may influence the value of children which thus is not fixed. This is as it represents the perceived advantages and disadvantages of having a child (Hoffmann and Hoffmann 1973). Both theories have in common a rational choice approach and a costs and benefits model. Both frameworks consider social decisions as a rational evaluation of the costs and rewards made by the social actors focused on a specific outcome, including fertility decisions. Specifically, according to these approaches the decision to have children is the result of weighing the costs and benefits related to the outcome (Nauck 2007). Therefore, using the ETF and the VOC theory can be seen of as an advantageous strategy to combine *constraints* and *preferences* in a unique theoretical framework that can be useful to analyze the whole fertility decision-making process (**Chapter 3**).

1.3.4 The Second Demographic Transition

Other authors have examined the role of the changing values and norms as an explanation for changing fertility behavior as well as for the different reproductive behavior of different social groups such as the immigrant and native population (Bryant, 2007; Kertzer et al., 2009). According to the SDT, one of the main causes of the decline in the fertility rates has to be traced back to a shift from traditional family-oriented values towards post-materialist values linked to self-fulfillment and individualism (Inglehart, 1977). This led to a sharp increase in the divorce, cohabitation and non-marital childbearing rates (van de Kaa, 2001; Van de Kaa, 1987). According to this

theory, the shift consists in the rejection of institutional control, accentuation of autonomy and individualism, and the rise of self-realization needs lead towards new family arrangements and behaviors (Surkyn and Lesthaeghe, 2004). The SDT framework invokes a simplistic view of cultural change. It has been mostly considered an alternative or complementary explanation to fertility postponement and it reduces quantum next to economic explanations such as the ETF. Moreover, the focus on this post-materialist shift represents a theory of social change. The economic development experienced during the first demographic transition in Western societies was followed by the educational expansion that led to an increase in high-order needs and post-materialism. Consequently, new family behaviors are the result of this change caused by socioeconomic progress. However, according to SDT, the trigger for this "revolution" is not the increase in educational attainment per se, but the consequent change in preferences. The main consequences of this change are that having children has become one of the possible life goals together with a successful career, in which an autonomous and independent life-style can lead to, among other things, lower completed fertility (Billari, 2008).

1.3.5 The concept of 'Culture' within Sociology

The SDT is usually presented in the literature as a starting point to incorporate values, attitudes and cultural factors into the study of fertility decisions. Since Weber's contribution – i.e., Wertrationalität -, sociologists have conceived that people are motivated by the values that they learn from the society. The idea was that values are transmitted via socialization from families, schools, and churches to children (Jones 1996; Campbell 2006). However, in the 1940s C. Wright Mills (1940) questioned the motivational approach of cultural values by highlighting the importance of justifications for behavior. This critique of the mainstream conception was particularly

endorsed by Swidler. Sociological approaches to culture are mainly based on these two different views. On the one hand, culture is seen of as a repertoire of justifications that individuals use to make sense of their behavior and actions (Swidler, 2001). On the other hand, the idea is that values have a motivational nature that influences the selection of the available modes, means, and ends of action in shaping individuals' behavior. Specifically, the former provides justifications for actions whereas the latter considers motivations as the main driving force for people's actions by attributing it a causal role (Hitlin and Piliavin 2004; Cambpell 1996; see Vaisey 2009 for a combination of these two approaches).

Particularly relevant for **Chapter 2** is the definition of societal culture provided by Schwartz: "the latent, normative value system, external to the individual, which underlines and justifies the functioning of societal institutions" (Schwartz, 2013, p. 6). Three main ideas can be stressed. First, is that a societal culture can only be inferred from its manifestations such as beliefs, norms, and values. Second, is that culture is external to the individual. The value system in a given society influences the individuals' action but it is not considered to be as a psychological variable "installed" in their minds (Hofstede 2001). Last, is that societal institutions – such as families, schools, and firms - are seen of as a mediator between latent culture and individuals. As a consequence, the way that institutional policies are organized is affected by the expression of the latent culture in a society. As a consequence, a societal culture might be inferred looking at the characteristics of the policies or institutions. Clearly, an individual might be influenced by more than one institution at a time in a distinctive way depending on the exposition to different types of institutions. Often, the social sciences consider traits and values as equivalent. However, although their meanings are conceptually similar, they differ in their motivational nature. Traits are fixed

characteristics that describe how individuals feel, think, and behave. Values refer to a persons' motivation that may result in behavior (Hitlin and Piliavin 2004; Parks and Guay, 2015). Taras et al. (2009), in their meta-analysis of approaches and instruments for measuring culture, found four elements in common with almost all of the definitions of culture. Culture is a complex multilevel concept that is shared among individuals of the same social group/society. It is formed over a long period and it is relatively stable. According to Hechter (1993), the study of values has four limitations: a) values are not observable; b) current theories give little guide lines for comprehending the effect of values on human behavior; c) the problem of measuring values; Hitlin and Piliavin added two other aspects: d) values are often conflated with other social-psychological phenomena; and e) values have historical and cultural variability.

1.3.6 Measurement in the Study of Culture

The challenge in the study of culture within social sciences lies essentially in the imperfection of its measurement (Hitlin and Piliavin 2004). However, Mohr and Ghaziani (2014) highlighted that all of the sciences depend on different types of measurement and that is only through the scientific measurement that science can improved. The first notable empirical contribution to the systematic study of values was the Value Survey by Rokeach (1973). The author applied a ranking approach by asking people to choose between 18 instrumental – means - and 18 terminal - ends – values. The logic behind this approach was to force individuals to choose when the values are in conflict. Rokeach's work influenced the Schwartz Values Survey. Although the two approaches give the same meaning to the values themselves, Schwartz (1992) applied a rating approach by asking people to rate the importance of specific value items using a 9-point scale. Schwartz supports the idea that ratings have more useful statistical properties over rankings. This is of specific importance in cross-cultural studies.

The result of Schwartz's studies of values has led to a theoretical model of relations among the motivational types of values (Schwartz 1994, 2013). The schematic representation of values is empirically founded and it has a circular structure. The values are placed in the schema depending on their affinity. The system has four higher order values: openness to change versus traditionalism, and self-enhancement versus self-transcendence. Using this, 10 values based on their motivational goals were identified to be valid in more than 70 cultures around the world. However, estimating the extent of cultural effects has always been a challenge for social scientists. This comes as a surprise as the importance of cultural aspects in shaping people's behavior has not been questioned. This is mainly due to the endogenous nature of norms, values, and preferences. This means that they do not only influence the individual's actions but they are also affected by the macro-structural conditions that they are embedded in. For this reason, the measurement of cultural effects on people's behavior is one of the biggest methodological challenges that the social sciences has faced.

1.3.7 Transmission of Values and Behavior

The preferences, beliefs, norms, and values that govern human behavior are the result of heritable genetic traits, transmitted through generations, and acquired by learning, in addition to other forms of social interactions. This process across and within the generations is called *cultural transmission* (Arens, 1986; Swidler, 1986; Bisin and Verdier, 2011). The body of literature on the inter-generational transmission of values and behavior has focused mainly on the stable and positive association between the number of siblings and the numbers of own children between the age of the first birth by the parents and that of their children (Barber, 2001, Steenhof and Liefbroer, 2008, Rijken and Liefbroer, 2009). According to many scholars, the inter-generational transmission of behavior is considered to be driven by the socialization processes that

occur during childhood and adolescence. Empirical evidence has generally focused on two main explanations for the observed inter-generational fertility correlations. First, there is the assumption that parents transmit their values, norms, and preferences regarding ideal life course, family size and fertility timing. Second, there is the assumption that inter-generational fertility correlations are due to common socioeconomic characteristics across generations (Kolk, 2014).

In the last decade, economic theories have started to include preferences and cultural values as explanations for many economic behaviors (*cultural economics*). The assumption is that, on average, across the different countries, people hold different views and these differences in social attitudes are linked to differences in the cross-country outcomes. For instance, in countries where there are more traditional views about women's role, there tends to be lower female labor force participation and higher fertility rates (Fernandez and Fogli, 2009; Fernandez, 2006). Starting from these considerations, the epidemiological approach aims to identify the effect of culture through the variation of the specific outcomes of individuals who share the same economic and institutional settings (Guiso et al., 2006). This approach - which will be used in **Chapter 2** - is based on the studies that compare the immigrants' health outcomes to the natives' health outcomes in order to isolate genetic causes from environmental ones. The basic assumptions of the epidemiological approach to culture are that beliefs and preferences are transmitted across generations by the family and by local society. Cultural values and beliefs differ among the immigrant groups, reflecting the culture of their country of origin.

In this regard, very recently Polavieja (2015) introduced an innovative quantitative method; the so-called SISTER method. It is a survey-based imputation of synthetic traits used as exogenous regressors to overcome parts of the problems encountered

when measuring "cultural effects". The novelty contribution lies in the combination of imputation with instrumental variable techniques to overcome the endogeneity issues due to the embeddedness of cultural values within the institutional and social context. This method is built on the literature that analyze how parents transmit their family values, preferences, and attitudes to their children.

1.3.8 Fertility and Institutional Contexts

Aside from cultural context (and their changes), there are also institutional settings in which individuals and couples are embedded. Thus, this has an impact on their decisions, which is why fertility decisions cannot be examined without focusing on the structural-institutional contexts. Indeed, the decline in fertility rates has undergone changes in European welfare states due to substantial demographic changes especially in light of the increase in the life expectancy and in response to the changes in the population structure. In this regard, the welfare regime approach (Esping-Andersen 1990) provides a suitable classification to understand the cross-country differences in fertility rates and it can be defined as "the interdependent way in which welfare is produced and allocated between state, market, and family" (Esping-Andersen 1999, p. 35). The relative weight of these three institutions in a society contributes to building the well-known classification of social-democratic, liberal and conservative (and familistic) regimes.

However, in the last two decades the welfare state had to face a set "of new social risks" due to the ongoing demographic, economic and social changes in a process called recalibration, as coined by Pierson (2001). The root of these new social risks lies in the transformation of gender relationships and the decline of the "male-breadwinner model" (Esping-Andersen 1999). Indeed, one of the main criticisms of the welfare regime typology was the lack of gender dimension. Accordingly, gender researchers

have broadened the framework by turning attention to the risks, rights and stratifications resulting from gender, partnership forms, and parenthood status among others (Neyer 2013). Specifically, three are three additional welfare-state principles relevant to fertility:

I. "*Commodification*" refers to the social security of individuals granted in the case of unemployment, old age or other events which contribute to make her/him unable to participate in the labor market. From a gender perspective, the principle can be extended to the way in which welfare states support the labor-force participation of women and mothers, and the way in which the policies contribute to promote gender equality in the labor market (Orloff 1993; Lewis 1992; Gornick et al. 1997).

II. "D*e-familialisation*" focuses on the way in which a welfare state "relieves" the individuals' reliance on the family. In particular, it refers to the extent to which the welfare state supports women in reducing their family care responsibilities (Esping-Andersen 1999; Saraceno 2011; Neyer 2013).

III. "*De-gendering of employment and care*" refers specifically to the way in which the welfare state supports the employment of mothers by promoting fathers in childcare and family work duties. This refers, in particular, to policies aims to policies that aim to support the change in the family model from a male-breadwinner/female-carer to a dual-earner/dual-carer model.

If we include these principles in the classification of welfare states, the pattern becomes more heterogeneous even within the same typology. For instance, with their high degree of de-familialization, France and Belgium are more similar to the Nordic welfare states while Mediterranean countries are less de-familialized than other Western European countries. In this regard, fertility is higher in countries where the gender system is more

equal in fostering through institutional support the reconciliation of work and motherhood. Indeed, the change in the role of the woman is mainly fostered by the expansion of education among women. This has negative implications in terms of fertility if the institutional support is weak while it has little or no consequences in those countries where both the labor market and family policies support the parents in childcare (Pinnelli and Fiori 2008). Educational expansion also involved a change in women's preferences and aspirations which in opposition to the male-breadwinner model has expanded to the sphere of work. With such a considerable change in women's aspirations related to work, to grant them the same opportunity of having children the institutions, in particular those related to childcare and childrearing, need to adapt to the new conditions.

The relationship between the institutional context of childbearing and the role of women has been explicitly considered in the work of McDonald (2000). According to the gender equity theory (McDonald 2000), the cause of the emergence of low fertility is not the transformation of the woman's role itself but the extent to which institutional support promotes and fosters a fairer sharing of tasks between partners. McDonald argues how the differences in fertility levels between Northern and Western Europe on one hand, and Central, Eastern, and Southern European countries on the other hand, are due to the different levels of gender equity in the institutions of these countries. The institutions that deal with people as individuals – i.e., access to education and the labor market – have reached a decent level of gender equity in almost all Western countries. Conversely, the difference lies in the institutions that deal with people as a member of a family – such as services, transfers and taxation and the family itself – where the level of gender equity is highly variable. As a consequence, the cost of children is higher especially in countries where the change toward more equal institutions has been

slower. When the level of incoherence between social and economic institutions increases, women are forced to choose between children and employment leading them having fewer children than they would like (Baizan et al., 2016). According to McDonald, cultural values play a role in slowing down the process toward a more egalitarian family-oriented institutions, highlighting that gender equity is crucial to avoid the cost of fertility lapsing mostly on women. The analysis of the interaction between cultural norms and institutional contexts for childbearing will be the main contribution of **Chapter 2**. McDonald's argument is similar to Esping-Andersen's idea of "*incomplete revolution*" (Esping-Andersen 2009; Esping-Andersen and Billari, 2015). According to these scholars, some societies have been incapable of completing the revolution of adapting to the evolution of gender-equality norms from high-fertility/low-gender-equality towards a more egalitarian society. According to this approach, low fertility levels and low female labor market participation are the consequences of a welfare state that is unable to reconcile motherhood and work.

For the purpose of this thesis and in particular **Chapter 2**, the work on gender cultural systems seems to be particularly adequate to explain the consistent differences not only in fertility levels but also in the diffusion of gender norms across European countries (Pfau-Effinger 2004). According to the author, gender role patterns are strictly connected to the dominant production model in a specific context. Specifically, five main typologies of gender relations can be identified in Europe: i) the well-known male breadwinner/female homemaker model; ii) the family economy model; iii) the male breadwinner/female part-time carer model; iv) the dual-breadwinner/external carer model; and v) the dual-breadwinner/dual-carer model. There is a great level of heterogeneity in the diffusion of these family models across European societies. However, the evolution of gender norms has been shown to be closely related to

variations in the institutional settings, in particular for working parents. Countries where there is a high level of maternal labor force participation are also the countries where the childcare coverage is higher. Although the interrelation between childbearing, cultural norms, and family policies is rather complex, it is relevant to acknowledge that culture can not only have an impact on welfare state policies, but it can also play a role in the impact of family policies on an individuals' behavior. This consideration is at the basis of considerations involving the different effects of the same type of social policies among different societies characterized by different cultures (Pfau-Effinger 2005).

The line of research based on welfare regimes provides a useful way to tackle the link between family-related policies. Each welfare regime type is associated with distinct family policies that constitute a relevant part of welfare-state policies and the way in which the policies act as a support for families are substantially different across countries. Particularly relevant are the ways in which the welfare states tackle new social risks through policy interventions related to female labor market participation, facilitating work-life reconciliation and achieving gender balance in both work and care (Neyer 2013). The equilibrium among the heterogeneous aims differs considerably among countries in terms of the different proportions of cash benefits, in-kind support, and flexible time arrangements especially during the childrearing years. For this section the description provides by Thévenon (2011) about the cross-country differences in the family policies scenario in OECD countries is useful. Within the socio-democratic regimes (Denmark, Finland, Norway, Sweden and Iceland), the caring responsibility is largely provided by the welfare state through comprehensive support for working parents with a mix of generous leave arrangements and widely available child care services. Conversely, liberal regimes (Ireland, United Kingdom, Australia, New

Zealand and partially also Canada and the United States) provide less support for working parents with very young children while there is a greater amount of financial support for low-income families and preschool children. Conservative and in particular familistic states such as the southern European regimes are characterized by the central role of the family, which is responsible for caring as well as economic responsibilities. Moreover, limited support is provided for working families and the public spending on family cash benefits and childcare services is rather low. Institutions support and preserve the male-breadwinner model by fostering the traditional division of domestic labor.

The literature on social policies and fertility has focused both on the timing and the quantum of fertility. However, empirical evidence on social policies does not provide an homogeneous picture (Mills et al., 2011; Neyer and Anderson, 2008). For instance, a lot of attention has been given to the effects of childcare provision on fertility. The results are mixed. While some studies find high fertility to be associated with poor childcare coverage (Ronsen, 2004; Kravdal, 1996), others have observed a positive effect when taking endogeneity into account (Luci-Greulich and Thevenon, 2013; Del Boca, 2002; Rindfuss et al., 2011). There are critical issues that have emerged from the examination of the impact of a specific policy on fertility behavior. First, it is complicated to differentiate between the impact of a specific policy out of all of the policies that influence fertility (Neyer and Anderson, 2008; Neyer 2012). Second, the endogeneity of social policies is a serious issue because often they may be a response to - and not the cause of - changes in fertility levels. A robust study (Kalwij, 2010) found there to be a positive relationship between the expenditure for family policies that help women to reconcile family and work, thus reducing the opportunity-cost of childbearing on the fertility quantum. However, great variation has been found between

women's employment and fertility across European countries with the Nordic and the Eastern countries showing higher levels of employment and childbearing conciliation (Matysiak and Vignoli 2008).

The following is a summary presented of each chapter highlighting the peculiar contributions and key findings, in addition to the general conclusions of the thesis.

1.4 Summary of the Empirical Chapters

1.4.1 Fertility in Context: How Cultural Background and Institutional Context Influence Fertility

Chapter 2 contributes to the debate of *economy* vs *culture* by examining to what extent fertility behavior is driven by cultural values and by the institutional context, or rather by the combination and interaction of the two (Billari 2004; Guetto 2012). Specifically, I take advantage of Europe as a natural laboratory, thus exploiting its cultural and institutional heterogeneities to allow me to analyze European internal migrants following an epidemiological approach adopted by cultural economics (Sapienza et al. 2006, Fernàndez e Fogli, 2006; Fernandez, 2010), which was refined more recently by Polavieja (2015). This allows for us to distinguish between the cultural values that immigrants "carry" from their origin countries and the institutional context experienced in the destination country. The novelty contribution is the joint consideration of cultural and institutional factors – their combination has rarely been examined before (Kalwij 2010; Mills 2010; Baizan et al. 2016). Using data from the six available rounds of the European Social Survey (ESS), I employ cross-classified multi-level models in order to account for the fact that migrants are nested both in the receiving and in the sending country and that these two classifications are not hierarchical. Following the suggestion in the literature, culture is measured as a latent concept at the aggregate level of specific

values in the country of origin stratified by education in order to account for the heterogeneity within societies and the migrants' self-selection. I use traditionalism as the cultural trait of the sending country. The institutional context of the receiving country is measured through the social expenditure on families, and I focus on the number of children to proxy fertility. The results show how fertility behavior depends on the migrants' cultural background in the origin country and institutional factors like the generous social expenditure of the families in the receiving country. The importance of culture varies with the receiving countries institutional context. The results suggest that the effect of 'culture' is stronger where the social expenditure for families is very low – and is largely mediated by individual level characteristics, especially employment behavior. These findings contribute to the debate of cultural versus institutional factors by showing how cultural traits and structural context interact; to focus on just one would lead to incomplete, if not misleading, results (Billari 2004).

1.4.2 *The fertility decisions: couple dynamics between structural and cultural factors*

The contribution of the third chapter lies in the analysis of the entire decision-making process to shed light on fertility decisions from both an individual- and couple-level perspective. The chapter focuses on the development of a fertility model by combining insights from the most relevant theories in the field. In order to test these theories against the empirical results, the Australian longitudinal data (HILDA) is analyzed through the means of structural equation models. The study represents an explicit testing of the various theories using a couple's perspective and the interdependency between partners in fertility intention formation and realization. To investigate in detail the different parts of the process, the chapter focuses first on the determinants of the realization of intended fertility. This allows for the identification of the relative weight of individual and couple-level characteristics by examining the influence of the male

and female partners' characteristics jointly on their fertility intentions and their subsequent realization. The chapter then presents an in-depth analysis of the factors responsible for the (non-)realization of positive fertility intentions which is an urgent issue in the light of the persistent below replacement fertility rates. This is particularly relevant given the well documented gap between desired and achieved parity.

The majority of the studies based on the decision-making process have drawn upon the Theory of Planned Behavior (TPB; Ajzen 1991). The TPB has covered a broad range of possible explanations for fertility intentions such as demographic, economic, and cultural variables. According to the TPB, the intention of having a child is considered to be as the immediate antecedent of fertility behavior and it can be predicted from three sets of factors: a) positive and negative attitudes towards having a child; b) perceived social pressure related to having a child; and c) perceived behavioral control over the behavior (Ajzen 2002). Although the partner's intention can be seen as individual's normative beliefs, this theory does not explicitly take into account the complexity of a dyadic decision-making process of reproduction (Philipov 2011; Testa et al. 2012). It also does not consider the potential effects of a disagreement within the couple either (Miller 2011).

The model developed in the thesis assumes that fertility decision making is the result of a reasoned evaluation of the perceived costs and expected benefits from both partners related to the decision of having a child. Therefore, a rational choice approach is used to combine the *constraints* and *preferences* in a unique theoretical framework (Billari et al. 2009). The results clearly show that the value and cost of children both have distinct effects on positive short-term intentions. For instance, if a partner evaluates the idea of having a child positively, this would translate into a higher chance to report short-term positive intentions. Accordingly, the chance of having positive intentions is

negatively associated with the expected costs of children but only among women. Moreover, the results highlight the importance of considering both partners in the fertility decision-making process. On the one hand, if the woman positively values the benefits gained from the birth of a child, then this has a positive impact on the intention of the male partner, which is even higher than the effect of the male partner's value of children. On the other hand, if the perceived costs for the female partner are high, then this would be reflected in her partner's intention by lowering the chances of reporting positive fertility intentions. This result supports the argument of there being a mutual influence from the partners with the woman having more power to impose her value, especially her expected costs of children on to her partner (Bauer and Kneip 2014; Testa et al. 2014).

However, the results also show that when the analysis focuses only on couples with positive intentions, the value and costs of children do not have any impact on the risk of realization once short-term fertility intentions are controlled for. This result is in line with the previous empirical contributions in other countries analyzing both the positive and negative attitudes towards childbearing using TPB (Friedman et al. 1994; Donnermuth 2011; Philipov et al. 2015). The finding can be explained by the fact that the focus here is on a very selective group of couples – i.e. with positive fertility intentions only. This might also represent a selection with regards to the perceived benefits and costs that men and women attach to having children.

The chapter contributes to the topic of fertility decision-making process in three distinct ways. First, the strategy of combining different theoretical approaches into a unique fertility model allowed us to use a holistic perspective by taking advantage of the strengths of each theoretical perspective from the analysis of the perceived benefits and costs of having a child to the realization of fertility intentions. Second, the analyses

presented here stress the importance of considering both partners in the study of fertility decisions. This in the light of the influence that partners have on their mutual fertility intentions as well as the importance of gender equality within the couple in terms of the division of housework among both childless couples and parents. The result supports the argument of a mutual influence of the partners with the woman having more power to impose her value, especially when related her cost of children compared to her partner (Bauer and Kneip 2014; Testa et al. 2014). Third, the study confirms that fertility intentions are indeed the proximate determinants of fertility behavior as stated by the TPB especially for the transition to parenthood.

1.4.3 The Realization of the Intention to have a First Child Among Exogamous and Endogamous Couples in Australia

Chapter 4 contributes to the understanding of the couples' transition to parenthood by focusing on couples of diverse ethnic origins in Australia. In a heterogeneous population like the Australia, the chance to form an exogamous union is higher than in other developed countries given that the chance to meet and interact with people from a different ethnic group is also higher (Kalmijn 1998). As a consequence, Australia has one of the highest rates of mixed marriages among developed countries. In this chapter, this peculiar aspect is analyzed as an additional source of variation between the partners together with other characteristics such as fertility intentions, educational level, occupational status, and religion. This study adds to the existing literature by extending the hypotheses usually applied to the study of intermarriage dissolution and divorce to the fertility decisions among exogamous and endogamous couples. The chapter analyzes couples of diverse ethnic origins and their decision of having a first child. The focus on the first child is due to the entry into parenthood being a closely linked event to union formation both in terms of timing and life-course plans (Barber et al. 2002;

Baizàn et al. 2003; Mills and Blossfeld 2005). The analysis explores age, educational level, occupational status, and religion and it focuses explicitly on the dissimilarities between the partners as possible explanations for the realization of first birth intentions. Event history methods were employed to study the transition. On the one hand, the results show that native woman/immigrant man unions are less likely to have a first child compared to native couples. On the other hand, first-generation exogamous couples where the female partner is the migrant display a higher risk of entering into parenthood compared to native couples after taking into account their socioeconomic characteristics as well as the area of origin of the migrant partner. Moreover, a positive agreement within the couple about the intentions of becoming parents plays a crucial role in subsequent fertility realization as well as being married, in addition to whether or not the female partner is in the labor force. The results confirm the previous findings on the risk of divorce among mixed marriages (Dribe and Lundh 2012; Milewski and Kulu 2014).

1.5 General Conclusions

The thesis addresses two major implications of persistent below replacement fertility levels: the differences in fertility levels among European countries and the fertility gap between desired family size and the actual number of children.

The first aspect has been explored with the aim of contributing to the debate on the importance of cultural and structural/institutional factors related to fertility behavior. Specifically, the results show that the cultural and institutional contexts are both relevant for fertility behavior and that the cultural component is mediated by individual level characteristics. Of particular interest is the interaction between culture and structure. Cultural background plays a role only in contexts characterized by low social expenditure for families – especially the Mediterranean countries. However, this effect

is completely mediated by the individual's level of education. In countries where the family social expenditure is higher – i.e., Nordic and Western European countries – traditionalism, if anything, reduces fertility. The research confirms the importance of structural-institutional context, with generous social spending in families clearly favoring the number of children, even after individual controls. Although the used indicator of social expenditure for families is rather general –it includes support for child rearing such as parental-leave benefits, family and child allowances, and child care services - the results of the first chapter indicate how generous welfare can make a difference. Family policies and generous transfers lower the opportunity costs of children, foster female labor market participation and contribute to a more gender egalitarian context which can contribute to incresing the number of children and thus may help to limit the populations' aging. These investments even manage to offset of the role of cultural values for fertility behavior and it also favor persons from a non-traditional background to have (more) children. There is thus room for political interventions to help fertility to grow again without the necessity of hoping for a notoriously slow cultural change.

The 'fertility gap' has been addressed by focusing on the whole fertility decision-making process using a couple-level perspective from the formation of fertility intentions to their (non-) realization. Specifically, I examined the determinants of the realization of intended fertility by incorporating into a fertility model insights from various theoretical frameworks using structural equation models. The third chapter contributes to the understanding of the fertility decision-making process in several distinct ways. First, the chapter positions itself as one of the few attempts to study the entire fertility decision-making process from the background factors to the fertility outcome (Mencarini et al. 2014, Stein et al. 2014). Different to the previous studies,

using a relatively long longitudinal dataset allowed me to include the background characteristics measured before fertility intentions and the perceived value and costs of children to ensure a causal path of the process as a whole. Second, the strategy of combining different theoretical approaches into a unique fertility model allowed for the use an *holistic* perspective by taking advantage of the strengths of each theoretical perspectives from the analysis of perceived benefits and costs towards having a child to the realization of fertility intentions. Third, the analyses presented here stressed the importance of considering both partners in the study of fertility decisions and it documented how the partners' values and the cost of children have a mutual influence on their fertility intention. Moreover, the results also show that the expected benefits and perceived costs attached to children are not poles of the same dimension. Instead, they measure two rather different concepts with their own independent effect on fertility intentions. Lastly, the study confirms that fertility intentions are indeed the proximate determinants of fertility behavior as stated by the TPB especially for the transition to parenthood. However, the non-perfect correspondence between positive short-term intentions and the subsequent behavior provided me with the opportunity to examine which factors hinder or facilitate the realization of positive fertility intentions. It represents one of the most promising and interesting line of research for future studies. The focus here dealt with couples who intend to have a first child and an additional child separately to shed some light on the factors that might hinder or facilitate the (non-) realization. Among the childless couples, having a short-term fertility intention is the strongest predictor for the subsequent realization. This is in line with a previous contribution on the realization of positive fertility intentions in Norway (Donnermuth et al. 2015). It might be explained by their prior experience as parents: couples with a child have more reliable and concrete fertility intentions due to a lower risk of

intervening factors which might hinder fertility behavior. This supports the idea that a shorter time frame has a more predictive power than positive long-term intentions for the subsequent behavior as stated by the TPB (Ajzen 2010). Among the parents who intend to have another child, the age of the woman represents a negative factor. This is line with the "biological clock" hypothesis according to which age is negatively associated with this realization (Berrington 2004). A limitation with this part aligned exactly with the sample size when I focused only on couples with positive fertility intentions in the second part of this chapter. While on the one hand the selection on couples is consciously made and it allowed me to distinguish between childless couples and parents, on the other hand this led to a limited sample size which might represent an issue for the corroboration of my hypotheses.

A peculiar source of dissimilarity within the couple is represented by the diverse ethnic origin of the partners. In this regard, Australia represents a suitable and interesting context not only for the study of the realization of fertility intentions but also for the study of intermarriage as it is characterized by one of the highest shares of mixed couples among developed countries as a consequence of the high immigrant population. Specifically, very little research has examined the fertility behavior of mixed couples as this represents an interesting stream of research since the formation and duration of mixed unions can be seen of as the result of successful integration. Thus, it seems particularly interesting to focus on the realization of first child intentions among native and exogamous couples in Australia. The aim of this study is to contribute to the existing literature by extending the hypotheses usually applied to the study of intermarriage dissolution and divorce also to the fertility decisions among exogamous and endogamous couples. However, the findings crucially depend on the kind of mixed couple, underlining the necessity to study mixed marriages as a heterogeneous group.

On the one hand, results show that native woman/immigrant man unions are less likely to have a first child compared to native couples. On the other hand, the results show that first-generation exogamous couples where the female partner is the migrant display a higher risk of entering into parenthood compared to native couples. This is after taking into account their socioeconomic characteristics as well as the area of origin of the migrant partner and religious homogamy. Although the analysis is not able to explain such gender differences, the results confirm previous the findings related to the risk of divorce among mixed marriages (Dribe and Lundh 2012; Milewski and Kulu 2014) and they clearly highlight the importance of gender differences for fertility among inter-ethnic unions (Fu 2008). Dribe and Lundh (2012) argue that gender differences are due to the fact that on average native women are less traditional and they are more positively inclined to female employment than immigrant men. The clash between more and less traditional attitudes might represent a source of conflict leading to union dissolution. Conversely, among native man/immigrant woman unions the differences in terms of gender role attitudes are lower, resulting in lower tension between the partners. This mechanism can be extended to the role of gender role attitudes for the transition to a first child in Australia.

A contribution to the gender role attitudes in Australia highlighted how the majority of working men and women agreed that household work should be equally shared between the partners. However, the study also reveals how men hold more traditional attitudes compared to women (Baxter et al. 2014). Among native woman/immigrant man unions women are in a stronger socioeconomic position and they hold more individualistic and career-oriented values result with a higher level of bargaining power. Immigrant women are in a more disadvantageous position both for being female and an immigrant. They

might be more inclined to embrace a male breadwinner model which clearly favors the transition to having their first child as the results confirm.

The empirical evidence presented in this thesis emphasizes our understanding of fertility decisions which can benefit from *holistic* as well as integrated approaches. Specifically, all three of these empirical studies clearly highlight how future research should include the role of both partners for the study of the formation and realization of fertility intentions and this needs to be pursued using a life course perspective to shed light on such a complex social phenomenon.

In the remainder of this thesis each empirical chapter is presented separately. Major attention is dedicated to the analysis of the differences in terms of fertility levels between the European countries (Chapter 2). Chapter 3 investigates the fertility decision-making process exploiting the unique information of HILDA which allows for a dyadic as well as longitudinal analysis of the overall process. The last chapter examines in depth the transition to parenthood among couples of diverse ethnic origins in Australia.

Chapter 2 Fertility in context: How Cultural Background and Institutional Context Influence Fertility

Abstract

Understanding the mechanisms behind fertility behaviour is key to dealing with population aging. The literature usually focusses on either cultural or institutional factors, but their interaction has hardly been considered thus far. By focusing on EU internal migrants, we investigate how fertility behaviour depends on individuals' cultural backgrounds and on the institutional context of the receiving countries. Moreover, we focus on how the two elements interact. Using data from Rounds 2 to 7 of the European Social Survey, we measure cultural values in the sending countries based on multiple items and then investigate how these values influence fertility behaviour in different institutional contexts in the receiving countries. We employ cross-classified multi-level regressions in order to account for the complex data structure of individuals nested in different sending and receiving countries. We find that both cultural values and the institutional context matter: Traditional cultural values and generous expenditure on families are positively associated with the number of children, but the their effects interact. Most interestingly, the cultural effect only exists in countries characterised by a lower investment in family policies – i.e. Mediterranean countries. Investments in families manage to offset of the role of cultural values for fertility behaviour. There is thus room for political interventions to help fertility rates grow again without the need to hope for notoriously slow cultural change. This chapter contributes to a more all-encompassing understanding of fertility and the interaction between culture and institutional context in terms of how they affect individuals' reproduction decisions.

2.1 Introduction

Understanding the factors that influence fertility decisions remains highly relevant in the context of advanced societies' aging populations and the far-reaching consequences of population changes for national economies, social security systems, and society in general. While all European countries have witnessed a notable decline in fertility rates, vast differences persist across countries in terms of both the timing of having children and the number of children in each family, which suggests that macro-level aspects – such as culture and the structural-institutional context – are important in addition to micro-level factors – such as individuals' endowments and preferences.

Economic theories focus on the opportunity costs of children to explain individuals' reproduction behaviour. Women's increased education and labour market participation (Ahn and Mira 2002; Becker 1991; Del Boca and and Wetzels 2007) have gone hand in hand with a reduction in fertility rates by delaying the timing and number of children, especially in countries with particularly difficult family-work conciliation due to the absence of a supporting social state. Such countries thus have even higher opportunity costs, as is the case in Southern Europe. Other research has stressed the role of cultural factors (e.g. norms and values) or of individuals' changing preferences in order to explain reproduction choices and their changes over time. According to the theory of the Second Demographic Transition (SDT), the shift from traditional, family-oriented values towards post-materialist values connected with self-fulfilment and individualism, which has been induced by increased material well-being and educational expansion, lies at the root of the overall declining fertility rates (Inglehart 1971; Laesthaeghe and van de Kaa 1986; Bryant 2007; Kertzer 2009; Caldwell 2013).

Neither theories that focus on preference or cultural values nor those that concentrate on costs and their potential reduction through the institutional context are completely

satisfactory in explaining fertility behaviour. It is indeed plausible that the combination of cultural aspects and the extent to which connected preferences are intuitionally supported determine the extent to which a population reproduces (Esping Andersen and Billari 2015). We extend the existing literature by taking a more comprehensive perspective that considers cultural and institutional aspects as well as their interaction, thereby contributing to our understanding of fertility choices.

This chapter examines the extent to which individuals' fertility behaviour is driven by cultural values and by the institutional context, or rather, by the combination and interaction of the two elements. We took advantage of Europe as a natural laboratory and exploit its cultural and institutional heterogeneities in analysing European internal migrants and thereby followed an epidemiological approach adopted by cultural economics (Sapienza *et al.* 2006, Fernàndez e Fogli, 2006; Fernandez, 2010) and used more recently by Polavieja (2015). This method allows to distinguish between cultural values that migrants "carry" from their countries of origin and the institutional context experienced in the destination country. European internal migrants vary significantly in their cultural values and fertility behaviour while remaining similar enough to allow for meaningful comparisons. Our unique contribution is the joint consideration of cultural and institutional factors, for this combination has rarely been examined thus far (Kalwij 2010; Mills 2010; Baizan *et al.* 2016).

Using data from Rounds 2 to 7 of the European Social Survey (ESS), we employed cross-classified multi-level models in order to account for the fact that migrants are nested in both receiving and sending countries and the fact that these two classifications are not hierarchical. Unlike previous studies, which proxy culture through behavioural indicators (Fernandez, 2010), we propose an "attitudinal" indicator (Pessin and Arpino 2018) in order to have a more direct measure. Culture was measured as the aggregate

of specific values in the country of origin and was stratified by education in order to account for heterogeneity within societies. We used "traditionalism" as a cultural trait of the sending country but also tested other measures. The institutional context of the receiving country was approximated through social expenditure on families, and we focused on the number of children in order to proxy fertility rates.

We demonstrate how fertility behaviour depends on cultural background in the origin country *and* on generous social expenditure on families in the receiving country. We further reveal that the importance of culture varies with the institutional context of the receiving countries. Our results suggest that the effect of 'culture' is stronger where social expenditure for families is very low. These findings contribute to the debate of cultural versus institutional factors by supporting the idea that a holistic approach is needed to examine complex social behaviour (Billari 2004).

In the following sections, we first review findings regarding cultural and institutional determinants of fertility and introduce our proposed measure of culture. We then illustrate the so-called epidemiological approach applied to the study of culture using migrant populations and our empirical strategy. Finally, we present the main findings and conclude by discussing their implications.

2.2 Background and literature

A vast amount of literature has focused on determinants of fertility behaviour located at both the micro- and the macro level (for an integration, see Philipov *et al.* 2015) that often privileges either more cultural or more structural/economic explanations (Billari 2004). At the individual level, timing and quantum effects of fertility have been linked to endowments, circumstances, and dynamics of the life-course and have thus provided evidence for the relevance of economic conditions, employment situation, education, partnership, as well as values and attitudes (Balbo *et al.* 2013). Focusing on the macro

level, the cultural, institutional, and socio-economic contexts have been shown to affect opportunities and constraints of the decision-making process and thus to have a direct effect on fertility. The literature also reveals that the importance of individual-level factors strongly depends on cultural and institutional contexts that set the constraints and opportunities of individual decision-making processes (Guetto *et al.* 2015).

2.2.1 Fertility in context

Examining aggregate fertility rates and their dependence on a Human Development Index, Myrskyla *et al*. (2009) demonstrated how the effects of the macro context might follow complex patterns and foster fertility rates only at specific levels.[1] In contrast to economic theory, high levels of female labour market participation now seem to be positively associated with fertility levels in OECD countries (Ahn and Mira 2002), as are indicators of gender equality (Arpino *et al.* 2015). By contrast, high economic uncertainty – manifested through unemployment trends – goes hand in hand with the postponement of fertility decisions and overall lower total fertility rates (Adsera 2011). However, establishing the effects of macro contexts on individuals' behaviour, rather than on aggregate outcomes, is not easy. There appears to be a consensus that the welfare context matters for fertility decisions, but when examining the impact of policies on fertility behaviour, it is difficult to isolate the effect of specific policy from the more general policy/welfare context or even cultural context (Neyer and Anderson 2008) and to rule out endogeneity since policies often respond to rather than cause changes in fertility levels. Consequently, empirical evidence on the impact of social policies and welfare-spending does not paint a homogeneous picture (Mills et al. 2011;

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[1] In this specific case, low and medium Human Development Index scores facilitate fertility decline, whereas with higher HDI levels, the trend inverts and development goes hand in hand with an increase in fertility rates.

Neyer and Anderson 2008). Regarding childcare provision, some studies have found high fertility to be associated with poor childcare coverage (Ronsen 2004; Kravdal 1996), while others – that have taken endogeneity into account – have observed a positive effect on childbirth (Luci-Greulich and Thevenon 2013; Del Boca 2002; Rindfuss et al. 2011). One robust study (Kalwij 2010) found a positive relationship between quantum fertility and expenditure on family policies that help women to reconcile family and work by reducing the opportunity-cost of childbearing.

Another body of internationally comparative literature has examined entire national contexts – especially those of welfare regimes – and explained cross-country differences in fertility behaviour via institutional settings. Nevertheless, it is difficult to empirically establish a direct causal link, which is largely due to the high complexity of welfare regimes. Mills and Blossfeld (2003) have highlighted the relevance of an economic safety net and family-related services (childcare, leave), which influence the decision to have a(nother) child. Furthermore, the lack of state- and political support of a traditional gender role model makes it difficult to reconcile work and family, especially for women, which can result in reduced fertility (Baizán *et al.* 2016). Overall, we expect more generous welfare spending in favour of families and for the reconciliation of work and family to increase fertility.

2.2.2 The importance of culture

The importance of culture in terms of its influence on people's behaviour is widely accepted (Bachrach 2014, Polavieja 2015), and research has extensively examined the role of so-called cultural elements – such as values and norms – as an explanation for fertility behaviour (Bryant 2007; Kertzer *et al*. 2009). The most common research involves the second demographic transition, which explains the reduction in fertility rates via changes in attitudes and preferences, though this explanation easily reduces

culture to a mere individual-level trait. Sociological approaches to culture are mainly based on two views: On the one hand, culture is seen as a repertoire of justifications that individuals use to make sense of their behaviour and actions (Swidler 2001); on the other hand, the idea is that collectively shared values have a motivational nature that influences the selection of available modes, means, and ends of action in shaping individuals' behaviour. Motivation is considered the main driving force behind people's actions (Hitlin and Piliavin 2004; Cambpell 1998; see Vaisey 2009 for a combination of these two approaches). Furthermore, culture might be framed in a manner that resembles institutions and focusses on informal constraints, such as norms of behaviour or conventions that "set the rules of the game" (Alesina and Giuliano 2015).

In their meta-analysis of approaches and instruments that measure culture, Taras *et al.* (2009) have highlighted several elements that almost all definitions of culture have in common. Culture is a complex, multi-level concept shared among individuals who belong to the same social group or even society. It is formed over a long period of time, transmitted from one generation to the other, and is relatively stable. Moreover, culture is external to the individual. The system of values in a given society influences individuals' actions but is not a psychological variable that is "installed" in their minds (Hofstede 2001). Culture is thus an aggregate-level concept – something shared with other people and that (by definition) cannot vary among individuals within the same group. It is therefore not only insufficient but also conceptually inadequate to measure a concept such as culture with (a single item on) individuals' values or attitudes, or even traits. Estimating culture and its effects is a challenge for social science, especially due to the vagueness of the concepts (Rudnev 2014).[2] The literature often uses "values"

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[2] Traits and values are often considered to be equivalent; however, though their meanings are conceptually similar, they differ in their motivational nature. Traits are fixed characteristics that describe

instead of "cultural traits" as if the two terms were equivalent (Polavieja 2015), and individual-level measures of values and attitudes are used to capture the macro-level concept. The challenge thus lies in the adequate – albeit notoriously imperfect – measurement of culture (Hitlin and Piliavin 2004).[3]

According to Schwartz, societal culture is "the latent, normative value system, external to the individual, which underlines and justifies the functioning of societal institutions" (Schwartz 2013:6).[4] It follows that a societal culture can only be inferred from its manifestations, such as beliefs, norms, and values. Schwartz (1992) proposed a theory of basic human values. In this theory, societal institutions – such as families or schools – are seen as a mediator between latent culture and individuals. As a consequence, the manner by which institutions or policies are organised is affected by the expression of the latent culture in a society, which illustrates how the opposition between culture and structure/institutions – which is sometimes adopted in the literature – is clearly infertile.[5]

A recent proposal of how to operationalise culture came from Polavieja (2015), who suggested the imputation of synthetic traits to measure "cultural effects" (for critiques:

[footnote continued] how individuals feel, think, and behave, whereas values refer to people's motivation and may result in behavior (Hitlin and Piliavin 2004; Parks and Guay, 2015, Parks-Leduc et al. 2015).

[3] Mohr and Ghaziani (2014) highlight how all sciences depend on adequate measurements and that our scientific knowledge can only be improved through scientific measurements.

[4] Schwarz presented a theoretical model of relations among motivational types of values (Schwartz 1994; 2013) that is empirically founded and orders values according to their affinity. The system has four higher-order values: openness to change versus traditionalism, and self-enhancement versus self-transcendence. Ten values based on motivational goals were identified to be valid in more than 70 cultures around the world.

[5] One of the challenges when researching cultural aspects is the endogenous nature of norms, values, and preferences – i.e. that they affect and are affected by the macro-structural conditions in which they are embedded. However, both the macro structure and culture can be considered exogenous for individuals' actions. The problem lies in disentangling them.

Chou 2015).[6] The proposal was based on the so-called epidemiological approach, which was developed in the last decade in the new field of cultural economics (Sapienza *et al*. 2006; Fernàndez and Fogli 2006, 2009). The logic behind this proposal is to exploit the portability of culture in order to determine its exogenous impact on specific outcomes by assigning the values of the sending countries' culture to the migrants in the new host context.[7] Although the relevance of the factors mentioned is widely acknowledged, a single approach has been demonstrated to be insufficient in explaining fertility behaviour, and layered factors are likely to play a role and interact with one another (Billari 2004; Balbo *et al*. 2013). Relatively little research has examined the interaction between different factors and different analytical levels (Kalwij 2010; Mills 2010).

2.3   The contribution

In this study, we considered cultural background and institutional context by examining the sending countries' *and* the receiving countries' characteristics as well as their interaction. We expected both the cultural values and the structural-institutional context to matter for individuals' fertility decisions. Many papers infer culture from behavioural indicators, such as total fertility rates in the sending country (Finseraas and Kotsadam 2017). However, as behaviour is the result of many factors, we preferred to measure values directly. We focused on traditionalism as one of the main cultural values, which

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[6] The novel contribution of the "survey based imputation of synthetic traits used as exogenous regressors" lies in the combination of imputation with instrumental variable (IV) techniques to overcome endogeneity issues due to the embeddedness of cultural values in an institutional and social context. However, the use of IV has been shown to not be appropriate in solving the specific problem (Chou 2015).

[7] We did not follow Polavieja (2015) in the use of an IV approach to estimate the effects of these values as it has proven to be basically useless, for it does not provide any solution to the problem that migrants might be a selected via sub-population. Moreover, the exogeneity assumption made by the IV approach cannot be tested, and values of the population of the home country are not necessarily exogenous to the behavior of immigrants in the receiving country (Chou 2015).

– according to SDT – should be linked to fertility decisions; however, we also checked for alternative measures. A traditional cultural background – measured as the average level of traditionalism in the sending country – was expected to increase fertility rates (H1). This effect of the culture of origin might vanish over time with increasing integration in the home country and was thus expected be smaller for second-generation migrants (H1a).

Regarding the institutional context of the receiving country, we considered overall social spending for families over time: high social expenditure for families was expected to favour fertility, and low expenditure was expected to hinder it (H2). More interestingly, we expected cultural values to be less important in societal contexts that support fertility rates and the positive conciliation of work and family. By contrast, where (opportunity) costs are higher due to the absence of state support, cultural background were expected to be more decisive in reproduction decisions (H3).

2.4 Data, Measures, and Methods

Our empirical analyses used data on within-European migrants from six available rounds of the European Social Survey (ESS) from 2004 to 2014 (Rounds 2 to 7). This repeated cross-sectional comparison of 24 countries allowed us to exploit the variation between countries and to consider receiving and sending countries over time by examining migrants (within countries). European countries display important heterogeneities in their institutional and cultural contexts as well as in their fertility behavior (Billari 2004) yet are sufficiently similar to allow for a meaningful comparison. Studying the migrant population in European international comparison thus provided a unique opportunity to assess the influence of the cultural values that migrants "carry" with them from their countries of origin as well as the institutional context of receiving countries.

2.4.1 Cultural Values and Context

To measure cultural values, we followed Schwartz's (1992) theory of basic human values, which suggests that culture is a latent and hypothetical construct that cannot be observed directly but rather inferred from its manifestations. According to Schwarz (2013), computing the mean scores over a large sample of individuals results in an adequate measure of cultural values and captures the differences in the latent culture between societies.

Several cultural values have been shown to be of relevance for family behaviour. At the individual level, more traditional values are expected to go hand in hand with more children, whereas so-called post-modern values should generally decrease fertility rates (Lesthaeghe and Van de Kaa 1986). To capture the role of cultural values regarding fertility, we focused on traditionalism – one of the four higher-order values (openness to change, self-enhancement, and self-transcendence being the other three (Schwartz 2003)). In the robustness checks, we enhanced this view to include "openness" as opposed to conservatism.

ESS uses the *Portrait Values Questionnaire* (PVQ), which includes short verbal portraits and asks respondent to indicate their degree of similarity to the people described (from 1= very much like me, to 6 = not like me at all).[8] Traditionalism is an index measure based on a factor analysis of six items representing the concept as operationalised by Davidov (2008) in his ESS Human Values Scale analysis. It is composed of three dimensions: tradition and resistance to change, conformity and self-restriction, and security and order.[9] The reliability of the resulting index as measured

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[8] A reversed scale was used in the analysis.

[9] Traditionalism refers to values that are related to respect, commitment, and acceptance of the customs and ideas that come from a traditional culture and religion. This dimension is composed of two items: The first is related to the importance of being humble and modest and of not drawing attention, while the

by the Cronbach's alpha is 0.71.

The cultural context of a country is never perfectly homogeneous. We therefore measured (and identified) the effects of culture by assigning to individual migrants the average levels of traditionalism of their (parents') country of origin, stratified by education.[10] As culture is rather stable over time by definition, this is a time-constant measure. Stratification by education also accounts for migrants' self-selection to some extent (Dinesen 2013). In order to capture the effect of culture (i.e. the aggregate-level concept), our models also controlled for the individual-level measure of traditionalism. This was relevant also to keep under control selective migration flows.

The literature has also shown some – albeit small – effects of the institutional context on fertility decisions. The identification of effects of single policies is hardly possible, which is why we opted for a more all-encompassing concept: We accounted for the **institutional context** of the receiving country through the generosity of the welfare state towards families. This factor was measured as the percentage of social expenditure for families (transfers, parental-leave benefits, family- and child allowances, and childcare services) over the total amount of national expenditure (OECD database 2016) for the six observed years (from 2002 to 2012). In the robustness checks, we controlled for various more detailed measures and obtained very similar results. We should mention that empirically disentangling the effects of the institutional context

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second concerns the importance of following family- and religious customs and traditions. Conformity refers to restraint of actions, inclinations, and impulses that would be likely to upset or harm others and violate social expectations or norms. Two items measure this concept: the importance of doing what is told and following the rules, and the importance of behaving properly. Security refers to safety, harmony, and stability within society, relationships, and the self, and it is measured by two items: the importance of living in safe and secure surroundings and the importance of a strong government that ensures safety.

[10] Individuals did not necessarily take part in education in their country of origin – e.g. for second-generation migrants.

from those of the normative context of the receiving countries was hardly possible in this design. Attitudes towards gender equity[11] have been argued to be of importance for fertility decisions (McDonald 2000; Esping-Andersen, Billari 2015; Arpino *et al*. 2015). The institutional and normative contexts of the receiving countries are highly correlated: where spending for families is high, attitudes are also more gender-equal.

[Table 2.1 about here]

2.4.2 Analytical Sample

The analytical sample was composed of European internal migrants aged 25–40 from 24 countries of origin in the pooled ESS dataset (N = 3,099) and was sufficiently large to distinguish migrant generations and to work with a rather restrictive age selection. The average age in the selected sample was 33, and first-generation immigrants formed the majority (85%). First-generation immigrants were defined as individuals born in a European country different from the country of the data collection. Second-generation immigrants were individuals born in the survey country for whom both parents came from a different European country. For these individuals, the sending country's culture corresponded to their parent's country of origin.[12] Children from mixed partnerships with one native parent were considered natives as the literature documents minor differences between these individuals and other natives (Azzolini and Barone 2013, Kalmijn 2015), and they were thus excluded from the sample. Fertility behaviour was measured as the number of children within the household and ranged from 0 to 4. This

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11 Gender equity is often measured (Arpino et al. 2015; Baizan et al. 2016) as the share of people who disagree with the following item: "When jobs are scarce, men should have more of right to a job than women."

12 Parents from two different countries of origin were excluded from the sample; however, this was only the case for a very small number of individuals. All people with an immigration background from outside Europe were excluded from the sample.

measure was not perfect but was the only one available in all waves and was highly correlated with the actual number of children (r = 0.93) – computed for Round 2 of the ESS – for which the information on all children – including those not living in the household – was available. Moreover, our aim was to compare the differences in the number of children at the individual level in order to find associations with individual- and country-level characteristics and not to focus on completed fertility itself. Robustness checks based on a dichotomous outcome that recoded the presence or absence of children led to substantively very similar results.

The standard socio-demographic variables included gender, age, and age squared. Models also controlled for migration generation and for first-generation migrants' length of stay ("migration status") in the receiving country (less than 1 year, 1 to 5 years, 6 to 10 years, and more than 20 years) because time spent in 57the receiving country might indicate the degree of cultural integration and may represent a key moderator for the effect of the sending country's culture. We further controlled for a set of concepts that might be considered intervening regarding the effect of culture: individuals' education (lower-secondary, upper-secondary, and tertiary) and the educational background of their parents (highest out of three levels), whether the respondent was living with a partner, and the partner's educational level (graduated or not), employment status (inactivity vs. labour market participation), and – among the employed – working-time regime (part-time vs full-time, i.e. more than 30 hours per week). Though this information should not be controlled for when assessing the overall effect of culture (Elwert and Winship 2014), in order to enhance our understanding of the possible mechanisms through which culture influences fertility outcomes, we included it in some models following a stepwise procedure.

2.4.3 Methods

Given the structure of the data, we employed multilevel models for the analysis. As migrants are nested both in receiving and sending countries and these two classifications are not hierarchical, cross-classified multi-level regressions (CCMR) were most suitable for analysing the data (Rudnev 2014, Schmidt-Catran and Fairbrother 2016). CCMR allowed us to decompose the variance into three parts: across receiving countries, across sending countries, and at the individual level. To the best of our knowledge, only one other study has employed CCMR to analyse fertility rates (Zaccarin and Rivellini 2002), which considered women's country of origin without considering specific macro characteristics of the place. Since our dependent variable was a count variable, using Poisson regression models would be the first choice; however, we present results from linear regression models because they lead to the same substantive results and come with a very easy interpretation of the coefficients.

Investigating migrants allowed us to identify the effect of culture; however, problems might have arisen if migration is selective. First, migrants might be selected on the cultural value in which we are interested. It seems reasonable to assume that migrants show less traditional values than non-migrants; however, overall, we found no evidence that migrants are systematically different from individuals who do not emigrate. Nonetheless, disposing of individuals' values and attitudes is also important to control for the possible self-selection of migrants. More relevant, though, might be the selective choice of destination country among the migrant population. Below, we discuss how we accounted for the possibility that the choice of the country of destination varies systematically with cultural baggage.

2.5 Results

Migrant groups differ in their cultural values – the highest values of traditionalism

'carried' from the sending country are shown by the Greeks, Italians, Polish, and Slovakians, and the lowest values are shown by the Norwegians, Dutch, and French. Similar variation can be observed in the individual values of traditionalism of migrants in the receiving country. Notable differences also exist regarding the institutional context of receiving countries in terms of social spending for families. Table 2.1 provides the details and a description of the various variables, Table 2.3 in the appendix shows details on the social expenditure measure. At the aggregate level, we found confirmation of a positive association of generous spending on families (even among the migrant population), which suggests that fertility rates are higher in countries in which families profit from higher social expenditure (the macro-correlation of fertility rates with social spending based on the entire population aged 25–50 in the 24 countries is about 0.65, whereas it is about 0.39 among the immigrant population). In the following section, we provide a detailed investigation of the effects of cultural values and social spending on individual-level fertility.

2.5.1 Multilevel Regression Analysis

To assess the importance of cultural and institutional contexts for fertility, we employed crossed-classified multilevel models. Likelihood-Ratio-Tests (LRT) comparing different models clearly confirmed the necessity of a multi-level model in the more complex, cross-classified specification.[13] The empty model included an intercept, a receiving-country random intercept, a sending-country random intercept, their interaction, and an individual-level residual error term. Moreover, the model set the

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13 The comparison of the multi-level empty model with a single-level model with no receiving- or sending-country effects (linear regression) is highly statistically significant and confirms that migrants do not act as independent observations but are instead clustered. Additionally, the comparison of this cross-classified model with simple hierarchical two-level immigrants-within-receiving-countries and two-level immigrants-within-sending-countries is statistically significant.

benchmark for subsequent models with predictors. Table 2.2 (Model 1) reveals that all variances are significantly different from zero, suggesting that sending- as well as receiving countries are relevant in shaping fertility behaviour and that there is something to be explained at the country level. Moreover, the effect that a receiving country has on migrants might differ according to the sending country even after accounting for the main effects of the sending country. Hence, we also included a random sending-by-receiving country interaction classification. Nevertheless, variance decomposition also highlights how fertility is mainly an individual-level phenomenon and that the variance at the country-level is rather limited overall.

[Table 2.2 about here]

All models control for gender, age and immigration status. We found clear support for the idea that cultural values are relevant to individuals' decision to have children and how many, and traditional cultural values significantly increase individuals' fertility. This finding is in line with expectations (H1); however, there is no evidence that this "cultural effect" vanishes for second-generation migrants or with the length of stay in the destination country (Model 2, H1a is not confirmed). Accounting for the complex structure of the data, social expenditure for families in the receiving country has a positive albeit small effect, which is not always statistically significant. According to our models, an increase of about 2 percentage points of GDP dedicated to families (roughly the difference between Spain and Norway) would lead to an increase of one-tenth in the number of children. Interestingly, these associations of cultural background and institutional context are almost identical if analysed jointly (as in Model 1) or separately (not shown), suggesting that there is little correlation between the two

concepts and providing a first hint that selective migration might not be a big issue here.

Most interestingly, there is a significant negative interaction among cultural values and the institutional context of receiving countries: As expected (H3), the effect of traditionalism is much less important in countries with high levels of social expenditure in favour of families.[14] Figure 2.1 displays this interaction graphically based on Model 3.[15] This graph highlights how cultural values of traditionalism differ in direction according to the generosity of the welfare state in the receiving country: Traditionalism is positively associated with fertility in countries in which social expenditure for families is low (i.e. in Spain, Italy, and Greece). The effect turns even negative in countries in which the amount of family social expenditure is high (i.e. in the Nordic countries, Ireland, France, and the UK, where the amount of spending for families is equal to or higher than 3% of GDP). However, significant differences can be observed only in countries in which the expenditure for families is at the lowest and the highest levels among European countries. All results are relatively similar for men and women, which is why we report the joint models.

In the following section, we examine the extent to which these results are robust to additional controls and different specifications. We mentioned that selective migration might be an issue. An initial way of dealing with this issue is by controlling for individuals' traditional values in addition to their cultural values. The effects of individuals' traditional values are similar to those of their traditional cultural background; in other words, they positively influence fertility decisions, but the effects of cultural values are hardly affected by adding this individual-level control (Model 4),

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[14] By symmetry, this also means that social expenditure is less important for people with a more traditional cultural background.

[15] We controlled also for non-linear effects, which however turn out to be not necessary to properly fit the model to the data.

which also confirms our argument about the necessity of measuring culture as an aggregate-level concept. Moreover if we compare migrants vs non-migrants coefficients in terms of individual traditionalism (see Figure 2.2), we observe only small differences (if any) controlling for age, age squared, sex, parental and individual education. To deal with a potentially selective choice of the destination country, we included a measure for the cultural proximity of the sending and receiving countries in our model (a variable of three categories that distinguishes whether the individual migrates to a culturally very similar host country (the references), to a country that is characterised by much higher levels of traditionalism ("more") or one with much lower levels of traditionalism ("less")). Model 4 reveals a significant reduction in the number of children in a receiving context of a much stronger traditional culture than in the country of cultural origin, while there is no difference for those who migrated to less- or similarly traditional contexts. Moreover, the effect of cultural background depends on the relative cultural context of the receiving country: When the receiving country is much more traditional than the sending country, traditional cultural background basically loses any importance, and its effect on fertility is particularly strong in similar and less traditional contexts. For example, a Greek moving to Sweden will likely have many more children than will a Swede moving to Greece, and a Swede moving to Greece will likely have many fewer children than will a Swede moving to Norway. This all holds net of social expenditure.

To further control for unobserved heterogeneities at the country level, we also report models controlling for receiving-country fixed effects (Model 6) and for sending-country fixed effects (Model 7). In both cases, the cultural effect persists.

Above, we argued for our measure of culture based on a set of items that capture traditionalism, which is one of several possibilities to measure cultural values. To

broaden the picture, we also operationalised cultural values based on "openness" (Davidov 2008), which is composed of five items yet has a lower reliability. The results are in line with expectations in the sense that more openness goes hand in hand with lower fertility. Additionally, in line with theory, traditionalism and openness are apparently different dimensions among the different cultural values as both contribute to the explanation of individuals' fertility behaviour independently of each other (i.e. when jointly introduced in the model, as in Model 8). Finally, as the presented indicator is rather general, we also tested more detailed measures of the social expenditure indicator (not shown), including support for child rearing, including parental-leave benefits, family- and child allowances, and childcare services. The measure was divided into child-related cash transfers to families with children and into public spending on services for families with children, such as the direct financing or subsidisation of childcare and early childhood education (OECD Family Database 2016). Results suggest that transfers more than services play a role in shaping the number of children that individuals choose to have. Model 9 controls for growth in GDP without noteworthy variation.

With Model 10, we include further individual-level characteristics that may mediate the effect of cultural background. In fact, after controlling for individuals' education, the main effect of traditionalism is no longer significant, but the interaction term between cultural and structural factors remains. The interaction of cultural and structural factors loses significance only once behavioural aspects – such as the employment situation and part-time employment with gender interactions – are controlled for (Model 11). The effect of cultural background is mediated almost entirely by individuals' level of education.

The individual-level variables – which we basically consider only as controls here –

confirm the existing literature: Women report higher fertility in surveys than do men, yet these differences disappear after controlling for the employment situation. We also find confirmation that very recent migration experience comes with lower fertility. Education has an overall negative effect on the number of children, the presence of a partner is often a prerequisite for having children, individual-level traditional attitudes go hand in hand with a higher number of children, and (full-time) employment for women goes hand in hand with fewer children. However, these correlations cannot be interpreted as causal.

In further robustness checks on the reported results, we used a dichotomous outcome variable for the presence or absence of children, which led substantively to the same results. Second, we used different sub-samples from the analysis, excluding (a) the two largest immigrants groups (i.e. Germans and Poles), (b) immigrant groups with the highest fertility levels (i.e. Lithuanians and Finns), (c) immigrants with the highest levels of traditional values (i.e. Italians, Grecians, Poles, and Slovakians), and (d) countries with the highest levels of social expenditure for families (i.e. Denmark, France, Norway, and Sweden). The results remain robust with the exclusion of these groups.

2.6 Conclusions

The aim of this study was to contribute to the debate on the importance of cultural and structural/institutional factors for fertility behaviour. We examined EU internal migrants in order to exploit variation in cultural background and focussed on levels of traditionalism in the sending country while also testing for other cultural values and the institutional context (measured as welfare generosity towards families in the receiving country). Considering the interaction of culture with the institutional context, simultaneously examining the characteristics of the sending and receiving contexts is a

novelty of the present study (Zaccarin and Rivellini 2002; Polavieja 2015). We showed that both cultural values and institutional contexts are relevant to fertility behaviour and that the two interact: Cultural background plays a role only in contexts characterised by low social expenditure for families – especially the Mediterranean countries. In countries in which family social expenditure is higher (i.e. the Nordic and Western European countries), traditionalism has no effect on fertility rates. These results are robust to various checks, including the control for individual-level values, country fixed effects, and the cultural proximity of the chosen host country. We also demonstrated that cultural effects are largely mediated by individuals' educational level, women's labour market participation, and partner choice. Our study further contributed to the debate on how to measure and identify effects of culture. We provided clear evidence that keeping aggregate-level concepts (e.g. cultural values) distinct from individual-level values and attitudes is meaningful and necessary.

Overall, the research confirms the importance of cultural values for fertility decisions and reveals that their importance depends on the context of the receiving country. Family policies and generous transfers that lower the opportunity costs for children are particularly able to contribute to increasing the number of children and may thus help to limit populations' aging. These investments even manage to offset of the role of cultural values for fertility behaviour and lead those who would be less inclined to have children to have (more) children. There is thus room for political interventions to help fertility rates grow again without the need to hope for notoriously slow cultural change.

Table 2.1 Descriptive statistics for the key variables included in the analysis by migrants' sending country.

		N. of children			Age		Immigrant generation (%)						Soc spend	Trad (receiving)		Trad (sending)	
Sending Country	N	mean	sd	% of parents	mean	sd	1st <=5 years	1st >5 years	2nd	Live w. part (%)	Inactive (%)	Part-time (%)	mean	mean	sd	mean	sd
Austria	77	0.90	1.02	51	32.9	4.27	19	56	25	53	21	27	2.75	-0.12	0.14	-0.20	0.07
Belgium	82	1.16	1.16	63	33.7	4.44	32	57	11	66	26	22	2.73	-0.09	0.17	-0.04	0.09
Switzerland	140	1.15	1.07	62	32.7	4.49	14	69	17	73	24	20	1.35	-0.08	0.16	-0.09	0.16
Czech Rep.	64	1.11	1.01	64	33.2	4.37	25	64	11	70	31	13	1.77	0.14	0.27	0.06	0.08
Germany	406	0.85	1.03	49	33.7	4.54	30	64	7	62	17	20	2.08	-0.03	0.29	-0.27	0.10
Denmark	39	1.15	1.11	64	34.2	4.64	28	59	13	69	10	13	3.80	-0.34	0.17	-0.36	0.11
Estonia	59	1.00	0.98	63	33.0	4.73	20	54	25	58	19	17	2.12	-0.19	0.14	-0.21	0.02
Spain	145	0.79	0.94	52	32.9	4.36	43	42	15	65	28	17	1.32	0.09	0.25	0.30	0.08
Finland	68	1.40	1.31	68	33.6	4.88	16	34	50	78	10	10	3.07	-0.44	0.17	-0.20	0.00
France	235	0.84	0.89	48	33.4	4.23	28	67	6	68	14	14	2.93	-0.03	0.18	-0.40	0.11
UK	221	1.26	1.26	55	34.2	4.56	24	72	4	67	34	25	3.55	0.05	0.19	-0.06	0.02
Greece	194	1.04	1.02	53	32.1	4.61	13	80	6	70	30	13	1.27	0.56	0.32	0.74	0.07
Hungary	50	1.34	1.12	60	34.6	4.05	28	66	6	76	26	16	3.27	0.07	0.25	0.29	0.01
Ireland	73	1.18	1.12	60	32.4	4.51	44	44	12	70	42	18	3.18	0.03	0.15	0.14	0.03
Iceland	11	1.73	1.35	55	32.3	5.82	55	36	9	81	9	27	1.47	-0.28	0.14	-0.62	0.05
Italy	235	1.03	1.09	49	34.1	4.38	17	30	53	64	15	17	3.75	-0.07	0.16	0.45	0.13
Luxembourg	12	0.83	1.03	58	30.2	4.02	0	58	42	50	17	25	1.68	-0.07	0.13	-0.00	0.21
Netherlands	68	1.15	1.24	47	33.3	4.40	37	53	10	86	10	24	2.95	-0.10	0.21	-0.35	0.08
Norway	44	1.05	1.01	59	32.9	4.24	39	59	2	75	14	20	1.18	-0.33	0.13	-0.32	0.08
Poland	400	0.89	0.92	52	31.6	4.15	58	38	4	69	26	23	7.50	-0.04	0.22	0.39	0.07
Portugal	214	1.21	1.02	49	32.7	4.60	20	58	22	75	18	14	3.50	-0.11	0.16	-0.05	0.09
Sweden	119	1.06	1.08	50	33.0	4.40	17	77	6	70	10	13	2.05	-0.28	0.18	-0.60	0.05
Slovenia	75	1.31	0.96	51	33.2	4.94	16	45	39	76	19	7	1.97	0.26	0.14	0.32	0.07
Slovakia	68	1.07	0.95	59	33.8	4.25	19	49	32	67	29	9	2.75	0.04	0.16	0.40	0.03
Total	3099	1.03	1.05	54	33.1	4.51	29	56	15	68	22	18		-0.01	0.29	0.04	0.37

European Social Survey (wave 1 to 7). Sample restricted to European men and women with migration background age 25 to 40 years.

Figure 2.1 Predicted effects of traditional values on the number of children by different levels of family social expenditure with 95% confidence interval.
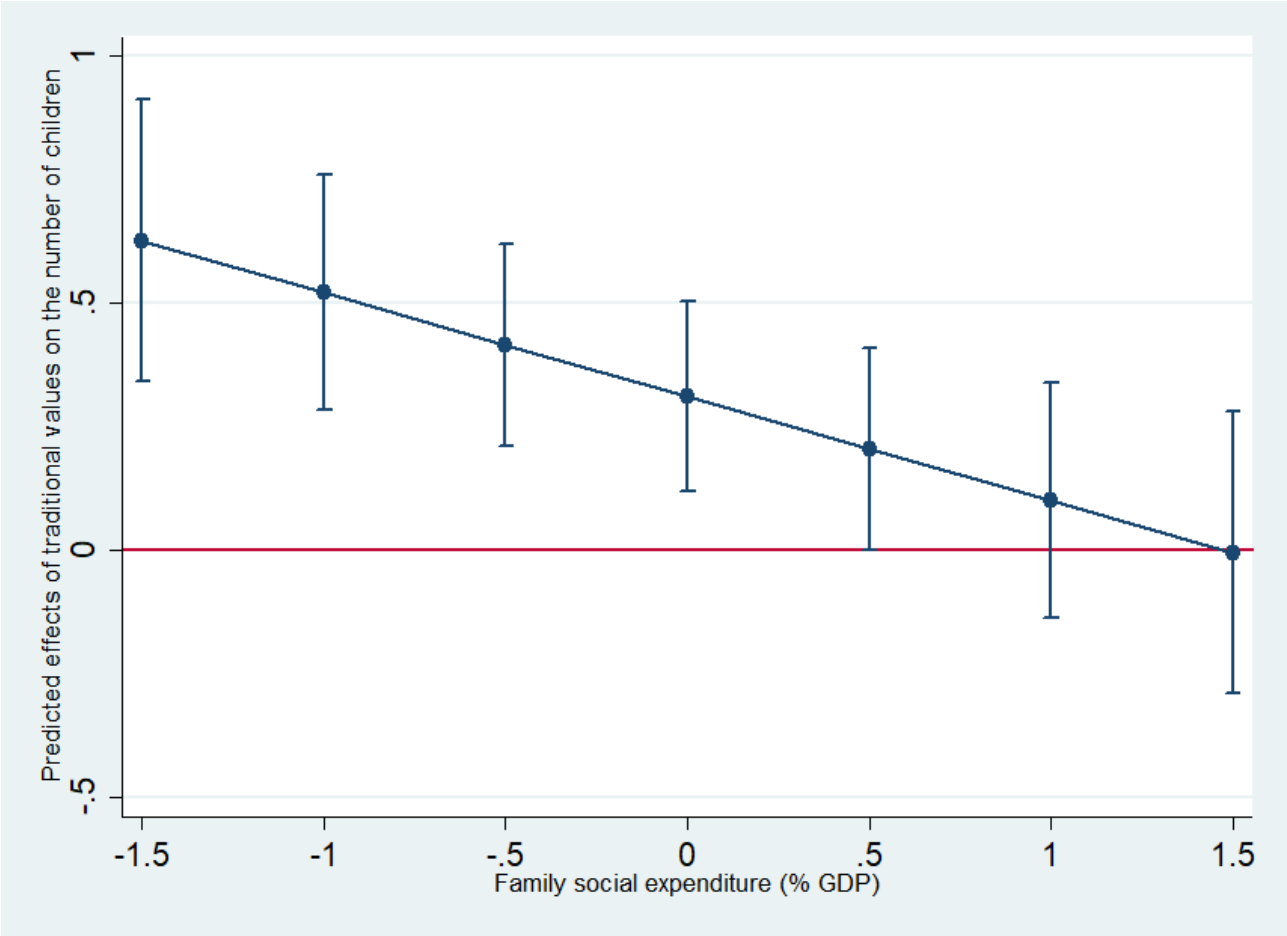
European Social Survey (Waves 2 to 7). Sample restricted to European men and women, ages 25 to 40. Predictions calculated using cross-classified multilevel model (Model 3, Table 2.2)

Table 2.2 Individual and contextual factors' influence on the number of children among European internal migrants aged 25 to 40 (23 countries). Three-level cross-classified multilevel models.

VARIABLES	M0	M1	M2	**M3**	M4	**M5**	M6 receiving FE	M7 sending FE	M8	M9 add GDP	M10	M11
Women		0.33***	0.33***	0.33***	0.33***	**0.32***	0.33***	0.33***	0.29***	0.33***	0.34***	0.11*
		(0.03)	(0.03)	(0.03)	(0.03)	**(0.03)**	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.06)
Age		-0.02	-0.02	-0.02	-0.02	**-0.02**	-0.02	-0.03	-0.02	-0.02	-0.03	0.02
		(0.03)	(0.03)	(0.03)	(0.03)	**(0.03)**	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Age squared		-0.00***	-0.00***	-0.00***	-0.00***	**-0.00***	-0.00***	-0.00***	-0.00***	-0.00***	-0.00***	-0.00
		(0.00)	(0.00)	(0.00)	(0.00)	**(0.00)**	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Immigrations status: 1st gen > 5 years		0.26***	0.26***	0.25***	0.25***	**0.25***	0.24***	0.24***	0.24***	0.25***	0.21***	0.22***
		(0.04)	(0.04)	(0.04)	(0.04)	**(0.04)**	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Immigrations status: 2nd gen		0.16**	0.17***	0.16**	0.18***	**0.19***	0.17***	0.20***	0.20***	0.18***	0.14**	0.19***
		(0.06)	(0.06)	(0.06)	(0.06)	**(0.06)**	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.05)
Cultural value: "traditionalism"		0.31***	0.26**	0.31***	0.29***	**0.43***	0.56***	1.35***	0.36***	0.30***	-0.07	-0.06
		(0.10)	(0.13)	(0.10)	(0.10)	**(0.12)**	(0.12)	(0.21)	(0.12)	(0.10)	(0.11)	(0.08)
Social expend. in host country		0.05	0.05	0.05*	0.08**	**0.09***	-0.07	0.07**	0.08**	0.07**	0.08**	0.06**
		(0.03)	(0.03)	(0.03)	(0.03)	**(0.03)**	(0.09)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
IA: cultural value X social expenditure				-0.21***	-0.17**	**-0.12*	-0.06	-0.10	-0.09	-0.17**	-0.17**	-0.10*
				(0.07)	(0.07)	**(0.07)**	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.06)
Cultural distance: more (higher trad. in receiving)					-0.13*	**-0.12*	-0.16**	-0.06	-0.10	-0.14*	-0.06	-0.03
					(0.07)	**(0.07)**	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.06)
IA: cultural value X higher trad. in receiving						**-0.39**	-0.48***	-0.46***	-0.31*			
						(0.16)	(0.17)	(0.18)	(0.16)			
Cultural distance: less (lower trad. in receiving)					-0.02	**0.00	0.01	0.01	0.01	-0.02	-0.03	-0.00
					(0.06)	**(0.06)**	(0.07)	(0.07)	(0.06)	(0.06)	(0.06)	(0.06)
Individual value: traditionalism					0.10***	**0.10***	0.10***	0.09***	0.11***	0.10***	0.09***	0.06***
					(0.02)	**(0.02)**	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)

Table 2.2 - continued

	M0	M1	M2	**M3**	M4	**M5**	M6 receiving FE	M7 sending FE	M8	M9 add GDP	M10	M11
IA: cultural value X 1st-gen migrant > 5 years			0.10									
			(0.12)									
IA: cultural value X 2nd-gen migrant			-0.12									
			(0.18)									
Cultural value: "openness"									-0.40***			
									(0.13)			
IA: cultural value "openness" X social expend.									-0.19*			
									(0.11)			
Individual value: openness									-0.15***			
									(0.02)			
GDP growth										0.00		
										(0.00)		
Education: upper secondary											-0.14***	-0.12**
											(0.05)	(0.05)
Education: tertiary											-0.29***	-0.19***
											(0.06)	(0.06)
Social background: parents education upper second											-0.09**	-0.05
											(0.04)	(0.04)
Parents education tertiary											-0.22***	-0.12**
											(0.05)	(0.05)
Partner w/o tertiary-level educ												0.96***
												(0.05)
Partner with tertiary-level educ												0.75***
												(0.06)

Table 2.2 - continued

	M0	M1	M2	**M3**	M4	**M5**	M6 receiving FE	M7 sending FE	M8	M9 add GDP	M10	M11
Receiving country fixed effects							yes					
Sending country fixed effects								yes				
Controls for interaction sex and partners education, employment status, working hours												yes
Constant	1.06***	1.13***	0.80***	0.79***	0.86***	**0.87***	0.80***	0.83***	0.93***	0.85***	1.01***	0.83***
	(0.04)	(0.22)	(0.23)	(0.23)	(0.23)	**(0.23)**	(0.25)	(0.25)	(0.23)	(0.23)	(0.23)	(0.22)
Log likelihood	-4.535	-4.273	-4.271	-4.269	-4.250	**-4.247**	-4.223	-4.210	-4.203	-4.239	-4.211	-3.829
Observations	3,099	3,099	3,099	3,099	3,099	**3,099**	3,099	3,099	3,099	3,093	3,093	3,069
Number of groups	283	283	283	283	283	**283**	24	24	283	283	283	283
Var (receiving)	0,008			0,004		0,006			0,007			0,007
variance explained (%)				-47,7		-31,3			-17,8			-13,4
Var (sending)	0,012			0,019		0,013			0,019			0,005
variance explained (%)				59,5		4,0			55,6			-61,9
Var (receiving*sending)	0,013			0,012		0,007			0,003			0,004
variance explained (%)				-6,9		-45,0			-76,2			-71,3
Var (individual)	1,074			0,903		0,894			0,869			0,701
variance explained (%)				-16,0		-16,8			-19,1			-34,8

European Social Survey (Rounds 2 to 7). Sample restricted to European men and women with migration background, ages 25 to 40.

Level of significance: †$p < 0.1$; *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

Appendix

Table 2.3 Traditionalism index measure built on six items using the ESS Human Values Scale.

Value	How much like you is this person?
	Very much like me (1); Like me (2); Somewhat like me (3); A little like me (4); Not like me (5); Not like me at all (6)
Tradition	• It is important to him/her to be humble and modest. He/She tries not to draw attention to him/herself.
	• Tradition is important to him/her. He/She tries to follow the customs handed down by his/her religion or his/her family.
Conformity	• He/She believes that people should do what they're told. He/She thinks people should follow rules at all times, even when no one is watching.
	• It is important to him/her to always behave properly. He/She wants to avoid doing anything people would say is wrong.
Security	• It is important to him/her to live in secure surroundings. He/She avoids anything that might endanger his/her safety.
	• It is important to him/her that the government ensure his/her safety against all threats. He/She wants the state to be strong so it can defend its citizens.

Source: ESS Human Values Scale (Davidov 2008).

Table 2.4 Macro indicators by country.

Country	Family social expenditure (% GDP)							Gender equity in 2008 (EVS) (%)
	2004 Round 2	2006 Round 3	2008 Round 4	2010 Round 5	2012 Round 6	2014 Round 7	mean	
Austria	2.9	2.7	2.7	2.9	2.7	2.6	2.75	67
Belgium	2.6	2.6	2.6	2.8	2.9	2.9	2.73	79
Switzerland	1.2	1.3	1.2	1.4	1.4	1.6	1.35	74
Czech Republic	1.8	1.6	1.7	1.7	1.6	2.2	1.77	59
Germany	2.1	1.8	2	2.2	2.2	2.2	2.08	65
Denmark	3.7	3.6	3.8	4	4	3.7	3.80	96
Estonia	1.9	1.7	2.2	2.6	2.3	2.0	2.12	73
Spain	1.1	1.2	1.4	1.5	1.4	1.3	1.32	71
Finland	2.9	2.9	2.9	3.3	3.2	3.2	3.07	85
France	3	2.9	2.9	3	2.9	2.9	2.93	85
Great Britain	3.1	3.1	3.3	4	4	3.8	3.55	79
Greece	1.2	1.1	1.2	1.4	1.4	1.3	1.27	60
Hungary	3	3.4	3.4	3.5	3.3	3.0	3.27	84
Ireland	2.7	2.7	3.3	3.7	3.4	3.3	3.18	71
Italy	1.4	1.4	1.5	1.5	1.5	*1.5*	1.47	68
Luxemburg	3.8	3.4	4.1	4	3.6	*3.6*	3.75	77
Netherlands	1.7	1.9	1.6	1.7	1.6	*1.6*	1.68	58
Norway	3	2.7	2.7	3.1	3.1	*3.1*	2.95	94
Poland	1.2	1.1	1.1	1.1	1.3	*1.3*	1.18	65
Portugal	1.2	1.2	1.3	1.4	1.2	*1.2*	7.50	64
Sweden	3.3	3.4	3.5	3.6	3.6	*3.6*	3.50	98
Slovenia	2	1.9	1.8	2.2	2.2	*2.2*	2.05	81
Slovakia	2	1.9	1.7	2	2.1	*2.1*	1.97	54

Source: OECD Family Database (2016): Gender equity is measured as the share of people who disagree with the item: "When jobs are scarce, men should have more of a right to a job than women" (Arpino *et al*. 2015; Baizan *et al*. 2016). ***Italics*** indicates that the previous year's values has been used.

Figure 2.2 Migrants-non migrants comparison in terms of individual traditionalism.

Average differences between migrants and non-migrants by cultural group
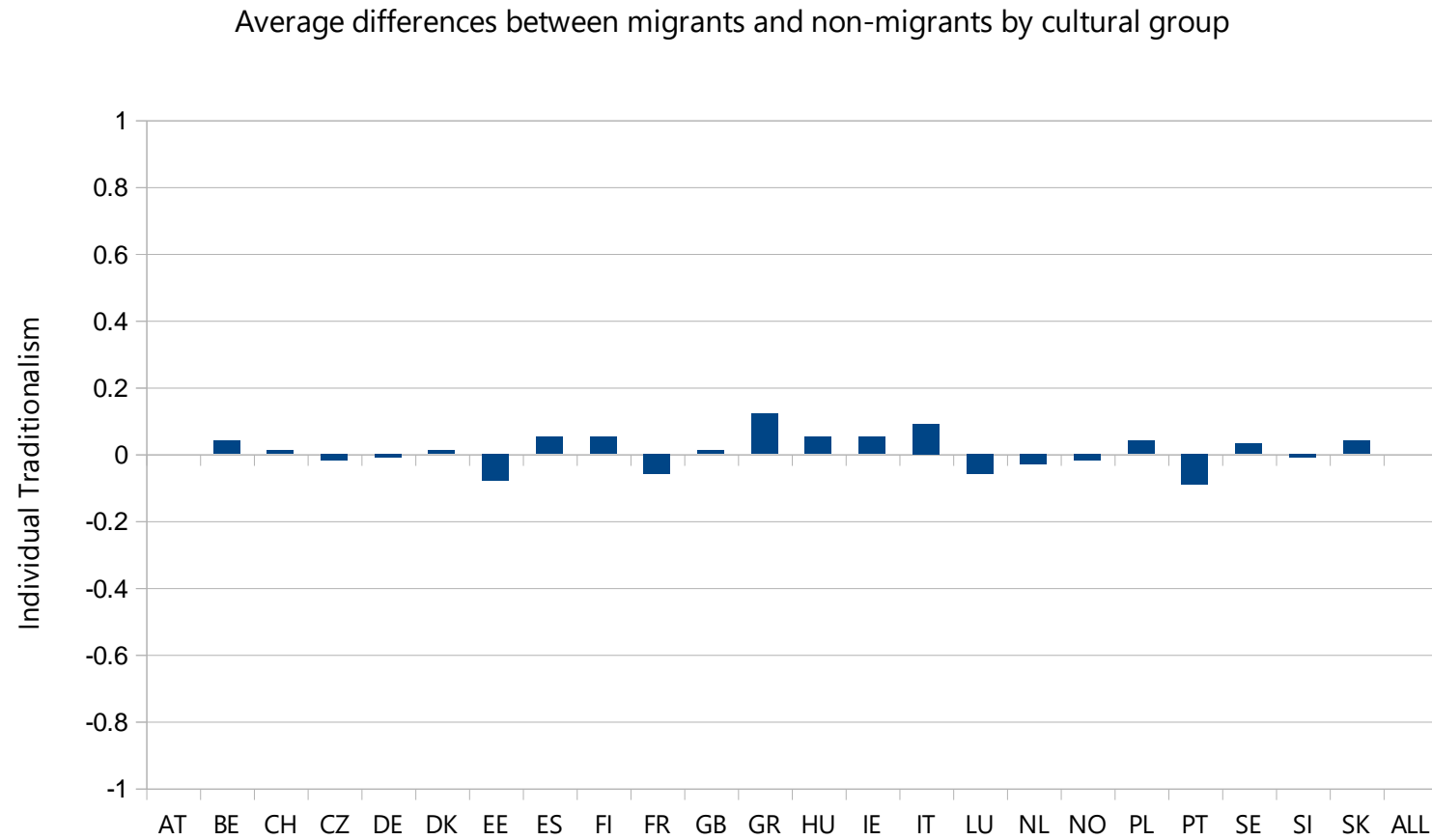
Regression coefficients controlled for age, age squared, sex, parental and individual education.

Table 2.5 Individual and contextual factors' influence on the number of children among European internal migrants aged 25 to 40 (23 countries). Three-level cross-classified Poisson multilevel models.

VARIABLES	M0	M1	M2	**M3**	M4	**M5**	M6 receiving FE	M7 sending FE	M8	M9 add GDP	M10	M11
Women		0.33***	0.33***	0.33***	0.32***	0.32***	0.33***	0.33***	0.29***	0.32***	0.33***	0.88***
		(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.13)
Age		-0.13***	-0.13***	-0.13***	-0.14***	-0.14***	-0.14***	-0.15***	-0.13***	-0.14***	-0.15***	-0.09***
		(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Age squared		-0.01***	-0.01***	-0.01***	-0.01***	-0.01***	-0.01***	-0.01***	-0.01***	-0.01***	-0.01***	-0.01***
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Immigrations status: 1st gen > 5 years		0.29***	0.29***	0.29***	0.27***	0.28***	0.26***	0.27***	0.27***	0.28***	0.24***	0.25***
		(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Immigrations status: 2nd gen		0.21***	0.23***	0.21***	0.24***	0.25***	0.21***	0.26***	0.25***	0.25***	0.20***	0.25***
		(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)
Cultural value: "traditionalism"		0.27**	0.28*	0.27**	0.29***	0.39***	0.49***	1.21***	0.29***	0.30***	-0.00	-0.03
		(0.11)	(0.16)	(0.11)	(0.10)	(0.11)	(0.11)	(0.22)	(0.11)	(0.10)	(0.10)	(0.09)
Social expend. in host country		0.05*	0.06*	0.06*	0.09***	0.10***	-0.05	0.07***	0.09***	0.09***	0.09***	0.08***
		(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.10)	(0.02)	(0.03)	(0.03)	(0.03)	(0.03)
IA: cultural value X social expenditure				-0.20***	-0.13*	-0.11	-0.07	-0.13*	-0.10	-0.13*	-0.17**	-0.12*
				(0.07)	(0.07)	(0.07)	(0.07)	(0.08)	(0.07)	(0.07)	(0.07)	(0.07)
Cultural distance: more (higher trad. in receiving)					-0.19	-0.16	-0.17	-0.08	-0.17	-0.19	-0.20	-0.13
					(0.14)	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)
IA: cultural value X higher trad. in receiving						-0.28**	-0.29**	-0.36**	-0.18			
						(0.14)	(0.15)	(0.15)	(0.14)			
Cultural distance: less (lower trad. in receiving)					0.03	0.05	0.09	0.07	0.01	0.03	-0.10	-0.08
					(0.14)	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)
Individual value: traditionalism					0.09***	0.09***	0.09***	0.09***	0.11***	0.09***	0.09***	0.05***
					(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)

Table 2.2 - continued

	M0	M1	M2	**M3**	M4	**M5**	M6 receiving FE	M7 sending FE	M8	M9 add GDP	M10	M11
IA: cultural value X 1st-gen migrant > 5 years			0.02 (0.14)									
IA: cultural value X 2nd-gen migrant			-0.18 (0.20)									
Cultural value: "openness"									-0.25* (0.14)			
IA: cultural value "openness" X social expend.									-0.17 (0.11)			
Individual value: openness									-0.14*** (0.02)			
GDP growth										0.00 (0.00)		
Education: upper secondary											-0.10** (0.05)	-0.10* (0.05)
Education: tertiary											-0.24*** (0.06)	-0.19*** (0.07)
Social background: parents education upper second											-0.08* (0.04)	-0.04 (0.04)
Parents education tertiary											-0.25*** (0.06)	-0.15** (0.06)
Partner w/o tertiary-level educ												1.83*** (0.11)
Partner with tertiary-level educ												1.68*** (0.12)

Table 2.2 - continued

	M0	M1	M2	**M3**	M4	**M5**	M6 receiving FE	M7 sending FE	M8	M9 add GDP	M10	M11
Receiving country fixed effects							yes					
Sending country fixed effects								yes				
Controls for interaction sex and partners education, employment status, working hours												yes
Constant	-2.43***	-0.70***	-1.03***	-1.03***	-0.99***	-1.02***	-1.14***	-1.12***	-0.91***	-1.01***	-0.79***	-2.58***
	(0.49)	(0.23)	(0.24)	(0.24)	(0.27)	(0.27)	(0.30)	(0.30)	(0.27)	(0.27)	(0.28)	(0.35)
Log likelihood	-4.535	-4.273	-4.271	-4.269	-4.250	**-4.247**	-4.223	-4.210	-4.203	-4.239	-4.211	-3.829
Observations	3,099	3,099	3,099	3,099	3,099	**3,099**	3,099	3,099	3,099	3,093	3,093	3,099
Number of groups	283	283	283	283	283	**283**	24	24	283	283	283	283
Var (receiving)	0,008			0,004		0,006			0,007			0,007
variance explained (%)				-47,7		-31,3			-17,8			-13,4
Var (sending)	0,012			0,019		0,013			0,019			0,005
variance explained (%)				59,5		4,0			55,6			-61,9
Var (receiving*sending)	0,013			0,012		0,007			0,003			0,004
variance explained (%)				-6,9		-45,0			-76,2			-71,3
Var (individual)	1,074			0,903		0,894			0,869			0,701
variance explained (%)				-16,0		-16,8			-19,1			-34,8

European Social Survey (Rounds 2 to 7). Sample restricted to European men and women with migration background, ages 25 to 40.

Level of significance: †p < 0.1; *p < 0.05; **p < 0.01; ***p < 0.001.

Chapter 3 Australian Context

3.1 Introduction

As mentioned in the first part of this thesis, in the last decades most developed countries have faced major changes in the dynamics of the population with consequences for the sustainability of the retirement income, health and aged care systems. The second part of this manuscript focuses on Australia and in particular on two distinct traits which make the Australian case interesting from a demographic and a sociological perspective. Specifically, two main demographic components need to be addressed as responsible for the change in the population structure. The first is the ageing of the population which is a combination of both a decrease in fertility rates and an increase in the number of older people due to the rise in life expectancy. The second important change is the transition to a multi-cultural society in the light of the crucial role Australia plays as a '*traditional*' immigration country. The present section begins with the Australia's population development and a focus on fertility rates followed by a description of the Immigration in Australia. Specific attention is paid to mixed couples as the result of a high share of foreign population. Finally, an overview of the Australian institutional setting is presented.

3.2 Population development

Since the beginning of the 20th century to the year 2000, Australian's population has witnessed a significant increase: from 3.77 million to 19.16. Australian's population in the 2000s has grown of approximately 4.7 million and at 31 December 2017 is 24.77 million with an increase of 388,000 people since 31 December 2016 (ABS 2017). If we take a look at the population growth rate, in 2017 Australia grew by 1.6% (Figure 3.1b).

Figure 3.1a Net Overseas Migration, natural increase and population growth rate (2000-2014).
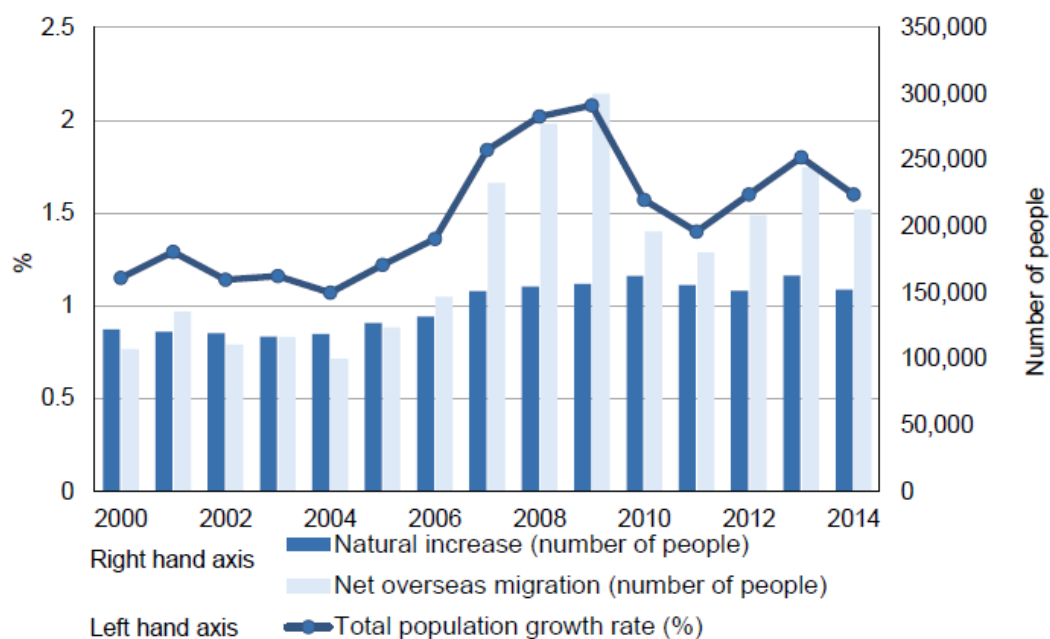
The contribution of the natural increase to total population growth is lower than that of the net overseas migration - 38% and 62% respectively. Starting from 2006 the net overseas migration has exceeded the natural increase becoming the major contribution to the Australian population growth (Figure 3.1a). Although the current pace of the Australian population growth is slower compared to the period after the II World War, Australia currently shows one of the fastest population growth rate among OECD countries[16]. However, as I mentioned above, only a small proportion of this growth is due to natural increase. In fact, the decrease of fertility rates in the recent decades among developed countries also comprehends Australia.

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[16] Exception made for Israel and Luxembourg.

Figure 3.1b Net Overseas Migration, natural increase and population growth rate (2014-2017).

Population growth, Quarterly

■ Total growth
■ Natural increase
■ Net overseas migration

Save Chart Image

Australian Bureau of Statistics

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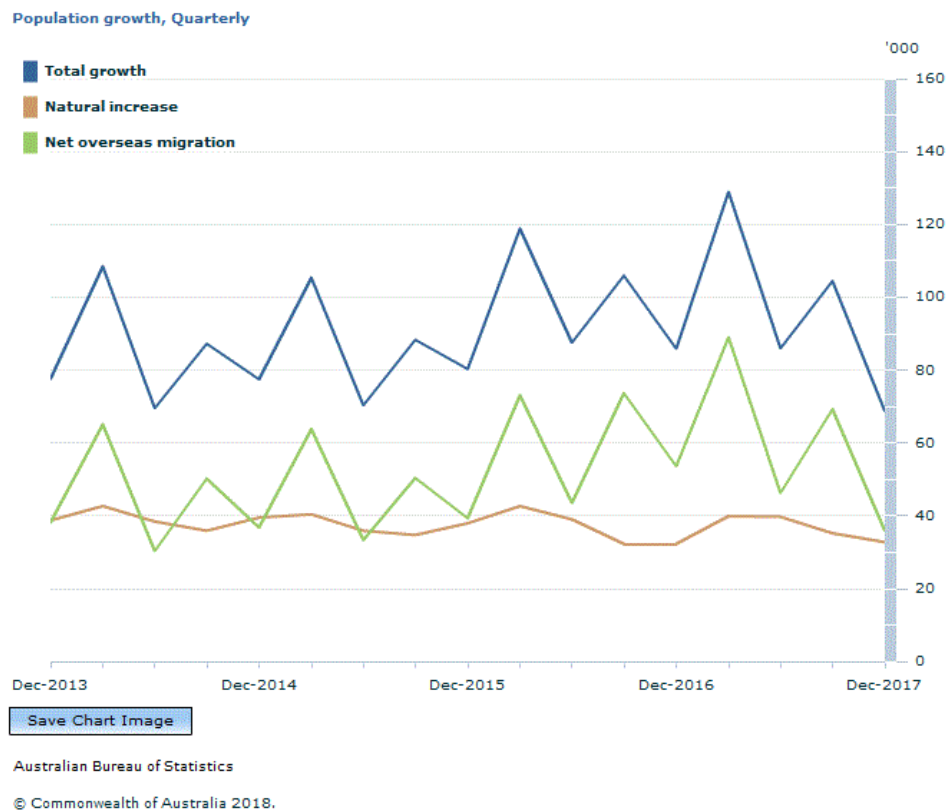
Source: ABS 2018

During the 20th century, Australian total fertility rate (Figure 3.2) displayed the highest value in 1961 (3.6) then it started falling and it reached the lowest level in 2001 (1.73). Australia's fertility rate has been below the replacement fertility level (2.1) since 1976. During the 2000s TFR reached a relatively peak in 2008 (2.0) and then decreased to 1.79 in 2016 (ABS 2016). Some authors suggested that a large part of the reduction occurred in the 1990s and 2000s was a function of non- and late registration births (Wilson 2017; Lattimore and Pobke 2008) instead of a decrease of actual fertility and that TFR in Australia can be considered stable around 1.8 (Hugo 2007). Compared to other developed countries, Australia is part of a group characterized by "high fertility" (TFR>1.7). This group includes English speaking and Scandinavian countries, France, Belgium, the Netherlands, US, Turkey, Mexico, Israel and Russian Federation among

others (OECD 2016). If we look at age-specific fertility rates (Figure 3.3), the period between 1960 and the mid-1970s is characterized by a decrease of fertility levels in all age groups. Since the late 1970s, particularly striking is the fall for women between 20-24 years and in general for women under age 30, while the fertility rate of women aged 30 or more is increased. This trend has been constant from the 1990s to more recent years with a slight increase of fertility rates for women aged 40-44 (ABS 2017).

Figure 3.2 Total fertility rate in Australia (1936-2016).

Total Fertility Rate, Australia - 1936 to 2016(a)

Australian Bureau of Statistics

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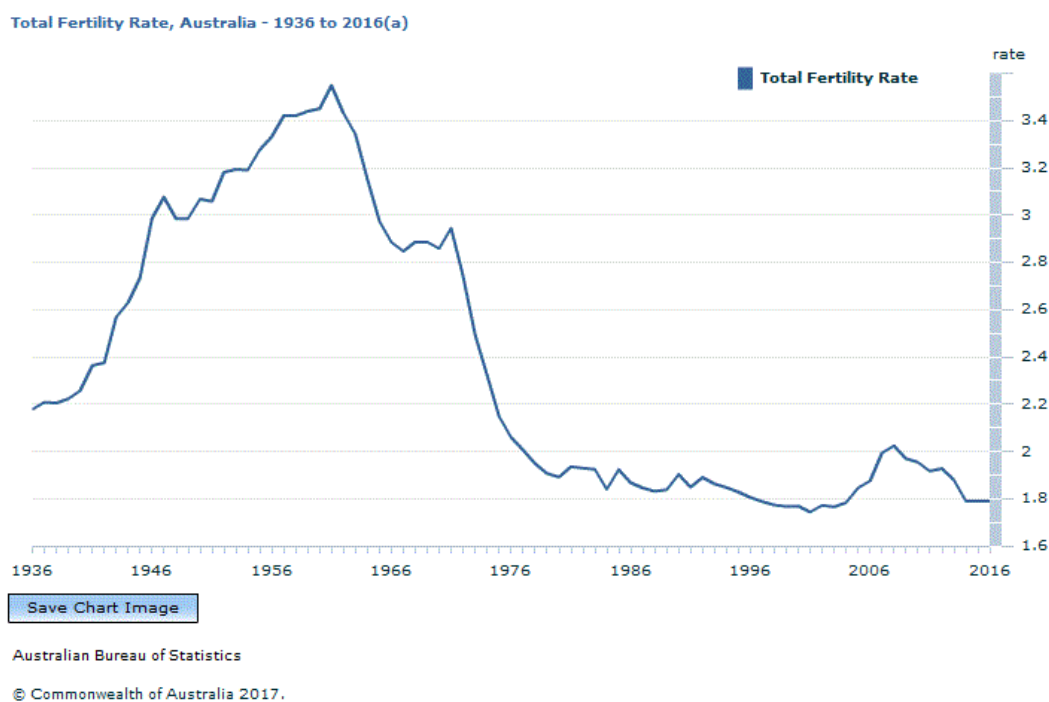
Source: ABS 2017

The decrease in fertility rates together with the improvement in life expectancy have led to the consequent ageing of the population. From 1901 to 2016 the proportion of the population aged under 15 have decreased from 35% to 18%, while the population of elderly people (aged 65 or above) have witnessed a steep increase from less than 5% to 17% (ABS 2016). Another important indicator is the share of population in the working age – 15-64 years. Although this proportion has increased from 1901 (61%) to 2004 (67%), recently has begun shrinking and it returns to around 60%. The

implications about the ageing of the population concerns in particular whether the labor supply will remain sufficient to sustain the growing proportion of elderly people.

Figure 3.3 Age-specific fertility rates (1936-2016).

Age-specific fertility rates, Selected age groups, Australia - 1936 to 2016(a)

Australian Bureau of Statistics

© Commonwealth of Australia 2017.
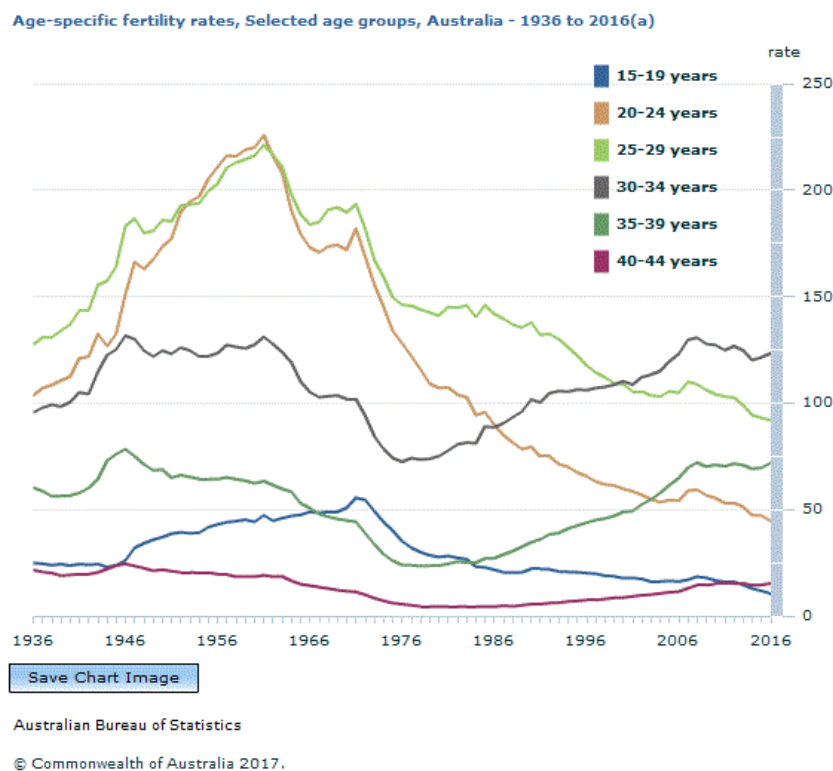
Source: ABS 2017

The issue is particularly urgent if we consider that the so-called "baby boom" generation – a large cohort of people born in the 1950s – is very close to retirement if not already retired. This represents a serious threat to the social welfare system's equilibrium – not only for Australia - and a relevant issue for policymakers. Specifically, the demand for services – such as housing, education, and health care - will necessarily be subjected to a revision given the different needs of elderly compared to young people. Addressing the issue of declining fertility levels for a government may represent a way to deal with the implications associated to the population ageing.

3.3 Immigration in Australia

Australia represents a very earlier case of study for examining demographic behaviors among immigrants since it is considered one of the "traditional" immigration countries[17] (Castles, De Haas, and Miller 2013). As I discussed above, since 2006 the major contribution to the Australian population growth has come from the overseas migration rather than natural increase. This is due to the steep increase in the migration flows after the World War II but also to Australian history of planned immigration (Hugo 2014). Moreover, Australia's geographical position has facilitated the management of migration flows through targeted migration policies with the aim of a highly planned and closed immigration system (Khoo et al. 2009). In 2016, 28.5% of the Australian total population was born overseas and more than 50% of them are born in a European country (ABS 2017). Immigrants from the UK are the largest group resident in Australia accounting for 5.0% of the total population followed by New Zealand, China, India, and the Philippines and Vietnamese. Over the past ten years this proportion has constantly increased especially due to the contribution of immigrants from India and China. The reach of the migration phenomenon in Australia becomes even more relevant if we take into account second-generation Australians. If we include the children of immigrants, almost half of the Australian population has an immigrant background (Khoo 2004; ABS 2016).

In a heterogeneous population, like the Australian one, the chances to form an exogamous union are higher given that the chances to meet and to interact with people from a different ethnic group are also higher (Kalmijn 1998). As a consequence, Australia has one of the highest share of mixed marriages among developed countries.

17 Together with the United States, Canada, and the New Zealand.

In 1998, 52% of all marriages registered in Australia were between people from different countries of origin compared to the 39% in 1974 (Marriage Registrations 1974-1998). The share is mainly due to the contribution where the migrant partner comes from the UK, Ireland, and New Zealand (30% of all marriages in 1998). However, the phenomenon is relevant even if we exclude from the analysis these migrants groups. For instance, Italian grooms married to long-time Australian brides were almost 7% in 1974 of the total amount of immigrant men marry to long-time Australia women compared to less than 2% in 1998. While the percentage of Italian brides was significantly lower in 1974 (2-3%) but it only slightly decreased in 1998. On the other hand, mixed marriages where the bride was born in the Philippines increased sharply from 1974 reaching 7% of all marriages with long-time Australians in 1998 (Khoo et al. 2002). The increase in intermarriage rates includes also second-generation and long-time Australians: increased from 16% of all marriages in 1974 to 21% 1998. More recent data from the analysis of census 2006 showed that 17% of the 4.28 million couple families included in the Census 2006 were exogamous couples with one partner born overseas and one partner born in Australia. 54% of the couples were couples with both partners native-born Australian while 17% were couples with both partners born overseas. In 2006, one out of three intermarriages were between one native-born Australian and a spouse who was born in the UK, compared to the one out of two in 1991. Comparing 1991 and 2006 data, declines were also observed in intermarriages with spouses born in Italy, Netherlands, Greece, and Germany while there was an increase of intermarriages with the partner born in New Zealand, US, the Philippines, and other Asian countries such as China. Immigrants coming from the North America have the highest rate of intermarriage with native-born Australian (about 60%), followed by people born in the UK, the Netherlands, France, and Germany. This

can be explained by the social and cultural closeness between Australians and people coming from English-speaking countries. There is an overall tendency towards an increase in intermarriages for men and women from the first- to the second-generation, and even more from the second- to the third-generation. These findings basically show that there is an ongoing process towards social integration in Australia. Furthermore, the intermarriage trend of the last decades in Australia reflects the migration patterns. As a matter of fact, European countries have been a major source of migrants before 1975, while in the most recent years the most significant contribution have come from Asia-Pacific countries (Heard 2008; Khoo et al. 2009; Hugo 2014).

3.4 Institutional Background

According to Esping-Andersen welfare regime classification, Australia belongs to the *liberal type* characterized by a managerial commitment to public welfare and a strong emphasis on means-testing. Nevertheless, Castles (1998) stressed the more inclusive nature of Australian welfare state compared to other liberal welfare regimes, while other scholars argued that Australia's welfare type represents a mix of the liberal and the social-democratic and it needs to be considered a separate welfare type (Aarts and Gelissen 2002; Fenger 2007; Bambra 2007). Castles and Mitchell (1993) identified a fourth welfare regime type – called '*radical*' - which is characterized by a low social expenditure and a targeted form of welfare state in which the income equality is reached through the redistribution of resources more than by high levels of social expenditure – also defined as *Targeted welfare state regime* (Korpi and Palme 1998). The peculiarity of the Australia's welfare state is that income support payments are subject to means testing which are more widespread than in all other OECD countries - around 80% (OECD 2016). The Australian government mainly contributes through cash payments to its areas of responsibility which includes family allowances, unemployment benefits

and pensions. In 2016 Australia spent 157 billion on welfare: 67% was cash payments for specific populations, 27% for welfare services and 6.3% cash payments for unemployment benefits (ABS 2017).

Australian labor market is characterized by a weak *employment protection legislation* (EPL) – together with other English speaking countries such as UK, US, Canada, Ireland, and New Zealand - compared to other advanced countries (Freeman et al. 2007). Although Australia is the Anglo-American country with the strongest EPL regulations, it has weaker regulations than the European countries with the weakest protection – e.g. Denmark and Switzerland. In Australia the labor force participation rate is relatively high compared to other OECD countries resembling that of UK and Canada (OECD 2017). In the last three decades the labor force participation has slightly increased from 69% in 1978 to 77.4% in 2017 (ABS 2018). However, one of the most relevant change in the Australian labor market in the last decades is the reduction in the gap between male and female labor force participation. In 1978 the gap between men and women was around 27% - 87% for men and 50% for women – while in 2016 the gap narrowed by almost 40% leading to a 11% current gender gap in the labor force participation (ABS 2016). Part of the growth in female employment can be attributed to a cohort effect characterized by an increasing educational attainment and a changing attitude towards the participation in the labor market. Moreover, the growing availability of part-time and flexible employment together with an improvement in childcare availability has been shown as additional factors which have fostered female employment rate (Breunig et al. 2011).

In the literature is shown how fertility plays a crucial role for the long-term growth and sustainability of an economy (Bonner 2015; McDonald 2006). To sustain the falling replacement rates governments' policies have focused on family policies to support

people in their child costs. In Australia the main portion of the family payments system is the *Family Tax Benefit* (FTB) which includes: *a*) a payment linked to the number and age of children; *b*) extra help for families with one main income (sole parents included); *c*) *Child Care Benefit* (CCB) to support families with their childcare costs; *d*) *Baby Bonus*, after the birth of a child; and *e*) *Maternity Immunisation Allowance*, to incentivize the immunization. Specifically, the '*baby bonus*' represents the first form of direct cash payment policy in Australia and it was introduced in 2002 by the Federal Government of Australia. The policy aims at sustaining and stimulating the fertility rate at the country level and consequently to reduce the speed of the population ageing. The baby bonus is paid to a parent of the baby following the birth. A natural experiment conducted to test the effectiveness of this pro-natal policy using HILDA data showed how the Australian government's introduction of monetary incentives – baby bonus – successfully contributed to increase the total fertility rate in particular among women with a low level of human capital (Bonner 2015). A recent change in the Australian family policy system is the introduction in 2011 of a statutory system for paid parental leave which was mainly provided by the employer before 2011. The Australian *Paid Parental Leave* (PPL) provides to eligible parents 18 weeks of paid parental leave at the national minimum wage. Simultaneously, most employers provide paid maternity and paternity leave which is regulated through industrial agreements and organizational policies. Data from 2015-2016 show that the average length of paid leave is 10 weeks and that 48% of employers offers paid parental leave. Compared to other OECD countries, in general English-speaking countries tend to be less generous in terms of parental payments. If we compare full-rate equivalent weekly parental leave payment, Australia displays one of the lowest – 7.6 weeks of full-time payment. UK has one of the highest with 12.2 weeks of full-time payment, while US is one of the only countries

where paid parental leave is not government-mandated (OECD 2016).

The Fertility Decisions: Couple Dynamics Between Structural and Cultural Factors

3.5 Introduction

The literature on fertility decision presents a multitude of different theoretical models to explain fertility and its change over time. This chapter presents an integrated model combining different theories and bringing them to an empirical test employing a structural equation model with measurement part. This has the advantage to investigate simultaneously different steps in the fertility decision, including an appropriate measure of the attitudinal and cultural parts of the model.

In fact, a first stream of literature has focused on the socioeconomic characteristics of men and women such as labor market participation, educational levels (Rosina and Testa 2009, 2012) while the strand of research following the idea of the Second Demographic Transition (Lesthaeghe 1995;1998) has examined the role of preferences rather than economic constraints of both partners which results in the fertility outcome (Jansen and Liefbroer 2006; Bauer and Kneip 2013, 2014; Stein et al. 2014). This study combines these two approaches into a unique fertility model (Billari et al. 2009; Klobas et al. 2010). Moreover, most of the previous literature analyzed the transition to parenthood from the perspective of women, assuming a high level of homogamy between partners (Rosina and Testa 2009; for exceptions: Beckman 1984; Miller and Pasta 1994; Thomson 1997). However, empirical studies have highlighted how the agreement within the couple is not complete and that looking only at the characteristics of one partner could be misleading (Corijin et al. 1996; Jansen and Liefbroer 2006), as the decision about having a child as a result of an interaction process (Jansen and

Liefbroer 2006; Testa et al. 2012; Bauer and Kneip 2014; Stein et al. 2014). Therefore, I explicitly look into the couple dynamics.

Specifically, this study analyzes the entire process of fertility decision from a couple-level perspective using unique data from the Australian longitudinal dataset (HILDA). A unique contribution lies in the measurement of (expected) benefits and costs of children. After the presentation of the relevant theoretical models, a first part looks into the relative weight of individual and couple-level characteristics for the formation of fertility intentions and the subsequent realization. Then a more detailed analysis looks into the (non-) realization of positive fertility intentions. This seems particularly relevant because scholars have underlined the "fertility gap" between desired family size and the actual number of children (Philipov 2009) as a relevant factor of persistent below replacement fertility.

3.6 Theoretical Background

The majority of the studies based on the fertility-decision-making process has drawn upon two theoretical frameworks: the Theory of Planned Behavior (TPB; Ajzen, 1991) and the Theory of Traits-Desires-Intentions-Behavior (TDIB; Miller and Pasta 1994). The assumption behind the application of the TPB to fertility behavior is that, at least in developed countries, having a child is mostly the result of a reasoned decision (Ajzen and Klobas, 2013). The TPB has covered a broad range of possible explanations for fertility intentions such as demographic, economic, and cultural variables. According to the TPB, the intention of having a child is considered as the immediate antecedent of fertility behavior and intentions[18] can be predicted from three sets of factors: a) positive

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[18] In fact, many scholars have used fertility intentions as the proximate determinant for actual fertility behavior analyzing which factors are responsible for the formation and the subsequent realization of fertility intentions. The key importance of focusing on fertility intentions rather than fertility behavior is

and negative attitudes towards having a child; b) perceived social pressure on having a child; and c) perceived behavioral control over the behavior (Ajzen, 2002). Although the partner's intention can be seen as an individual's normative beliefs, this theory does not explicitly take into account the complexity of a dyadic decision-making process of reproduction (Philipov 2011; Testa et al. 2012), and it does not consider the potential effects of a disagreement within the couple either (Miller 2011). The TDIB theory conceives having a child as the result of a process of four steps. The first step concerns motivational traits and the tendency to think and behave in a certain way about fertility behavior. The second step refers to desires and emotional feelings that are not strictly related to the behavior itself. The third step considers intentions that are desires constrained by reality, and psychological states that refer to a conscious commitment towards the goal. The last step is the achievement or the avoidance of pregnancy. Differently, from the TPB, the TDIB explicitly takes into account the couple's nature of reproduction and the interaction between the partners at each step of the process and therefore allows for a disagreement within the couple. Miller and Pasta (1996) identified two main mechanisms of the disagreement between partners: i) the influence effect refers to the possibility that one member of the couple may have more influence on the behavior than the other; ii) and the conflict effect which may produce a fertility delay by favoring the partner who does not have the intention to have a child. The resolution of the conflict depends on the decision rule used by the couple to arrive at a decision (Corijn et al. 1996; Thomson 1997; Jansen and Liefbroer 2006). The 'egalitarian rule' considers that partners' view is equally important because each partner has equal power, resulting in a compromise. According to the power rule, the partner

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because "people generally have greater control over the performance of a behavior than they have over attaining a goal the behavior is intended to produce" (Ajzen and Klobas, 2013: 207).

with greater access to socioeconomic resources will prevail - since men on average have higher occupational and income levels than women, this is also called the patriarchal model (Bauer and Kneip 2013; 2014). A third model is the 'sphere of interest rule' or matriarchal model. According to this rule, as long as women are more affected by a pregnancy, birth, and caregiving, women rather than men would dominate fertility decisions. Finally, the social drift rule or 'veto-player model', according to which the partner who has negative fertility intentions dominates the decision.

These theories consider fertility decision-making as an intentional and reasoned process. Therefore an extended rational choice approach to fertility seems the most suitable strategy to integrate our understanding of fertility decisions. Rational choice models contain two main building-blocks.. On the one hand, people face *constraints* to their actions which are external conditions. On the other hand, individuals take also into account their internal state – *preferences* - to evaluate their actions in terms of desirability and attach different "benefits" to children, according to their values and preferences. As suggested in Chapter 1 and Chapter 2, the Economic Theory of Fertility (ETF) provides a well-known example of a rational choice approach to fertility (Becker 1981), suggesting that, in the light of women's increased educational attainment, the benefits gained from having children have been reduced, in favor of increasing *costs* of children -mainly in terms of rising opportunity costs for women[19]. One of the most problematic aspects of applying rational choice models is that constraints are (to a large extent) observable, while the measure of values and preferences represents a challenge. In this regard, the value of children theory (VOC; Hoffmann and Hoffmann 1973) is a

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[19] The mechanism behind is that highly educated women, who invested in education, would lose most of their investment in human capital if they decide to have children and consequently withdrawn (at least temporarily) from the labor market. As a result, highly educated women face higher opportunity costs than their low educated counterparts

good example of how to integrate the ETF with subjective preferences – which we might refer to also as "cultural factors" as far as they are not idiosyncratic, but structured across social groups. VOC considers explicitly that individuals are heterogeneous about the values they assign to having children. Within the VOC theory, the 'value of children' represents perceived advantages and disadvantages about having a child (Hoffmann and Hoffmann 1973) and depends on socio-economic conditions. The "value of children" is considered to be the main mediator between socio-demographic characteristics and family planning. Both, VOC and ETF consider family decisions as based on a rational evaluation of costs and rewards made by social actors. Specifically, according to these approaches, the decision to have children is the result of weighing the costs and benefits related to the outcome (Nauck 2007). Therefore, using the ETF and the VOC theory is an advantageous strategy to combine *constraints* and *preferences* in a unique theoretical framework useful to analyze the whole fertility decision-making process.

3.7   Analytical Strategy and Research Questions

Given the fertility theories mentioned above, this study aims to develop a fertility decision-making model by combining insights from different theories. The structure of the analysis is shown in Figure 3.1. The model assumes that fertility decision-making is the result of a rational evaluation of costs and benefits related to the decision of having a child. These, in turn, are influenced by a set of individual and couple-level characteristics measured one year before to ensure a "*causal path*". Table 3.1 shows the different theoretical contributions I use to develop the model. Since the goal of this study is to examine couples' fertility decision-making process, the structure of this study consists of three simultaneous steps (see Figure 3.1).

The first aim is to investigate the effect of background characteristics on individual value and the costs of children. The research question here is "*What individual/couple characteristics are responsible for higher/lower value/cost of children?*".

Table 3.1 Main theoretical frameworks used to develop the fertility decision-making model and the relative contribution for this study.

Theoretical framework	*Contribution*
Theory of the Planned Behavior (TPB; Ajzen, 1991)	Individual characteristics influence attitudes towards having children. Intentions predict behavior (especially if a short time period is considered).
Traits-desires-intentions-behavior Theory (TDIB; Miller and Pasta 1994)	Couple perspective and the value/cost of children as the proximate determinant of fertility intention.
Economic Theory of Fertility (ETF; Becker 1981) Value of Children Theory (VOC; Hoffmann and Hoffmann 1973)	Rational choice approach and the value and costs of children as intermediate variables between individual/couple characteristics and fertility intention/behavior. Behavior depends on (perceived) costs and (expected) benefits, where benefits depend on how alternative are valued (weighted by preferences).

The focus of this step is on the perceived benefits and costs attached to the idea of having children. These two concepts are considered complementary in the process of evaluating the intention of having a child. Following the setting of the theories mentioned above, the characteristics considered in this step comprehend individual *socio-economic* factors – e.g., age, education, wage, and the employment status – *ideational* factors – e.g., importance of religion and gender role attitudes – and *couple* characteristics such as marital status, the duration of the relationship, and the satisfaction with the partner.

The stage in the life course in which an individual has to decide about family planning represents a decisive factor for the evaluation of advantages and disadvantages attached to fertility decisions. Specifically, many authors suggested that parity and the age of the woman have a crucial role in shaping the fertility decision-making process (Billari et al. 2009; Liefbroer 2009; Mencarini et al. 2015). However, the dimension of the sample does not allow to differentiate the analysis by parity, which represents a crucial element to formulate specific hypotheses. Therefore, in this first step, age, parity, and duration of the relationship are mainly included as control variables.

People who invest in education are also more likely to invest in career and to pursue alternative life goals for achieving well-being and self-development (Van de Kaa 1987; Speder and Kapitàny 2009; Huinink and Kohli 2014; Donnermuth et al. 2015). Thus, I would expect that the value attached to having children among highly educated individuals would be less central in a person's life compared to lower educated persons (H1a). Conversely, the perceived costs of children should be higher among those who invested in education. This mechanism is particularly relevant for highly educated women not only because of competing life goals but also because they are the principal caregivers, and thus they face higher opportunity-costs associated with having a child compared to men (H1b; Becker 1981; Liefbroer 2005; Stier and Kaplan 2019).

Similarly, the mechanism of opportunity-costs may likely be at work among women who have a full-time job. Specifically, opportunity-costs are low among women with a part-time job and even lower among those who are not in the labor force (Philipov et al. 2006; Spéder and Kapitàny 2009). Thus, I would expect that the expected costs of having a child will be lower among women with a part-time job or who are not in the labor force – and with a low income - compared to women with a full-time job (H2a). Among men, I would expect that being employed and having a higher income is an

essential condition for the intention to have a child and in particular to reduce direct costs of having a child as men tend to identify with the main breadwinner model (Stein et al. 2014; H2b).

Given that studies on fertility decisions assume that partnership is a prerequisite for the formation and realization of fertility intentions, for the aim of this study the type of the relationship represents a more relevant issue (Philipov et al. 2006; Spéder and Kapitàny 2009). There is a widespread consensus about the fact that a stable relationship is seen as a suitable environment for having children (Spéder and Kapitàny 2012). In this regard, marriage implies a higher level of commitment in terms of family plans compared to cohabitation, and it represents a stronger precondition for the transition to parenthood (Jansen and Liefbroer 2006). Hence, I would expect married couples to value more positively the idea of having a child (H3a), and similarly to perceive minor costs of having a child compared to cohabiting couples (H3b). Equally important is the stability of the relationship for realizing family plans and especially for becoming a parent (Rijken and Liefbroer, 2009; Olàh et al. 2018). I would then expect that greater couple stability would have a positive effect on the expected benefits as well as on the expected costs of children given that high-quality relationship provides a 'favorable environment' to raise children (H4).

Higher religiosity and traditional gender role attitudes are associated with positive fertility intentions, but at the same time, they are mediated through the importance attributed to parenthood (Barber 2000; McQuillan et al. 2015). As in the case of married couples, I would expect that religious people and individuals with traditional views about gender roles – both *family-* and *work*-related – value more positively the idea of having children (H5a), while simultaneously these attitudes may help to soften the expected costs of children (H5b).

The second step consists of examining whether perceived costs and benefits influence the intention of having a (further) child. The distinctive trait of this step is that I will explore not only the influence of each partner's value and costs on her/his fertility intention but also the mutual value/costs of children's effects on the partner's fertility intentions. By doing this, I assume that partners' fertility intentions are the result of a joint process in which both partners interact with each other. The first working hypothesis focuses on whether the female and the male partner attribute different weights to their value and costs for their intention to have a (further) child. Specifically, I would expect that for both partners the value of children would have a positive impact on their fertility intentions (H6a), while higher opportunity-costs of children would play a negative role for the intention to have a child (H6b). Moreover, I would expect that also the partner's expected benefits and perceived costs would have an impact on fertility intentions. Specifically, due to women's higher involvement in childbearing and childrearing, I would expect women's influence on men's intentions would be stronger (H7).

According to the TPB, individual socio-economic factors, as well as couple characteristics, are assumed to influence the fertility intention only through their effect on the perceived benefits and costs attached to the idea of having a child (Philipov et al. 2006; Spéder and Kapitàny 2009). The reason to include background characteristics, also in the second step of the model is twofold. First, to act as control variables in the relationship between perceived value and costs and the intention, and second, to investigate whether some characteristics also play a direct role in the formation of fertility intentions.
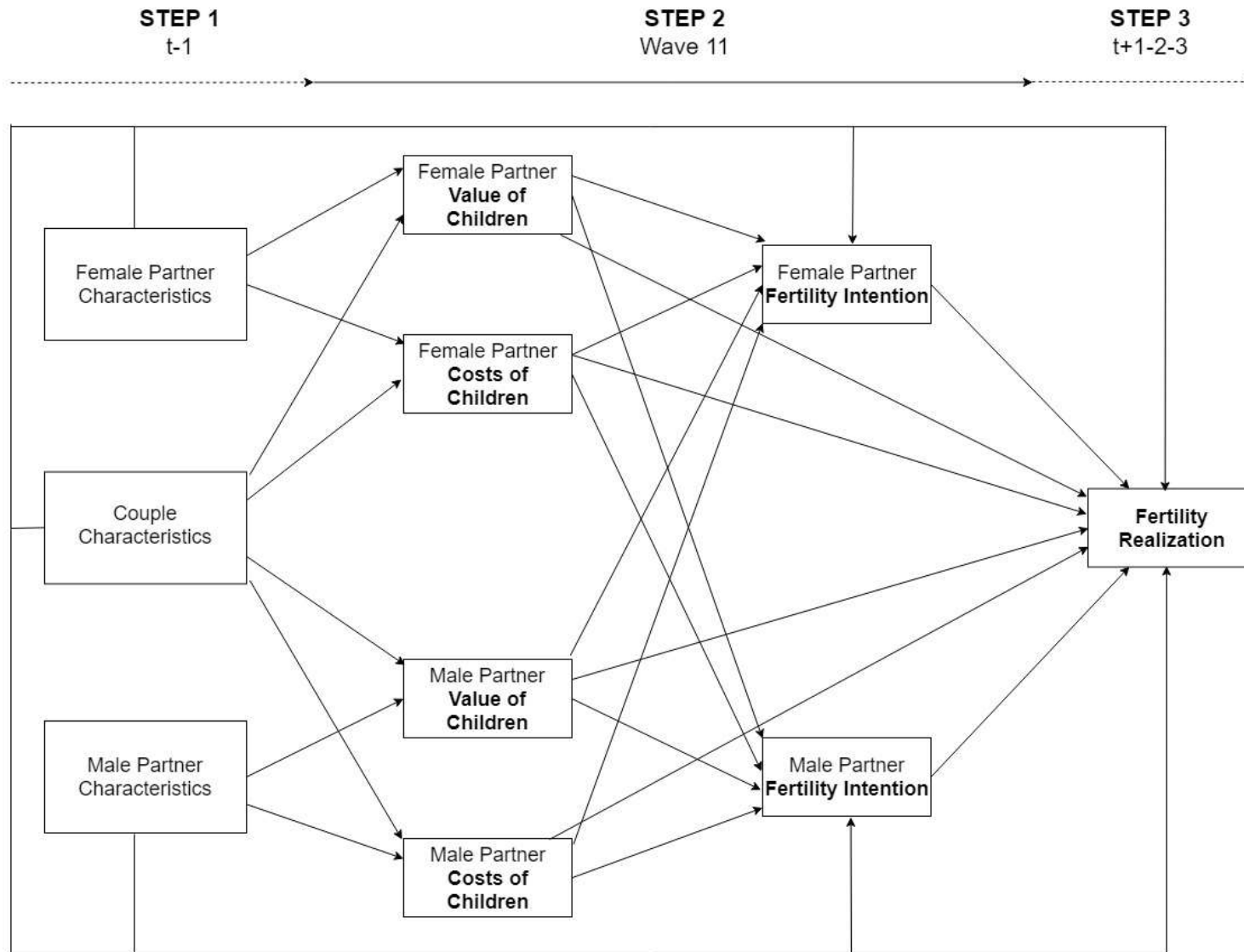
The third step will analyze the effect of partners' fertility intentions for the subsequent (non-) realization. Given the complexity of the model, this part will be

split into two parts. In the first section, the aim is to examine the influence of partners'
fertility intentions on the realization by including in the model also background
characteristics, as well as value and costs of children, that can have a direct effect on
the chances to realize those intentions. While in the second part of this chapter, the
focus is to examine the factors that might hinder or facilitate the realization of fertility
intentions by focusing only on couples with positive fertility intentions.

3.8 Data and Methods

To implement this model of the fertility decision making process requires dyadic and
longitudinal data to exploit information captured before the outcome, as well as
measure on assessed costs and benefits. Data come from The Household, Income and
Labor Dynamics in Australia (HILDA) survey. HILDA is a longitudinal panel study
that follows individuals in households over time. The survey provides the same amount
of information for all the household's members aged 15 or above. Thus, we can have
access to the same information for both partners. The reference point for the analysis is
wave 11 (t0). At t0 Hilda reports details on partners' fertility intentions and their costs
and benefits about having a child. In wave 11 people are asked about their fertility
intentions and a set of other related items about "The importance of… for the decision
of having a child". The focus of this study is on heterosexual and fertile couples married
or cohabiting, where the age of the female partner ranges from 24 to 45. In total, I have
information on 863 couples. To analyze such a complex model, I use generalized
logistic structural equation models given the dichotomous dependent variable (the birth
of a child). All the continuous variables used are standardized to ensure an easier and
comparable interpretation of the results between partners.

Figure 3.1 Fertility decision-making process with the measurement part.

STEP 1
t-1

STEP 2
Wave 11

STEP 3
t+1-2-3

Female Partner Characteristics

Couple Characteristics

Male Partner Characteristics

Female Partner **Value of Children**

Female Partner **Costs of Children**

Male Partner **Value of Children**

Male Partner **Costs of Children**

Female Partner **Fertility Intention**

Male Partner **Fertility Intention**

Fertility Realization

3.9 Fertility Intention and Decision

Fertility intentions are measured using the item "*In which year do you intend to have a child?*". In line with previous research using the TPB, the time frame used to measure fertility intentions is three years as the temporal closeness to the behavior makes the intention a better predictor of the behavior (Ajzen and Klobas 2013; Mencarini et al. 2015). Thus a positive intention is indicated if the time specified is within a three year time period (=1). To measure the couple's fertility decision, I use the realization of fertility intentions within three years. Thus, the variable is coded 1 if the couple had a child within three years (wave 12, 13 and 14) and 0 if they did not have a child. Couples where the woman was pregnant at wave 11 were not included in the analysis since the decision has been already made. Overall, if we look at Table 3.2, the level of agreement between partners in terms of fertility intentions is rather high, with only 12.4% of partners who disagree about their fertility plans. The share of couples who had a child in the observation window is 31.1%. The percentage of realization varies according to the fertility intentions reported. Couples where both partners reported positive short term intentions display 63.1% as realization rate, while those where both partners have either negative or long-term intentions, only 5.9% of the couples had a child.

Table 3.2 Couples' fertility intentions and the share of realization within three years.

Couple's intention	Percentage	Fertility realization
Both negative/long-term	50.2	5.9
Both positive short-term	37.4	63.1
Female Partner positive	6.5	28.6
Male Partner positive	5.9	20.0
All Couples	100.0	31.1

3.10 Measuring Value and Perceived Cost of Children

Following a rational choice approach, the decision of having a child is based on motivations regarding the perceived value of children and their normative costs in terms

of conciliation between having a child and alternative life goals (see Figure 3.14). Values and preferences related the fertility behavior had been usually included in the analysis using measures indirectly associated with the behavior– such as religiosity, traditionalism, and gender role attitudes. Within a fertility decision-making approach, it is highly relevant to take into account attitudes that can be strictly linked to the behavior under study. Thus, for measuring the value/costs of children, I use an item set about the importance of specific factors for the decision of having a child. Respondents were asked to indicate the importance of specific aspects for the decision of having a child on a four-point scale ranging from 'not important' (1) to 'very important' (4). Table 3.3 shows the results of factor analysis and the emergence of two latent concepts with an eigenvalue greater than one. The two latent concepts can be identified with the value and the cost respondents (and their partners) attribute to having a child. The factor loading range from .54 to .85 for both partners and the Cronbach's alpha (from 0.73 to 0.79) coefficients reveal a high internal consistency.

The use of multiple items allows for a more reliable measure than previous contribution (Liefbroer 2005) which measured the reward and cost of children using one item the aim was to It allows to capture the overall benefits and costs of children a person might rationally evaluate to reach their fertility intentions. It is relevant to stress how the results of the factor analysis and the correlations between the two concepts showed that the value and costs of children are not poles of the same dimension, but they measure two rather different concepts (see Table 3.4).

Table 3.3 Factor loadings and factor alpha coefficients of items on the importance of the decision of having a child for the female and the male partner.

	Female Partner		Male Partner	
	Factor1	Factor 2	Factor1	Factor 2
	Value of Children	*Costs of Children*	*Value of Children*	*Costs of Children*
The stress and worry of raising children	-0.23	**0.68**	-0.18	**0.69**
Being able to buy a home or buy a better home	0.02	**0.68**	-0.05	**0.74**
Being able to make major purchases	-0.03	**0.76**	-0.10	**0.81**
Having time for leisure or social activities	-0.05	**0.70**	0.00	**0.66**
Giving your parents grandchildren	**0.69**	0.03	**0.68**	0.02
Having someone to care for you when you are old	**0.70**	0.12	**0.70**	0.10
Having someone to love	**0.84**	-0.03	**0.85**	-0.09
Providing more purpose to life	**0.85**	-0.09	**0.85**	-0.07
Having time and energy for your career	0.14	**0.61**	0.33	**0.57**
Your spouse or partner having time and energy for your career	0.26	**0.56**	0.27	**0.54**
The general cost of raising children	0.00	**0.70**	0.02	**0.71**
Factor alpha coefficient	0.79	0.73	0.79	0.75

Source Calculations based on HILDA waves 10-14.

Table 3.4 Correlation matrix of value and costs of children among men and women.

	Value W	Value M	Costs W	Costs M
Value W	1.00			
Value M	0.38***	1.00		
Costs W	0.31***	0.19***	1.00	
Costs M	0.10***	0.39***	0.32***	1.00

Source Calculations based on HILDA waves 10-14. *** correlation is significant at the 0.01 level.

3.11 Individual and Couple Characteristics

To ensure a causal path (see Figure 3.4), individual and couple-level characteristics are measured one year before (i.e., wave 10) fertility intentions and the costs and benefits of having a child. Among the factors that might influence the importance attributed to the value and the costs of children, I include age, the employment status – three

categories: *not employed*, *employed part-time* (only among women), and *employed full-time* - the total net income, the highest level of education attained, the satisfaction with the partner, the level of religiosity – measured with a ten-point scale about the importance of religion in the respondent's life - and an index for gender role attitudes. Precisely, gender role attitudes were measured using a set of six items on a 7-point scale - from strongly disagree to strongly agree - about gender equity and equality. Principal component factor analysis (*see* Table 3.5) shows two latent factors that can be identified with gender role attitudes related to the work sphere and the care of children. Educational attainment is measured using the *Casmin* classification index and included as a set of dummy variables. Also, couple-level characteristics might influence partner's fertility intentions through the cost and value of children. The relationship status is measured with a dummy variable coded 1 if the couple is married and 0 if it is a cohabiting couple.

Table 3.5 Factor loadings and factor alpha coefficients of items on gender role attitudes for the female and the male partner.

	Female Partner		Male Partner	
	Factor 1	Factor 2	Factor 1	Factor 2
	Work-related	*Home-related*	*Work-related*	*Home-related*
Mothers who don't really need the money should not work	**0.75**	0.20	**0.80**	0.26
If both partners in a couple work, they should share equally in the household	0.15	**0.88**	0.13	**0.88**
It is better for everyone involved if the man earns the money and the woman takes care of the home and children	**0.80**	0.01	**0.79**	-0.03
A father should be as heavily involved in the care of his children as the mother	-0.19	**0.73**	-0.09	**0.79**
It is not good for a relationship if the woman earns more than the man	**0.66**	-0.14	**0.59**	-0.29
On the whole, men make better political leaders than women do	**0.61**	-0.12	**0.62**	-0.11
Factor alpha coefficient	0.69	0.54	0.68	0.59

Source Calculations based on HILDA waves 10-14.

The duration of the relationship – in years – was also included in the analysis. An additional characteristic both at the individual- and at the couple-level is the number of

children already had. I include two dummies variables: one for those who already had one child and one for those who already had more than one child.

Table 3.6a Summary statistics of individual variables.

Variable	Female Partner		Male Partner	
	Mean	Sd	Mean	Sd
Age	31.95	6.45	34.26	7.81
Secondary education	0.48	0.50	0.54	0.50
Tertiary education	0.39	0.49	0.29	0.45
Value of Children	-0.02	1.00	-0.00	1.00
Costs of Children	-0.01	1.00	-0.02	1.00
Gender Role (work)	0.01	0.99	-0.00	1.00
Gender Role (children)	0.01	0.98	0.00	0.99
Importance Religion	3.34	3.45	2.80	3.35
Satisfaction with Partner	6.53	1.91	6.55	1.98
Employed part-time	0.22	0.42	-	-
Employed full-time	0.43	0.50	0.94	0.24
Weekly Wage (*100)	6.59	7.22	12.40	12.00
Fertility Intention	0.47	0.50	0.45	0.50

Source Calculations based on HILDA waves 10-14

Table 3.6b Summary statistics of couple-level variables

Variable	Mean	Sd
Number of children	1.23	1.25
Zero children	0.38	0.46
One child	0.22	0.40
More than one child	0.40	0.50
Married	0.64	0.48
Duration of the relationship	7.06	5.31
Fertility Realization	0.31	0.46

Source Calculations based on HILDA waves 10-14

3.12 Results

To translate the theoretical considerations into an empirical model, I use a generalized structural equation model[20] with a logistic specification that allows to combine the measurement part – i.e., value and costs of children - and the structural component into a single model (Acock 2013). The overall structure of the model is arranged in a time order to follow a chronological path. In this section, each step of the fertility process is presented separately to follow the temporal nature of the process, even though the results come from a single structural equation model. The first set of results consists in identifying which factors affect the value and costs that partners allocate to having children. Since all the variables are standardized, the odds ratios can be used to compare the different weights of the female and male partners' characteristics on the value and costs of children.

Table 3.7 shows the effects of the socio demographic background on the perceived value of children for the female and the male partner. Given the selected age range, the linear effect of age works pretty well. Woman's age has a significant and negative impact on her perceived benefits of children. This result can be linked to the woman's stage in the life-course in terms of children already had. Indeed, the number of children seems to play a distinct role, and results show a different effect among men and women. Women who already had a child show higher levels of benefits when they have to evaluate the enlargement of the family compared to childless women. Conversely, women who already had two or more children show a negative association with higher levels of benefits attached to having another child. This result might suggest that these women have reached their desired number of children, and thus, they feel already

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[20] Given the dichotomous dependent variable (birth of a child). The analysis has been conducted using the command GSEM with STATA software.

fulfilled as mothers. No significant differences are found between childless men and men with one or more children.

In line with expectations, education turns out to be a relevant factor shaping costs and benefits. Men with secondary and tertiary education are less likely to attribute greater importance to children compared to lower educated men. This is in line with the argument that among highly educated individuals the value attached to children is less central in a person's life and it might counterbalance the achievement in other life domains such as career and alternative life goals. Among women, the effect is significant only among highly educated. This result confirms the first hypothesis (H1a) according to which investments made in education "compete" with family goals, and it might reflect the ongoing dissimilarities between men and women in terms of childrearing and childcare duties but also labor market opportunities.

Results also confirm the idea that the value of children is positively linked to traditional family-related attitudes (H5a). The importance of religion and having traditional gender roles at work and home all show a positive association with higher levels of value attached to children. However, married men and women are not significant differences from their cohabiting counterparts (H3a). This might be explained by the fact that married persons are also more traditional, and thus, the effect of marriage is captured by traditional attitudes.

3.7 Individual effects on the **value and costs of children** for female and male partners (odds ratio). N=863.

	Female Partner				Male Partner			
	Value of Children		Costs of Children		Value of Children		Costs of Children	
	OR	SE	OR	SE	OR	SE	OR	SE
Age	0.822***	(0.048)	0.971	(0.062)	0.994	(0.006)	0.988+	(0.006)
Secondary education	0.905	(0.107)	1.024	(0.145)	0.645***	(0.074)	0.821+	(0.088)
Tertiary education	0.791*	(0.099)	0.963	(0.145)	0.590***	(0.074)	0.652**	(0.087)
Gender Role (work)	1.125**	(0.044)	1.020	(0.041)	1.192***	(0.044)	1.054	(0.040)
Importance Religion	1.177***	(0.043)	1.032	(0.043)	1.138***	(0.043)	1.003	(0.039)
Income	1.054	(0.046)	1.066	(0.051)	0.997	(0.034)	1.016	(0.059)
Duration Relationship	0.982	(0.064)	0.995	(0.074)	0.899+	(0.055)	1.003	(0.039)
Parity 1	1.225+	(0.128)	0.828+	(0.085)	0.966	(0.098)	0.819+	(0.085)
Parity >1	0.837+	(0.088)	0.790*	(0.084)	0.943	(0.090)	0.877	(0.082)
Satisfaction with Partner	1.008	(0.036)	0.908*	(0.041)	1.098*	(0.048)	0.960	(0.063)
Employed Part-time	1.118	(0.107)	1.051	(0.103)	-	-	-	-
Employed Full-time	1.079	(0.089)	0.999	(0.089)	1.240	(0.199)	1.266	(0.199)
Married	0.933	(0.089)	0.950	(0.094)	0.879	(0.081)	0.821*	(0.073)
Gender Role (children)	0.959	(0.035)	0.946	(0.037)	0.987	(0.036)	1.015	(0.036)

Source Calculations based on HILDA waves 10-14. *** $p<0.001$, ** $p<0.01$, * $p<0.05$, + $p<0.10$. OR vary between 0 and infinity. OR below 1 indicate negative associations, OR above 1 a positive one; 1 indicates the absence of any association.

The results for the costs of children are shown in Table 3.7. I have to reject Hypothesis 1b for women, which states that who invested in education should face higher opportunity-costs compared to lower educated persons. Although I do not find any significant effect of education among women, highly educated men show lower perceived costs attached to having a child. This might be explained by the fact that first, highly educated men are not directly involved in childbearing since they have higher chances to have lower educated female partners who will take the responsibility of raising a child. Second, tertiary-educated men are more likely to have a high labor

market position and thus, they have the possibility to outsource the cost of raising a child. An interesting result is that the costs of children are lower for both partners if the couple already had one child. This is in line with the argument that couples have accumulated knowledge and experience after the birth of the first child and thus the perceived costs – both *direct* and *indirect* - of having another child are partially reduced. The result also supports the idea that family formation and family enlargement are two rather different processes during the life-course.

In the second step of the analysis, I analyze the effect of each partner's value and costs of children on the intention of having a child in the following three years. Besides, I test whether background characteristics at the individual- and couple-level would also play a role in the formation of partners' fertility intentions. Table 3.8 shows the results for the female and the male partner's fertility intentions. Among men and women the effects of value and costs of children on fertility intentions go in the direction I expected. **Overall, the benefits associated with having a child influence positively the intention to have a child, while higher opportunity costs decrease the chances to intend to have a child** (H6a, H6b). However, having higher perceived costs of children play a negative role for the fertility intention only among women, supporting the idea that costs are not just higher for women but also more determining in their consequences that the costs for women are higher due to childrearing and childcare duties. The theoretical model allows also value and costs of children of the partner to play a role in the formation of the fertility intention. Interestingly, the female partner's value and the costs of children influence equally her fertility intention and that of the male, supporting the matriarchal model. For example, a unit increase in the value of children of the woman corresponds to an increase in the likelihood of reporting a positive short-term intention for her as well as for her partner. Moreover, the woman's

costs of children would also affect the man's intention (H7). A higher perceived cost of children for the woman is associated with lower chances to report positive fertility intentions among men. The result supports the idea of a mutual influence of partners in the fertility decision-making process and the idea that the woman has a dominant role in the formation of fertility intention by influencing her partner's fertility intention, while the influence of the male partner is limited to her expected benefits of having a child (Bauer and Kneip 2014; Testa et al. 2014).

Previous research as underlined at length the importance of the social-demographic background for the formation of fertility intentions. Here I test for a direct effect on the formation of fertility intentions and not only through their effect on the perceived benefits and costs of children. Overall, couple characteristics matter, and also social-demographic are not mediated completely through the costs and benefits measure, but exert a direct, albeit reduced, effect. Results are similar for men and women.

Although highly educated individuals are less likely to value the idea of having a child positively, results show that there is a positive association between education and fertility intentions both among men and women as previous studies confirmed (Toulemon and Testa 2005; Philipov et al. 2006, 2009; Mencarini et al. 2014). Highly educated women and men show better labor market positions and are more likely to show higher levels of equity within the couple in terms of childcare and housework division, which are associated with positive fertility intentions (Mills et al. 2008; Donnermuth et al. 2015). The chances to report positive fertility intentions are not significantly different if a couple intend to have the first or the second child. Nevertheless, couples who already have two children are less likely to intend to have an additional child compared to childless couples. This is in line with the idea that two children is the average ideal family size. A crucial role for the decision of having a child

is played by marriage. Results show that married women and men have higher chances to desire a child compared to their cohabiting counterparts. The effect confirms the idea that married couples are more child-oriented.

The last step of the fertility decision-making process is represented by the realization of fertility intentions. In the models showed in Table 3.9, I include all the variables considered for the analysis following a stepwise procedure to test which characteristics play a direct role in the realization of fertility intentions. The major finding is that the benefits and the costs partners attached to the idea of having a child influence the intention to have a child, as explained in the previous section, but not the fertility outcome directly. In other words, the fertility intention acts as a mediator between perceived value and costs of children and the fertility realization. This is in line with the TPB which states that fertility intentions are the immediate antecedents of fertility decisions (Ajzen and Klobas, 2013). Specifically, having a positive short-term intention is associated with higher chances to have a child and the effect appears slightly stronger among women than among men. Results also show that some background characteristics have a direct effect on the chances to have a child and thus are not mediated by the previous steps of the fertility process. In particular, parity seems to have a positive effect on the likelihood of fertility realization. If a couple already has one child or more this is positively associated with having a child. While the duration of the couple's relationship shows a negative association with the birth of a child.

Table 3.8 Effects on the female and male partner's **fertility intention**. N=863.

	Female Partner		Male Partner	
	Coefficient	SE	Coefficient	SE
Value of Children	1.103***	(0.021)	1.058**	(0.021)
Costs of Children	0.921***	(0.020)	0.970	(0.019)
Partner's Value of Children	1.051*	(0.025)	1.095***	(0.021)
Partner's Costs of Children	0.934***	(0.023)	0.907***	(0.018)
Partners socio-demographics				
Age	0.941	(0.045)	0.947	(0.036)
Partner's Age	0.997	(0.005)	0.996	(0.005)
Education (ref. Below upper secondary education)				
Secondary education	1.077+	(0.047)	1.081+	(0.048)
Tertiary education	1.116*	(0.053)	1.102+	(0.055)
Income	1.050*	(0.023)	1.008	(0.020)
Partner's Income	1.003	(0.020)	1.036+	(0.022)
Employment (ref. Not in paid work)				
Part-time	1.006	(0.048)	-	-
Full-time	1.048	(0.044)	1.111	(0.097)
Part-time (Partner)	-	-	1.019	(0.051)
(Partner)	1.100	(0.086)	0.996	(0.040)
Couple characteristics				
Duration Relationship	0.903***	(0.030)	0.922**	(0.029)
Parity 1	1.090+	(0.057)	1.082	(0.060)
Parity >1	0.796***	(0.041)	0.772***	(0.040)
Married (ref. Cohabiting)	1.201***	(0.053)	1.152**	(0.051)

Source Calculations based on HILDA waves 10-14. *** $p<0.001$, ** $p<0.01$, * $p<0.05$, + $p<0.10$.

Table 3.9 Effects of the individual and couple characteristics on couple's fertility **realization** (odds ratio). N=863.

	Model 1		Model 2		Model 3	
	OR	SE	OR	SE	OR	SE
Value of Children W	1.062***	(0.016)	0.997	(0.014)	0.782	(0.148)
Costs of Children W	0.951***	(0.014)	0.984	(0.013)	0.831	(0.147)
Value of Children M	1.057***	(0.017)	1.002	(0.015)	1.038	(0.203)
Costs of children M	0.941***	(0.016)	0.984	(0.015)	0.964	(0.179)
Female's Intention			1.368***	(0.063)	8.101***	(3.954)
Male's Intention			1.248***	(0.059)	5.557***	(2.656)
Age					0.869	(0.308)
Age M					0.987	(0.030)
Secondary education W					1.091	(0.749)
Tertiary education W					1.260	(0.907)
Secondary education M					0.743	(0.389)
Tertiary education M					0.952	(0.574)
Gender Role (work) W					1.195	(0.213)
Gender Role (work) M					0.961	(0.167)
Gender Role (children) W					0.965	(0.172)
Gender Role (children) M					1.110	(0.180)
Importance Religion W					0.847	(0.176)
Importance Religion M					0.881	(0.182)
Income W					1.154	(0.260)
Income M					0.956	(0.210)
Number of working hours W					1.197	(0.230)
Number of working hours M					1.248	(0.215)
Duration relationship					0.428*	(0.164)
Parity 1					3.213**	(1.323)
Parity >1					3.291*	(1.783)
Married					1.716	(0.681)
Satisfaction with Partner W					1.294	(0.324)
Satisfaction with Partner M					0.896	(0.228)

Source Calculations based on HILDA waves 10-14. *** $p<0.001$, ** $p<0.01$, * $p<0.05$, + $p<0.10$.

Notes M: Men; W: Women.

The (non-) Realization of Positive Fertility Intentions Among Couples

3.13 Introduction

A substantial stream of research has focused on the gap between ideal family size and the actual number of children by focusing on fertility intentions and their realization. Within this line of research, one of the most relevant findings is that positive fertility intentions have fewer chances to be realized compared to negative fertility intentions. This is mainly because having a child implies a change in the contraception "routine, the norm within modern societies. Therefore, if there are two possible behaviors and to achieve one of them, one needs to make a change, this alternative would naturally have a lower chance to be realized. This is the case of positive fertility intentions compared to negative fertility intentions (Speder et al. 2015).

Results from the previous section confirmed these findings by showing that only 63.1% (cf. Table 3.2) of the couples where both partners have positive short-term fertility intentions realize their intentions. Thus, it seems majorly relevant to analyze in-depth the last step of the fertility decision-making process by focusing on the factors that might hinder or facilitate the realization of positive fertility intentions.

3.14 Structure of the study

To increase our understanding of the factors that influence the (non-)realization of fertility intentions, I focus on couples where both partners hold positive fertility intentions. I distinguish between those who want a child within three years – *short-term intentions* - from those who want a child but not within three years – *long-term intentions*. Thus, I exclude from the analysis couples who do not want to have a(nother)

child[21]. Moreover, the decision of becoming a parent implies a significant change in a person's life course with a different decision-making process from that of having another child (Philipov et al., 2006). Hence, the realization of having a first or an additional child will be analyzed separately. In order to examine the link between positive intentions and behavior, we need to take into account the potential change both at the individual and at the couple-level which might accelerate or impede the realization of positive intentions towards childbearing. In the following, I analyze in-depth demographic, socio-economic, and ideational factors, and I present the research questions.

3.15 Individual characteristics and research questions

Previous research on the role of *age* for the realization of fertility intentions focused on two main approaches. On the one hand, the biological limits of childbearing – especially for women – would act as an enabler as one advance in age would be encouraged to have children by the "biological clock" (Mynarska 2007). On the other hand, the clash between time and other life goals – such as career – and the need for a suitable partner would affect negatively the likelihood of realization (Testa and Toulemon 2006; Donnermuth et al. 2015). These two mechanisms may have a different impact depending on parities. Specifically, I would expect the age of the female partner to be negatively associated with the chances to have a second or higher order birth due to increasing in the age at first child leaving less time to catch up with the desired number of children (H1a). Among men – both childless and fathers - the impact of age would have a marginal effect on the chances of realization (H1b).

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[21] Couples where one partner has negative fertility intentions and the other has positive fertility intentions are also excluded from the analysis. However, the number of couples with these characteristics is rather small.

Previous contributions to the link between *education* and fertility behavior showed ambiguous findings. On the one hand, highly educated women are more likely to invest in their careers due to the high human capital accumulated and thus having, in general, fewer children. This is negatively associated with the intention of having a child (Huinink 2000). On the other hand, individuals with a higher educational level have more chances to realize their fertility intentions (Spéder and Kapitany 2009; Toulemon and Testa 2005). This can be explained by the fact that highly educated individuals are generally more informed and knowledgeable (Spéder and Kapitany 2012) and that they are provided by cognitive resources to anticipate more accurately the future (Kuhnt and Trappe 2013). These two mechanisms lead highly educated persons to have more control over the fertility decision-making process. As education is often used as an indicator for economic as well as cultural resources, by taking into account the individual economic situation as well as ideational factors – i.e., benefits and costs of children – what I aim to capture is precisely the educational effect. Given the focus on the realization of positive fertility intentions, I would expect that in general a higher educational level is associated with a higher probability of realizing a positive fertility intention (H2).

Another mechanism that might be at work in the realization of fertility intentions is that couples, where partners are highly educated, are found to be more likely to realize their positive intentions due to an equal division of housework (Mencarini and Tanturri 2004). A relevant stream of research has focused on the level of gender equity within the household as a possible explanation for particularly low levels of fertility rates - as in the case of Southern European countries - where high levels of gender equity in *individual-oriented* institutions – such as labor market and education – are not adequately compensated by the same levels of gender equity in *family-oriented*

institutions (McDonald 2000). However, few studies have looked at the role of gender equity within the household for the realization of positive fertility intentions and the potential differences across parity. In Greece less traditional women are less likely to realize positive intentions compared to more traditional women (Symeonidou 2000), while in the US and Italy the mechanism is reversed (Thomson 1997; Mencarini et al. 2014). At this stage of the fertility decision-making process, the aim is to examine whether an equal division of housework within the household would facilitate the realization of positive fertility intentions as this may represent a potential way for reducing the expected costs of children in terms of childcare and childrearing, especially among women. The more equal is the division – in terms of women's perception - the more likely will be the realization of positive fertility intentions (H3). I would expect this mechanism to be at work both for family formation and family extension but being more evident for the transition to higher-order births.

The effect of labor market status needs to be differentiated between men and women to distinguish the different opportunity-costs structure. Previous contributions showed that employed men are more likely to realize their intentions compared to unemployed men (Spéder and Kapitany 2009), and that inactive women are more likely to realize their fertility intentions in Italy but not in France (Régnier-Loilier and Vignoli 2011). Thus, I would expect that among women being inactive may represent a support for the realization, especially for the second or higher-order births (H4a). Previous research also showed that in the analysis of fertility intentions' realization, the *income effect* is at work for both men and women: those with a higher income are more likely to realize positive intentions even though among women the realization might be hindered by the opportunity-costs of having children (Berrington 2004; Donnermuth et al. 2015). Thus, I would expect that in general, an income above the median will be associated with

higher realization chances (H4b). Given the rather high proportion of female part-time employment in Australia (38%, OECD 2017), this study will also investigate the number of working hours with an opportunity-costs perspective in mind. Working a small number of hours should positively impact the realization of positive intentions, especially for women and for the transition to higher order-births (H4c) .

A stable relationship is seen as a suitable setting for the realization of positive fertility intentions. Given that I already focus only on couples, the *relationship status* becomes important in terms of cohabitation *vs.* marriage. Although in Australia the share of cohabiting couples is still rather low – in Census 2011, 16.2% of all couples were cohabiting – among the younger cohorts the share is much higher – 76% for the 20-24 age group and 47% for the age group 25-29. This type of relationship is not that widespread as for instance in France, where being a married or a cohabiting couple results in no differences in the chances to realize intentions (Toulemon and Testa 2005), and in Norway where marriage is associated with lower chances to realize positive fertility intentions compared to cohabitation (Donnermuth 2015). Thus, I would expect married couples to be more likely to realize positive fertility intentions than cohabiting couples (H5) given the high level of commitment in terms of family plans among married partners (Spéder and Kapitany 2012).

An important set of attitudes toward childbearing - besides demographic and socio-economic characteristics - has been found to be relevant for the formation of fertility intentions – as I examined in the previous section. However, according to the TPB positive and negative attitudes about the idea of having a child – together with other background factors - should not be directly related to the realization of the intentions. However, a previous contribution by Spéder and Kapitany (2014) suggested that background factors may also play a direct role in the realization of intentions. The

authors focused on positive fertility intentions, and their results showed that both structural and ideational factors have an impact on the realization of fertility intentions. Donnermuth (2015) recently followed this line of reasoning by testing the direct effect of positive and negative attitudes towards childbearing on the realization finding no significant results even including in the model only the factors of the TPB[22]. By including in the analysis the potential direct effects of perceived costs and benefits, I will test the idea that besides "structural" enablers or constraints also individual's perception would play a complementary role in the realization of positive fertility intentions. On the one hand, I would expect that the value and costs of children would have a more relevant impact on the transition parenthood than for additional children due to the lack of experience about the expected outcome of having a child among childless couples (H6a). On the other hand, it would be the costs associated with family enlargement to be more relevant especially for the female partner since it is the woman who generally has the primary responsibility for childrearing and thus faces higher costs (H6b).

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[22] Measures for subjective norms, perceived behavioral control, and positive and negative attitudes towards childbearing.

Table 3.10 Descriptive statistics of childless couples and parents.

	Childless		Parents	
	Mean	SD	Mean	SD
Child within 3 years W	0.69	0.46	0.91	0.28
Child within 3 years M	0.69	0.47	0.83	0.37
Value W	0.24	0.92	0.00	0.92
Costs W	0.13	0.98	-0.30	0.89
Value M	0.19	0.93	-0.03	0.92
Costs M	0.63	0.91	-0.31	0.99
Age W	29.09	4.54	32.16	5.16
Age M	31.34	6.39	34.40	6.10
Secondary education W	0.49	0.50	0.48	0.50
Tertiary education W	0.45	0.50	0.36	0.48
Secondary education M	0.54	0.50	0.59	0.49
Tertiary education M	0.34	0.47	0.28	0.45
Income above median W	0.48	0.50	0.24	0.76
Income above median M	0.50	0.50	0.42	0.49
Working hours >38 W	0.44	0.50	0.23	0.42
Working hours >40 M	0.49	0.50	0.46	0.50
Employed W	0.89	0.32	0.72	0.45
Employed M	0.95	0.21	0.95	0.22
Division Housework - Woman quite satisfied	0.17	0.38	0.23	0.42
Division Housework -Woman satisfied	0.69	0.46	0.60	0.49
Married	0.46	0.50	0.75	0.43
Duration Relationship (years)	5.50	3.18	7.91	3.62
Two children or more	-	-	0.55	0.50

Source Calculations based on HILDA waves 10-14. *** p<0.001, ** p<0.01, * p<0.05, + p<0.10.

Notes M: Men; W: Women.

3.16 Results

Using discrete-time event history models, I examined the role of *short-term* fertility intentions – versus *long-term* – for the realization of positive fertility intentions. I also tested whether perceived costs and benefits play a role in the fertility outcome and the role of partners' socio-economic characteristics as well as other couple-level variables. I distinguished between childless couples – in Table 3.11 – and couples who already have at least one child – in Table 3.12. The most interesting way to analyze the (non-) realization of positive fertility intentions would be to focus only on couples where both partners have positive *short-term* fertility intentions. Given that the sample size has been already subject to a considerable reduction by focusing only on couples with positive fertility intentions, it was not feasible to perform the analysis with a further smaller sample size. However, I ran all the models with the sub-sample of couples with short-term intentions and the results do not vary. For the analysis, I included three different models. Model 1 shows only the value and costs of children for both partners. In Model 2, short-term fertility intentions are included and in Model, 3 I add all the independent variables used for the analysis. Looking at Model 1 for childless couples, only the male partner's value and costs have a significant effect on the likelihood of having the first child. However, after including short-term intentions in Model 2 the effect is no longer significant. The impact of having short-term intentions is very strong, especially for the male partner and it is even stronger in Model 3 after including all the independent variables. Moreover, I found no significant association between perceived costs and benefits and the chances of realization. This is in line with the TPB that attitudes associated with childbearing have an impact on the fertility intention but not on the behavior. Besides the role of short-term intentions, if the male partner has a wage above the median this is associated with a much lower risk of realization (0.34). This

result is not in line with my expectations (H3b). Conversely, two results confirmed my expectations. First, marriage still represents a relevant factor for family formation compared to cohabitation (H4). Second, the female partner's perception of fairness of the division of housework has a strong positive association on the transition to parenthood (H6). If the woman is very satisfied with the division of housework this would act as a strong enabler for the realization of positive fertility intentions. Model 3 also shows no significant results for age, education and the fact of being inactive for the female partner. The explanatory power of Model 3 with all the independent variables is 37%. It should be noted that Model 2 – with only short-term intentions and costs and benefits – already explained 29%. Thus, individual and couple-level variables included in Model 3 seem to have a quite weak explanatory power for the realization of positive fertility intentions. Table 3.13 shows the results for parents. The first difference compared to childless couples is that short-term intentions have a small and no significant effect. This can be explained by the fact that the share of parents who has long-term fertility intentions is close to zero and it would also confirm previous analyses for Norway (Donnermuth et al. 2015). Regarding the impact of enablers and constraints, the results show the predominant role of female partner's characteristics for the subsequent realization. The age of the woman is negatively associated with the transition to higher order births confirming my expectations (H1b) while the man's age has no effect. Female partner's income seems to have a positive association with the chances of realization. Specifically, having an income above the median has a highly significant effect. Additional analyses showed that this effect is a combination of being employed and that of having a high income. On the one hand this result is in contrast with the hypothesis that inactive women are more likely to realize fertility intentions (H3a). On the other hand, it confirms the *income effect* hypothesis (H3b).

Table 3.11 Exponentiated coefficients for couples' transition to parenthood.

	Model 1	Model 2	Model 3
Child within 3 years W		8.34**	11.51***
Child within 3 years M		23.69***	30.21***
Value W	0.85	0.70*	0.70
Costs W	1.01	1.16	1.14
Value M	1.48**	1.26	1.35
Costs M	0.69**	0.81	0.87
Age W			0.96
Age M			0.97
Secondary education W			1.46
Tertiary education W			2.33
Secondary education M			0.69
Tertiary education M			1.24
Income above median W			1.19
Income above median M			0.34***
Working hours >38 W			1.08
Working hours >40 M			1.26
Employed W			0.86
Employed M			0.91
Division Housework - Woman quite satisfied			1.64
Division Housework -Woman satisfied			4.15*
Married			2.73**
Duration Relationship (years)			0.91
Observations		528	
N couples (birth)		269 (62)	
R2	0.13	0.29	0.37

Source Calculations based on HILDA waves 10-14. *** $p<0.001$, ** $p<0.01$, * $p<0.05$, + $p<0.10$.

Notes M: Men; W: Women.

The impact of education is positive and significant only for tertiary educated male partners. This would also partially confirm the hypothesis (H2) according to which highly educated people have more chances to realize their fertility intentions due to

their high capability of anticipate more accurately the future (Spéder and Kapitany 2009; Toulemon and Testa 2005). As among childless couples, the chances to realize fertility intentions are higher if the female partner perceives an equal distribution of the housework within the couple (H6). The predictive power of the models in Table 3.12 is not as strong as the one for childless couples (27% for Model 3). One possible explanation for this is that parents not only have to deal with the division of housework duties but also with the division of childcare tasks. I performed an additional analysis (Model 3b) to include this variable and results show that in case of an equal division of childcare between partners the likelihood of having another child increases significantly – especially if the woman is quite satisfied with how duties are divided. If I include in the analysis the division of childcare tasks, the predictive power of the model raises to 34% resembling that of childless couples. However, the inclusion of the variable on childcare duties comes with a high number of missing values. Thus, I decided to keep the analysis for childless couples and parents as similar as possible and to not include the information on the division of childcare tasks.

Table 3.12 Exponentiated coefficients for couples' transition to higher order births.

	Model 1	Model 2	Model 3a	Model 3b
Child within 3 years W		1.31	1.38	0.472
Child within 3 years M		1.70	3.33	6.460
Value W	1.25	1.25	1.20	0.968
Costs W	0.88	0.88	0.75	0.819
Value M	1.03	0.99	0.78	0.851
Costs M	1.02	1.05	1.25	1.227
Age W			0.75***	0.695***
Age M			1.01	1.028
Secondary education W			0.49	0.258
Tertiary education W			0.94	1.480
Secondary education M			2.66	1.990
Tertiary education M			5.36**	3.303
Wage above median W			4.32***	1.668
Wage above median M			0.86	1.412
Working hours >38 W			1.66	5.454**
Working hours >40 M			1.40	0.785
Employed W			1.61	2.050
Employed M			0.91	0.596
Division Housework - Woman quite satisfied			1.51	0.503
Division Housework -Woman satisfied			3.63**	2.918
Division Childcare - Woman quite satisfied				8.371*
Division Childcare -Woman satisfied				2.102
Married			1.15	3.225
Duration Relationship (years)			0.99	0.866
Two or more children			5.89***	0.000
Observations	301	301	301	270
N couples (birth)	164 (94)	164 (94)	164 (94)	133 (64)
R2	0.04	0.04	0.27	0.34

Source Calculations based on HILDA waves 10-14. *** p<0.001, ** p<0.01, * p<0.05, + p<0.10.

Notes M: Men; W: Women.

3.17 Conclusion and Discussion

Previous research on fertility decisions has privileged single theoretical perspectives, focused often on specific aspects (such as fertility intentions) and often limited focus to the study of individuals. This chapter focused on the whole fertility decision-making process from the formation of fertility intentions to their (non-) realization, employing a couple-level perspective. Specifically, it presented an integrated model incorporating in a fertility model insights from various theoretical frameworks – i.e., TPB, TDIB, ETF and VOC (cf. Table 3.1). The use of a structural equation model (with measurement part) allowed to examine simultaneously three different steps: 1) *perceived costs and benefits of children*; 2) *fertility intentions*; 3) *the (non-) realization of intentions*. The **first step** dealt with the individual characteristics associated with perceived costs and benefits of children. Results confirm, that differently from a simplistic economic view, costs as well as benefits in fact are different factors and not poles on the same continuum. As expected, both are strongly stratified by socio-economic and demographic factors, as well are related to cultural values. We also find confirmation of a *two-child norm*: benefits rise until the second child but then decline. In line with mainstream theory, high educated individuals attach lower values to children compared to low educated individuals, supporting the idea that individuals who invested in education are attach values to other, alternative life goals (Speder and Kapitany 2009; Donnermuth et al. 2015). Interestingly, though, the costs for children are not perceived to be higher for high educated women, but only tertiary educated male partners showed a lower risk of perceiving higher costs.

On the cultural side, traditional family-related attitudes are positively associated with the value of children. Specifically, the importance of religion and traditional gender role

attitudes have a positive impact on valuing positively the decision of having a(nother) child- with equity in the house being relevant only for women.

Values and costs of children are strongly related to the formation of fertility intentions – the second step. In fact, if a partner evaluates positively the idea of having a child this would translate into a higher chance to report short-term positive intentions. Accordingly, the chances to have positive intentions are lower if a person's expected costs of children are high but this is valid only among women. This is in line with the ETF (Becker 1981) according to which women are those who face higher opportunity-costs due to pregnancy and childrearing responsibilities. This result would also confirm previous findings on the effect of value of children on the formation of fertility intentions in Germany (Stein et al. 2014). An additional relevant finding is that the female partner influences her partner's fertility intention. On the one hand, if the woman values positively the benefits gained from the birth of a child this has a positive impact on the intention of the male partner even higher than the effect of male partner's value of children. On the other hand, if the perceived costs for the female partner are high this would be reflected into her partner's intention by lowering the chances to report positive fertility intentions. The impact of this result can be seen as a sort of *veto power* exercised by the woman in case she perceives the idea of having a child as highly costly. Moreover, this result supports the argument of a mutual influence of the partners with the woman resulting in having more power to impose her value and in particular her costs of children to the partner. A relevant impact on having positive fertility intentions is played by marriage. Married partners are more likely to show positive fertility intentions compared to cohabiting couples. This result is in line with the argument that marriage implies a higher level of commitment about family plans (Jansen and Liefbroer 2006).

The **last step** of the fertility decision-making process has been analyzed in two distinct ways. First, the model examined not only the effect of fertility intentions on the chances to have a child but also whether the value and costs of children and background characteristics played a role. Results revealed that partners' expected benefits and perceived costs attached to the idea of having a child are fully mediated by fertility intentions. In particular, it is the woman's intention that showed a stronger effect compared to the man. Moreover, the model also included connections between background characteristics (both at the individual and couple-level) and the fertility outcome. Results showed that only parity and the duration of the relationship have a direct effect on the chances to realize fertility intentions. Second, results from the previous section showed that only 63.1% (cf. Table 3.2) of the couples where both partners have positive short-term fertility intentions actually managed to realize their intentions. Therefore, it seems majorly relevant to analyze in depth the last step of the fertility decision-making process by focusing on the factors that might hinder or facilitate the realization of positive fertility intentions. Specifically, the focus dealt with couples who intend to have a first child and an additional child separately to shed some light on the factors which might hinder or facilitate the (non-) realization. This part has been developed first, to examine individual and couple-level characteristics and second, to investigate whether certain types of couple display higher risk of realizing positive fertility intentions. Among childless couples, having a short-term fertility intention is the strongest predictor for the subsequent realization. Moreover, being married and a fair division of housework duties have a positive impact on the realization of positive first child intentions. Among parents who intend to have another child, the age of the woman represents a negative factor. This is line with the "biological clock" hypothesis according to which age is negatively associated with the realization (Berrington 2004).

If we compare results from the fertility model I implemented with previous contributions using the TPB approach, two major similarities can be identified. First, results confirm that intentions are indeed the proximate determinants of the fertility behavior (Speder and Kapitany 2009). This argument is supported by the fact that having positive short-term intentions results in having a much higher risk of realization compared to those with a positive long-term intention. However, this is true only for childless couples and not for those who were already parents. This is in line with a previous contribution on the realization of fertility intentions in Norway (Donnermuth et al. 2015) and it might be explained by their prior experience as parents: couples with a child have more reliable and concrete fertility intentions due to a lower risk of intervening factors which might hinder the fertility behavior. This supports the idea that a shorter time frame has a more predictive power for the subsequent behavior as stated by the TPB (Ajzen 2010). Second, perceived costs and benefits of children are associated with the formation of fertility intentions. Specifically, having high levels of expected benefits towards childbearing increases the chances to report positive short-term intentions, while high levels of perceived costs hinders the risk of intending to have a(nother) child in the near future. However, results showed that value and costs of children do not have an impact on the risk of realization once short-term fertility intentions are controlled for. Although this result is in line with previous empirical contributions analyzing positive and negative attitudes towards childbearing using TPB (Philipov et al. 2015; Donnermuth 2011; Friedman et al. 1994), this finding can be explained by the fact that the focus here is on a very selective group of couples – i.e. with positive fertility intentions only - and this might also represents a selection with regards to the perceived benefits and costs men and women attached to having children.

The chapter contributes to the understanding of the fertility decision-making process in several distinct ways. First, the strategy of combining different theoretical approaches into a unique fertility model allowed to use an holistic perspective by taking advantage of the strengths of each theoretical perspectives from the analysis of perceived benefits and costs towards having a child to the realization of fertility intentions. Second, the analyses presented here stressed the importance of considering both partners for the study of fertility decisions. This in the light of the influence partners have on their mutual fertility intentions as well as the importance of a gender equality within the couple in terms of division of housework among both childless couples and parents. The result supports the argument of a mutual influence of the partners with the woman resulting in having more power to impose her value and especially her costs of children to the partner (Bauer and Kneip 2014; Testa et al. 2014). Third, the study confirms that fertility intentions are indeed the proximate determinants of the fertility behavior as stated by the TPB especially for the transition to parenthood. However, the non-perfect correspondence between positive short-term intentions and the subsequent behavior provided the opportunity to examine which factors might hinder or facilitate the realization of positive fertility intentions and it represents one of the most promising and interesting line of research for future studies. Following this line, a limitation with this study comes exactly with the sample size when I focused only couples with positive fertility intentions in the second part of this chapter. While on the one hand the selection on couples is consciously made and it allowed to distinguish between childless couples and parents, on the other hand this led to a limited sample size which might represent an issue for the corroboration of my hypotheses. Although currently there are few longitudinal datasets available with consistent information about fertility intentions of both partners, it seems majorly relevant to either increase the sample size or create *ad*

hoc dataset to allow researchers to focus on the factors behind the (non-) realization of positive fertility intentions. Future studies will be able to make use of longer longitudinal studies to better understand whether positive fertility intentions not realized in the short-term might be realized in the long run and which factors are responsible for the postponement or revision of fertility intentions.

Although this chapter represents one of the few attempts to study the entire fertility decision-making process from the background factors to the fertility outcome (Mencarini et al. 2014, Stein et al. 2014), future studies should analyze the process by differentiating family formation from family extension. This because the mechanisms behind becoming a parent implies a significant change in a person's life course with a different decision-making process from that of having another child as the results highlighted (Philipov et al., 2006). Moreover, the non-perfect correspondence between positive short-term intentions and the subsequent behavior represents one of the most promising and relevant line of research as longer longitudinal dataset with larger sample size become available to better understand whether positive fertility intentions not realized in the short-term might be realized in the long run and which factors are responsible for the postponement or revision of fertility intentions.

Appendix

Table 3.15 Individual effects on the **value** and **costs of children** for female and male partners without couples with childless intentions (odds ratio). N=506.

	Female Partner				Male Partner			
	Value of Children		Costs of Children		Value of Children		Costs of Children	
	OR	SE	OR	SE	OR	SE	OR	SE
Age	0.816**	(0.063)	0.891	(0.0689)	1.002	(0.008)	0.978**	(0.00802)
Secondary education	0.875	(0.131)	1.161	(0.203)	0.606**	(0.094)	0.885	(0.140)
Tertiary education	0.750+	(0.120)	1.142	(0.219)	0.549***	(0.092)	0.641*	(0.114)
Gender Role (work)	1.051	(0.051)	1.023	(0.0518)	1.118*	(0.049)	1.013	(0.0497)
Importance Religion	1.114*	(0.051)	0.966	(0.0476)	1.114*	(0.051)	0.980	(0.0464)
Income	1.081	(0.0567)	1.045	(0.0713)	0.973	(0.0449)	0.955	(0.0508)
Duration Relationship	0.937	(0.0926)	1.051	(0.119)	0.797*	(0.0810)	0.968	(0.109)
Parity 1	1.116	(0.132)	0.845	(0.100)	0.978	(0.110)	0.817+	(0.0945)
Parity >1	0.785+	(0.103)	0.695**	(0.0946)	0.836	(0.101)	0.715**	(0.0867)
Satisfaction with Partner	1.015	(0.0495)	0.962	(0.0590)	1.114*	(0.0505)	0.973	(0.0609)
Employed Part-time	1.161	(0.160)	1.018	(0.137)	-	-	-	-
Employed Full-time	0.961	(0.0946)	1.011	(0.102)	1.053	(0.238)	1.238	(0.221)
Married	1.029	(0.112)	0.946	(0.112)	0.879	(0.100)	0.937	(0.111)
Gender Role (children)	1.037	(0.0460)	0.958	(0.0438)	0.968	(0.0436)	1.028	(0.0488)

Source Calculations based on HILDA waves 10-14. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, + $p < 0.10$.

Table 3.16 Effects on the female and male partner's **fertility intention** without couples with childless intentions (odds ratio). N=506.

	Female Partner		Male Partner	
	Coefficient	SE	Coefficient	SE
Value of Children	1.116***	(0.0267)	1.062*	(0.0292)
Costs of Children	0.897***	(0.0230)	0.963	(0.0271)
Partner's Value of Children	1.027	(0.0269)	1.086**	(0.0308)
Partner's Costs of Children	0.973	(0.0250)	0.918**	(0.0264)
Partners socio-demographics				
Age	1.068	(0.0521)	1.044	(0.056)
Partner's Age	0.997	(0.005)	0.996	(0.006)
Education (ref. Below upper secondary education)				
Secondary education	1.158	(0.104)	1.066	(0.0814)
Tertiary education	1.125	(0.107)	1.033	(0.0896)
Income	1.059*	(0.0290)	1.033	(0.0307)
Partner's Income	1.042	(0.123)	1.046	(0.0352)
Employment (ref. Not in paid work)				
Part-time	0.890+	(0.0621)	-	-
Full-time	1.042	(0.123)	1.076	(0.146)
Part-time (Partner)	-	-	1.021	(0.0829)
(Partner)	1.042	(0.123)	1.022	(0.0538)
Couple characteristics				
Duration Relationship	0.913	(0.0533)	0.961	(0.0622)
Parity 1	1.122*	(0.0607)	1.119*	(0.0602)
Parity >1	1.004	(0.0657)	0.901	(0.0682)
Married (ref. Cohabiting)	1.251***	(0.0721)	1.169**	(0.0688)

Source Calculations based on HILDA waves 10-14. *** p<0.001, ** p<0.01, * p<0.05, + p<0.10.

Table 3.17 Effects of the individual and couple characteristics on couple's fertility **realization** without couples with childless intentions (odds ratio). N=506.

	Coefficient	SE
Value of Children W	0.752	(0.154)
Costs of Children W	0.927	(0.171)
Value of Children M	1.378	(0.278)
Costs of children M	0.597*	(0.122)
Female's Intention	8.218***	(3.979)
Male's Intention	2.513+	(1.204)
Age W	0.741	(0.262)
Age M	0.968	(0.0363)
Secondary education W	0.823	(0.602)
Tertiary education W	1.064	(0.861)
Secondary education M	1.337	(0.680)
Tertiary education M	1.507	(0.885)
Gender Role (work) W	1.015	(0.171)
Gender Role (work) M	0.958	(0.183)
Gender Role (children) W	1.006	(0.173)
Gender Role (children) M	1.070	(0.180)
Importance Religion W	0.767	(0.156)
Importance Religion M	0.871	(0.166)
Income W	1.260	(0.255)
Income M	0.976	(0.201)
Employed Part-time W	1.499	(0.855)
Employed Full-time W	0.783	(0.273)
Employed Full-time M	0.883	(0.654)
Duration relationship	0.726	(0.304)
Parity 1	3.183**	-1.180
Parity >1	1.103	(0.491)
Married	2.432*	-1.078
Satisfaction with Partner W	0.905	(0.239)
Satisfaction with Partner M	0.871	(0.166)

Source Calculations based on HILDA waves 10-14. *** p<0.001, ** p<0.01, * p<0.05, + p<0.10.

Chapter 4 The Realization of the Intention to Have a First Child Among Exogamous and Endogamous Couples in Australia[23]

Abstract

Although an expanding literature has focused on union formation between migrants and natives, little research has so far examined how fertility dynamics may differ between couples in an endogamous and ethnic exogamous union. The aim of this chapter is to analyze both married and cohabiting couples of diverse ethnic origins in Australia and their decision of entering into parenthood by considering the role of their fertility intentions and other characteristics in terms of dissimilarities between partners. For this study unique data come from the Household, Income and Labour Dynamics in Australia survey (HILDA) that is one of the few datasets with longitudinal couple-level information. Our results support the *exogamy hypothesis*: first-generation exogamous couples where the male partner is the migrant have a lower likelihood of having a first child after controlling for couple's socio-economic characteristics. We also find support for the *adaptation hypothesis*: second-generation exogamous unions become similar to Australian native unions. Finally, results show that exogamy decreases the transition to the first-child if the immigrant partner comes from a non-English speaking country and when partners pertain to different religious groups.

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[23] This chapter is the product of the collaboration with Prof. Helga de Valk during my research stay at the Netherlands Interdisciplinary Demographic Institute (NIDI).

4.1 Introduction

Union formation among migrants for long has been subject of study. Specifically, intermarriage between migrants and natives have been extensively studied since this type of unions could potentially be indicative for integration of migrants in society or the persistence of cultural differences between the immigrant and native population (Kalmijn 1998). Thus, the formation and the duration of mixed unions can be seen as the result of a successful integration (Kulu and Gonzàlez-Ferrer 2014; Adserà and Ferrer 2014). Many studies have focused on the formation (Kalmijn and Van Tubergen 2006; Gonzàlez-Ferrer 2006) and dissolution (Jones and Luijkx 1996, in Australia; Zhang and Van Hook 2009, in the US; Kalmijn et al. 2005, in the Netherlands) of exogamous couples by examining how preferences, marriage markets and third parties shape partner choices.

However, little research has so far examined how fertility decisions may differ between couples in an endogamous and exogamous union (Fu 2008; Van Landschoot et al. 2017). Previous studies on fertility dynamics among immigrants have mainly focused on the interrelation between migration and fertility from an individual perspective and more specifically from the perspective of women (Andersson 2004; Mussin and Van Raalte 2013; Adserà and Ferrer 2016). Interestingly, the role of the partner has only rarely been examined by looking at the role of partner's country of origin and other socio-demographic characteristics (Milewski 2009). This study adds to the literature by using a couple-level perspective to study fertility dynamics among exogamous and endogamous couples in Australia. The aim of this study is to analyze couples of diverse ethnic origins and their decision of having a first child. The focus is on the first child because entry into parenthood is considered a closely linked event to union formation both in terms of timing and life-course plans (Barber et al. 2002; Baizàn et al. 2003;

Mills and Blossfeld 2005). Specifically, this study first focuses on couples' differences in fertility intentions and second on the process that might hinder or facilitate the realization of fertility intentions among endogamous and exogamous unions. The relevance of focusing on ethnic diversity of the couple is twofold. First, mixed unions may differ from endogamous couples in the sense that the partners may have very different fertility intentions given their different ethnic backgrounds. Second, the ways in which intentions translate into actual fertility may be different in couples that have a different origin. In this study, we stress the importance of using a pure couple's perspective in terms of dissimilarities between the partners because of the relevance of both spouses for fertility intentions and realization. To analyze the relationship between fertility intentions and their realization among endogamous and exogamous couples, both longitudinal and couple-level data are needed for couples of different origins. For this study unique data come from the Household, Income and Labour Dynamics in Australia (HILDA) Survey that it is one of the few datasets with this type of information. The analysis explores age, educational level, occupational status, and religion in terms of dissimilarities between the partners as possible explanations for the realization of first birth intentions.

We employ event history methods for analyzing the transition to a first child among native endogamous and first- as well as second-generation immigrants exogamous couples. Results show that exogamous couples face the same difficulties in the transition to a first birth highlighted by research on marital instability. However, differences have emerged depending on whether the migrant is the female or the male partner. While exogamous couples where the male is the migrant display a lower risk of having a first birth compared to native couples, exogamous couples where the female partner is the migrant are more likely to becoming parents compared to native couples.

Moreover, agreement within the couple about the intentions of becoming parents plays a crucial role for the subsequent fertility realization as well as being married and if the female partner is not in the labor force.

4.2 Theoretical Background

This section introduces two different streams of literature our study combines. On the one hand, the fertility behavior of immigrants and the role of fertility intentions and their realization, on the other hand the literature on partner's choice and the effect of homogamy for exogamous and endogamous couples.

4.2.1 Immigrant Fertility

The relationship between migration and fertility has mainly examined the differentials in fertility levels between native and immigrant populations (Goldscheider and Uhlenberg 1969; Goldstein and Goldstein 1984; Hervitz 1985; Abbasi-Shavazi and McDonald 2000; Andersson 2004; Sobotka 2008; Milewski 2009; Mussino and Strozza 2012; Kulu and Gonzáles-Ferrer 2014; Adserá and Ferrer 2015; Puur et al. 2017). The main contribution of these studies has been to evaluate whether migrant fertility is mainly influenced by the social norms and the context of the country of origin or it is the environment of the receiving country that matters most for shaping migrants fertility decisions (Kahn 1988; Schoorl 1990; Blau 1992; Alders 2000; Toulemon 2004; Kulu 2005; Milewski 2007; Milewski 2011; Dubuc 2012; Gonzàlez-Ferrer and Castro-Martin 2015; Pailhé 2015; Ferrer 2016). So far, most studies have examined fertility from an individual perspective and more specifically from the perspective of women. Only rarely, the role of the male partner has been taken into account in the fertility decision-making process (Gonzàlez-Ferrer 2006; Milewski 2009; Van Landschoot et al. 2017). Very few studies have investigated how exogamous and endogamous couples differ in terms of fertility decisions (Kulu and Gonzàlez-Ferrer 2014). This is mainly

due to the lack of both suitable data and an adequate theoretical framework (Balbo et al. 2013). One of the few contribution is the one by Fu (2008). The author compares the fertility differences between endogamous and exogamous unions in the United States finding that intermarriage is a sign boundaries weakening between different ethnic groups. One of the main argument of the study is that inter-ethnic unions violate the prevailing norms of endogamy receiving less family and peers support due to the opposition to marry exogamously. Exogamous couples have fewer resources and this might result in lower fertility compared to endogamous unions. Conversely, if for partners in a exogamous unions children represent a form of social capital favoring social integration, this type of union will show higher fertility compared to endogamous unions. More recently, Van Landschoot et al. (2017) consider the role of the male partner for the transition to second and higher order births among the descendants of immigrants in Belgium. Using Belgian Census-Register data, the authors focus on women of Turkish and Moroccan origin finding that those in an endogamous unions show higher second and higher births rates compared to those where the partner is Belgian. However, no relevant differences have been found by the generation of the male partner. On the one hand this can be interpreted by the fact that those with a partner of the same origin tend to reinforce fertility norms related to their ethnic group. On the other hand, a relevant role might be played by the opposition of the family and peers for women to form and exogamous union as argued by Fu (2008).

4.2.2 Theoretical perspectives on intermarriage

Mixed unions are considered as the result of close social interactions between members of different groups and an indicator of the integration between two different ethnic groups (Coleman 1994; Kalmijn 1998). This means that members of different ethnic groups no longer perceive their social and cultural differences as a barrier for long-term

unions (Alba and Nee 2003). The literature on partner choice has highlighted how people generally look for partners with a similar educational and class background, religion, and ethnicity (Kalmijn 1998). Homogamous characteristics may reflect similarities in values, tastes, and preferences (Kulu and Gonzáles-Ferrer 2014) resulting in fewer conflicts within the couple and enhancing individual gains (Becker 1981). Studies on marital instability and divorce have indeed shown that differences between partners may result in a higher risk of union dissolution and partnership instability (Dribe and Lundh 2012; Milewski and Kulu 2014; Andersson et al. 2015).

The *exogamy hypothesis* states that exogamous unions between natives and immigrants have a higher risk of dissolution compared to both native and immigrant endogamous couples. This might be attributed to the fact that natives and immigrants are different in terms of socio-economic characteristics and ethnic origins. Differently from the homogamy theory, different characteristics may lead to dissimilarities in preferences, values and social norms. This, in turn, might be a source of conflict by favoring misunderstandings within the couple (Kalmijn et al. 2005; Zhang and van Hook 2009; Kulu and Gonzáles-Ferrer 2014; Milewski and Kulu 2014). While the *exogamy hypothesis* highlights how the differences in the characteristics between partners may lead to higher union dissolution levels, an increase in the cultural dissimilarity between partners may even intensify the risk of conflict and thus the risk of divorce (Kulu and Gonzáles-Ferrer 2014). The *cultural dissimilarity* hypothesis is a complementary perspective of the exogamy hypothesis and it assumes that the risk of divorce is higher when there is a large cultural distance between the partners. A large cultural dissimilarity within the couple leads to a limited number of joint activities and the result might lead to difficulties in understanding each other which represent a crucial factor for the maintenance of the union. Cultural distance mainly refers to factors such as

religion, language, and values (Dribe and Lundh 2012). Thus, exogamous couples can be expected to show a lower risk in the transition a first birth compared to native couples (Hypothesis 1a). Moreover, we expect exogamous couples where the migrant partner comes from an English speaking country to be more similar to native couples due to a smaller cultural distance compared to migrants coming from a non-English speaking country (Hypothesis 1b).

The *adaptation hypothesis* posits that immediately after migration the social norms and expectations of immigrants begin to converge towards the native population levels by length of stay and generations (Goldstein and Goldstein 1981). Due to the exposure to the socio-economic, institutional, and cultural context prevailing in the host country, union formation and dissolution as well as individual fertility behavior may resemble those of natives (Kulu and Gonzáles-Ferrer 2014). Thus, we expect that second-generation exogamous couples would display a risk of becoming first time parents more similar to native couples then to first-generation exogamous couples (Hypothesis 1c).

To examine the reason behind low fertility, research on the determinants of fertility behavior has focused on the *fertility gap* existing between desired family size and the actual number of children (Philipov 2009). This stream of literature have considered the decision of having a child as both the result of an interaction process between the partners and a source of conflict in case of disagreement between the partners resulting in non-realization of fertility intentions (Ajzen 1991; Miller and Pasta 1994). We look at couples' fertility intentions as an additional source of dissimilarity. We assume that between exogamous partners there would be more disagreement due to their different ethnic backgrounds than between endogamous partners. Therefore, we expect that controlling for couples' fertility intentions would reduce the differences in the risk of having a first child between exogamous and native couples (Hypothesis 2).

Exogamous couples represent a selected group that may display a higher risk of divorce due to the different characteristics of the partners that make their union less stable. The difference may be attributed to individual socio-economic and demographic factors as well as the dissimilarity between partners that might hinder the transition to parenthood - e.g., female partner with a higher occupational status, large age difference, educational heterogamy (Milewski and Kulu 2014; Kulu et al. 2015). According to the *compositional effect hypothesis*, we expect that after controlling for these characteristics the potential differences between endogamous and exogamous couples would disappear if those differences were due to a different composition of the exogamous couples (Hypothesis 3).

4.3 Data and Method

For this study we used data from The Household, Income and Labour Dynamics in Australia (HILDA) Survey. HILDA is a longitudinal panel study that covers social and economic topic with a focus on family and household formation, income and work started in 2001. The distinctive trait of the survey is that it provides the same amount of information for all the members in the household aged 15 or above. Thus, we can have access to the same information for both partners. The focus of our study is on heterosexual and fertile couples married or cohabiting where the female partner is childless when first observed and born between 1970 and 1982. Although results do not vary if we use a broader cohort interval, we analyze women when they are more likely to have a first child namely aged 23 to 35 when first observed in order to have more stable estimates. After applying this selection criteria, information on the partners were merged together with the respondents using a Stata program provided by the Hilda Survey Team. We use HILDA data from wave 5, where people are asked about their fertility intentions for the first time, to wave 14. In total we have information on 238

couples where the female partner is at risk of a first birth in Australia. The focus of our analysis is the transition to a first birth rather than conception because HILDA survey does not include information on the exact date of birth of the children.

4.4 Variables

For our analysis we distinguished between the following types of couples as our main independent variable:

i) native endogamous couples;

ii) first-generation exogamous couples where the migrant is the female partner;

iii) first-generation exogamous couples where the migrant is the male partner;

iv) second-generation exogamous couples.

The couples' typology was constructed using the information on the respondents' and her/his parents' country of birth. Immigrants not born in Australia and with at least one parent born in the same country of origin are considered first immigrant generation; while the group of second-generation immigrants includes those born in Australia with one or both immigrant parents. Natives are born in Australia with both parents born in Australia. The couple's typologies were constructed by combining natives with first- and second-generation immigrants. In our sample, 50% of the couples are natives, 17% are first-generation exogamous couples, and the remaining 33% are second-generations exogamous couples. We exclude from the sample exogamous and endogamous immigrant unions.

To test our hypotheses, it is crucial to use couple-level characteristics for the covariates we include in the analysis. Each variable is constructed in terms of dissimilarities between the partners. All the variables are considered to be time-varying - exception made for the age difference and the country of origin - and one year lagged - with the

exception of age difference, information on the duration of stay, country of origin, and fertility intentions. This is because respondent's fertility intentions are already conceived as a future-related question.

- Fertility intentions are measured using the item "*In which year do you intend to have a child?*". We assume a positive intention if the time specified is within a three year time period; a postponement intention if the time period is higher than three years; and a negative intention if the respondent does not want to have a child. Combining fertility intentions for each partner we end up with five couple's fertility intentions categories: a) *positive intentions*, both partners have positive fertility intentions; b) *negative intentions*, both partners have positive fertility intentions; c) *postponers*: both partners agreed in postponing the birth of a child; d) *female positive*, only the female partner holds positive intentions; and e) *male positive*, only the male partner holds positive intentions. Since information on fertility intentions are asked in wave 5, 8, 11, and 14, we extend the answer provided to the following two observation-years.

- Education is measured as the highest educational level achieved by the respondents. We use all the seven categories available in the data from *elementary education and below* to *post-graduated* in order to capture every little change towards educational homogamy which represents our reference category. We then construct a category for cases in which the female partner has more education than the male partner, and a category for cases where the male partner has more education than the female partner.

- The occupation of the partners is measured using a simplified 1-digit version of the International Standard Classification of Occupation (ISCO-88). We also include couples where the female partner is not in the labor force as an

additional category since this type of couple generally displays a faster transition to a first child. We considered also unemployed persons and for the construction of the couple-level variable these are at the bottom of the ISCO scale. From the combination of both partners' occupational status we ended up with four categories: a) occupational status homogamy; b) female partner has a higher occupational status; c) male partner has a higher occupational status; and d) female partner is not in the labor force.

- We include a dummy variable for the marital status of the couple: registered marriage *versus* cohabitation and information on the duration of the relationship.

- Since the time spent in a country could represent a key factor for the integration and adaptation process in the host country, we include the length of stay for both natives and immigrant partners. For an immigrant, the length of stay in Australia is equal to the actual number of years after the arrival, while for natives and the descendants of immigrants this corresponds to the number of years they have been exposed to the host country's context, namely their age.

- The ethnic background represents a proxy for the cultural distance between the partners and it takes into account whether the migrant partner comes from an English-speaking country or not.

- Following a couple's perspective religious homogamy is measured as religious agreement between the partners. For example, religious homogamy couples are either those where both partners do not identify with any religious denomination or those belonging to the same religious affiliation.

4.5 Description of the Sample

In our sample we consider the role played by dissimilarities in the characteristics between the two partners. We generally expect that among exogamous couples the level of heterogamy will be higher compared to native couples. Table 4.1 shows that the majority of the couples have positive fertility intentions towards having a first child. The most relevant differences can be observed among first-generation exogamous couples: couples where the female is the partner, women have more positive intentions towards having a first child compared to their male native partner. Conversely, first-generation exogamous couples where the male is the migrant show a higher level of agreement and the share of couples where one partner has higher fertility intentions than the other one is very low (4%). In our sample, the female partner is generally younger than her counterpart. Interestingly, the difference in the educational level between exogamous couples' partners is characterized by a greater amount of educational homogamy compared to native couples. Moreover, the share of couples where the male partner has a higher educational level is importantly lower for exogamous couples. Overall, the share of women not in the labor force is quite low (<5%) exception made for the first-generation exogamous unions where the female partner is the migrant (13.7%). Marriage is more widespread among exogamous (around 70%) than native couples (61.9%). Among each type of couple religious homogamy between partners is less frequent than belonging to different religious denomination. This proportion is particularly pronounced among first-generation exogamous couples where the female partner is the migrant (33% of religious heterogamy). First-generation exogamous couples where the female partner is the migrant mainly come from non-English speaking countries (74%) while exogamous couples where the male partner is the migrant predominantly come from English

speaking countries such as UK and New Zealand (84%).

[Table 4.1 about here]

We used discrete-time event history models to analyze the hazard of having a first birth in Australia. The processed time is the age of the woman measured in years. To test our hypotheses, the models are built up following four steps: a) In Model 1 we look at the bivariate association between the types of couple and the transition to a first birth; b) In Model 2 we include couples' fertility intentions to test their effect on the potential differences observed in the first model; c) In Model 3 we include socio-demographic characteristics and information on the relationship and the immigrant background to test the compositional effect hypothesis; d) and in Model 4 we examine the effect of religious homogamy and the cultural distance between the partner by including the area of origin.

4.6 Results

Table 4.2 shows the estimates of the discrete-time hazard models for the transition to a first birth among native and exogamous couples. Model 1 displays the bi-variate association between the types of couples and the likelihood for the transition to parenthood. Although no significant differences can be identified between native couples and other types of exogamous couples, our models show that first generation exogamous couples where the male partner is the migrant tend to have a lower risk of entering into parenthood compared to native couples, while first-generation exogamous couples where the female partner is the migrant and second-generation exogamous couples show the same risk than native couples.

In the second step (Model 2) we include couple's fertility intentions. If both partners hold positive intentions towards having a first child this results in a significantly higher risk of realization compared to couples where only the female partner shows positive intentions. By including in the model couples' fertility intentions we do not observe relevant variations in the transition to a first birth by type of couple.

[Table 4.2 about here]

In the third Model we include socio-economic characteristics in terms of dissimilarities between the partners, information on migrant background and an individual control for the age of the woman. After controlling for these variables, the differences between native and exogamous couples becomes larger. Specifically, first-generation exogamous couples where the male is the migrant have a significantly lower risk of entering parenthood compared to native couples (odds ratio of 0.28). Although in Model 3 we do not observe any significant differences between first-generation exogamous couples where the female partner is the migrant and native couples, after including religious homogamy and migrant partner's area of origin (Model 4) we find first-generation exogamous couples where the female partner is the migrant to have a much higher risk of having a first birth compared to native couples albeit the estimate is not significant.

The effects of control variables are in line with the findings of previous studies on the transition to a first child. Married couples and couples where the female partner is out of the labor force show a higher risk of having a first birth compared respectively to cohabiting couples and to couples characterized by occupational status homogamy. Couples where the migrant partner has a non-English speaking background – e.g., either

born or whose parents come from that country – display a lower transition to a first birth compared to native couples. No differences can be observed between native couples and couples with an English-speaking background. Religious homogamy appears to have a positive effect on the transition to parenthood.

Our results for native man/ immigrant woman unions are robust since our findings can be interpreted as an underestimation of the true effect for the transition to a first birth. This is due to the relatively high dissolution rate among native man/ immigrant woman unions we detected in our data – about 12.5% - and we are looking at those couples who did not experience a union dissolution. Therefore, if we included in the analysis these couples the risk of entering into parenthood would have been even lower. The same reasoning cannot be applied to native and native woman/ immigrant man unions where the share of dissolution in our data is rather low – respectively 5% and 0%. Moreover, the relatively small sample size did not allow to include interactions in the models to examine if specific variables have different effect depending on the type of couple. We also controlled if different types of second-generation exogamous couples behave differently depending on whether both parents are born in the country. We decided to keep only one category since results do not show relevant differences.

4.7 Discussion

This study examined the realization of first child intentions among native and exogamous couples in Australia. We used unique data from HILDA, one of the few dataset available which provides the same amount of information for the respondent as well as for the partner. To study the likelihood of entering into parenthood, we used a couple-level approach by taking into account dissimilarities in the characteristics between the partners as a factor that might hinder or facilitate the transition to a first birth. The aim of this study was to contribute to the existing literature by extending the

hypotheses usually applied to the study of intermarriage dissolution and divorce also to the fertility decisions among exogamous and endogamous couples.

We expected exogamous couples to be less likely to have a first child compared to native couples due to the different socio-economic characteristics and diverse ethnic origins (H1a). On the one hand, the results supported the *exogamy hypothesis* for first-generation exogamous couples where the male partner is the migrant after controlling for socio-economic and migrant's background characteristics. We found that native woman/immigrant man unions are less likely to have a first child compared to native couples. On the other hand, results showed that first-generation exogamous couples where the female partner is the migrant display a higher risk of entering into parenthood compared to native couples after taking into account socioeconomic characteristics as well as the area of origin of the migrant partner and religious homogamy. Although our analysis was not able to explain such gender differences, our results confirm previous findings for the risk of divorce among mixed marriages (Dribe and Lundh 2012; Milewski and Kulu 2014) and they clearly highlighted the importance of gender differences for fertility among inter-ethnic unions (Fu 2008). Dribe and Lundh (2012) argued how gender differences are due to the fact that on average native women are less traditional and more positively inclined to female employment than immigrant men. The clash between these two opposite views represents a potential source of conflict leading to union dissolution. Conversely, among native man/immigrant woman unions the differences in terms of gender role attitudes are lower resulting in lower tension between the partners. Our interpretation is that this mechanism can be extended also to the role of gender role attitudes for the transition to a first child in Australia. A contribution on gender role attitudes in Australia indeed highlighted how the majority of working men and women agreed that household work should be equally shared

between the partners. However, the study also revealed how men hold more traditional attitudes compared to women (Baxter et al. 2014). While among native woman/immigrant man unions women are in a stronger socioeconomic position and hold more individualistic and career oriented values result in a higher level of bargaining power, immigrant women are in a more disadvantageous position both for being female and immigrant and thus they might be more inclined to embrace a male breadwinner model which clearly favoring the transition to first child as our results confirmed.

We also found support for the *cultural dissimilarity hypothesis* (H1b). We expected exogamous couples where the migrant partner comes from an English speaking country to have a higher likelihood of entering into parenthood due to a smaller cultural distance compared to couples where the migrant comes from a non-English speaking country. The likelihood of having a first child indeed decreased in the case of a larger cultural distance between the native and the migrant partner. The cultural proximity within the couple between a native and a migrant partner include characteristics such as language, religion and cultural values.

Since we are looking at already formed couples, there might be a selection effect in partner choice that can explain the observed patterns. The results might be affected by some unobservable antecedent factors that could have influenced either the formation or the stability of the union. Individuals in a mixed couple might be selected according to specific personality traits - e.g., individualism, liberalism, and self-realization attitudes - associated with a higher inclination to cross boundaries and form a mixed union. On the one hand, these factors can be expected to make the dissolution/divorce less socially costly, while on the other hand, they might be associated with lower fertility intentions and realization. This might be the case in particular for native

woman/immigrant man unions that display a higher union dissolution rate compared to natives and native man/immigrant woman couples. Therefore, we might expect that if we were able to account for partner choice selection, the risk in the transition to parenthood among native woman/immigrant man unions would have been even lower.

According to the *adaptation hypothesis*, we expected that second-generation exogamous couples would show a risk of entering into parenthood more similar to native couples due to a greater exposure to the host country's context in terms of socio-economic and cultural factors. Our findings supported this hypothesis (H1c) showing that second-generation exogamous couples have a very similar risk of having a first child than couples where both partners are natives. The fact that native/descendant of migrants unions are comparable to native unions in terms of transition to a first child suggests that the cultural distance between the partners plays a role in hindering the realization of first child intentions.

We focused on fertility intentions since we expected that exogamous couples would display a higher level of disagreement in terms of fertility intentions between the partners. However, we found no support for this hypothesis (H2). We identified that for the realization of first child intentions it is decisive that both parents hold positive intentions and that there is a high level of agreement within the couple even among first- as well as second-generation exogamous couples. Our results confirm the importance of considering both partners in the fertility decision-making progress as previous studies underlined (Berrington 2004; Testa et al. 2014;).

Although bivariate analysis showed only small differences between native and first-generation exogamous couples where the male is the migrant, we expected that after controlling for cultural and socio-economic characteristics the differences decreased (*compositional hypothesis*). Results showed that after including couples' characteristics

the differences become larger. This means that the lower risk of having a first child for first-generation exogamous couples cannot be explained by the different compositional factors between native and exogamous unions (H3).

Our main expectation was that dissimilarities in the characteristics between the partners would have led to a lower risk of having a first child due to differences in values, tastes, and preferences result in more conflicts (Kalmijn 1998). Although the effects of other variables are largely as expected, not always homogamy corresponded to a higher risk of entering into parenthood. Two results are worthy to be mentioned. First, as highlighted in previous studies, our analysis showed that marriage still represents a relevant precondition for the transition to a first birth. This is in line with the argument that marriage implies a higher level of commitment compared to cohabitation result in a higher likelihood of having a first child (Fu 2008). Second, our study also added to the existing literature by taking into account the role of religious homogamy for entering into parenthood. Our results showed that religious homogamy is associated with a higher risk of entering into parenthood. This result is consistent with previous studies on marital stability and the risk of divorce (Kulu and Milewski 2014) and with a recent contribution exploring the association between fertility and religious homogamy (Fieder and Huber 2016).

A limitation of our study is the impossibility to include interactions in the analysis mainly due to the small sample size. Future studies should further investigate the mechanisms behind the differences in the transition to a first child between native man/immigrant woman and native woman/immigrant man unions. Specifically, due to the sample size we were not able to include in the models additional variables to test whether the gender differences we detected might indeed due to the differences between the partners in terms of gender role attitudes. Future research on the fertility dynamics

of exogamous couples should examine in particular the role of the cultural distance between the partners as a potential explanation for the differences with endogamous couples. Moreover, our data did not allow us to take into account that a large cultural distance between partners among exogamous couples might decrease the chance of receiving family/peers support and to be affected by the opposition of relevant others to the exogamous union. This might result in a different outcome in the way native women and men are affected by sanctions from relevant others (Fu 2008). Following this line of reasoning, from our analysis it appears that is the woman to be more negatively influenced by the social stigma by leading first-generation exogamous couples where the female partner is the native to be less likely to have a first child.

Table 4.1 Description of the sample.

	Native couples N=459		1st gen ex. she migrant N=73		1st gen ex. he migrant N=76		2nd gen ex. N=271	
	N	%	N	%	N	%	N	%
Fertility Intentions								
Negative	86	18.7	9	12.3	11	14.5	30	11.1
Positive	267	58.2	41	56.2	51	67.1	182	67.2
Postponers	52	11.3	0	0.0	11	14.5	25	9.2
Female Positive	36	7.8	15	20.6	3	4.0	20	7.4
Male Positive	18	3.9	8	11.0	0	0.0	14	5.2
Age difference								
Same age	96	20.9	7	9.6	7	9.2	37	13.7
Male younger	77	16.8	10	13.7	15	19.7	60	22.1
Female younger	286	62.3	56	76.7	54	71.1	174	64.2
Education								
Homogamy	109	23.8	26	35.6	21	27.6	89	32.8
Female Higher	113	24.6	25	34.3	26	34.2	62	22.9
Male Higher	237	51.6	22	30.1	29	38.2	120	44.3
Occupational Status								
Homogamy	130	28.3	23	31.5	13	17.1	66	24.4
Female Higher	211	46.0	19	26.0	35	46.1	122	45.0
Male Higher	101	22.0	21	28.8	26	34.2	70	25.8
Female not in the LF	17	3.7	10	13.7	2	2.6	13	4.8
Marital Status								
Married	284	61.9	53	72.6	56	73.7	185	68.3
Cohabitation	175	38.1	20	27.4	20	26.3	86	31.7
Religious Homogamy								
No	277	60.4	49	67.1	44	57.9	151	55.7
Yes	182	39.6	24	32.9	32	42.1	120	44.3
Country of Origin								
Native	459	100.0	-	-	-	-	-	-
Non-English speaking	-	-	54	74.0	12	15.8	152	56.1
English speaking	-	-	19	26.0	64	84.2	119	43.9
Partner childless	369	80.4	52	71.2	57	75.0	220	81.2
Partner child	90	19.6	21	28.8	19	25.0	51	18.8

Source Calculations based on HILDA waves 5-14. N = 879

Table 4.2 Exponentiated Coefficients for couples' transition to a first child.

	Model 1	Model 2	Model 3	Model 4
Type of Couple				
Native (ref)	1	1	1	1
1st Generation Exogamous She migrant	1.187	1.169	1.129	2.116+
1st Generation Exogamous He migrant	0.681	0.595	0.278*	0.285*
2nd Generation Exogamous	1.323	1.189	1.097	1.427
Fertility Intentions				
Female Positive Intentions (ref)		1	1	1
Both Negative Intentions		0.394	0.293+	0.299+
Both Positive Intentions		3.299**	2.788*	3.076**
Both Postponers		0.743	0.896	0.971
Male Positive Intentions		1.035	1.129	1.171
Age Difference between Partners				
Same Age			1	1
Male Partner Younger			1.048	0.998
Female Partner Younger			1.107	1.122
Education				
Educational Homogamy			1	1
Female Partner Higher Education			0.641	0.593+
Male Partner Higher Education			0.804	0.783
Occupational Status				
Occupational Status Homogamy			1	1
Female Higher Occupational Status			1.374	1.438
Male Higher Occupational Status			1.385	1.401
Female Partner not in the LF			2.608*	2.766*
Marriage			4.389***	4.790***
Duration Relationship (years)			0.986	0.984
Duration of Stay (Female)			1.008	1.022
Duration of Stay (Male)			0.957+	0.961+
Religious Homogamy				1.556*
Native				1
Non English-speaking countries				0.620+
English speaking countries				1
Constant	0.228***	0.117***	0.0217**	0.0111***
LL	-408.3	-380.3	-356.1	-352.7

Source Calculations based on HILDA waves 5-14. N = 879

*** p<0.001, ** p<0.01, * p<0.05, + p<0.10. *Notes* All models are controlled for age of the woman and whether the male partner was childless.

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