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The influence of partnership status on fertility intentions of childless women and men across European countries

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Abstract

Background Absence of a suitable partner is the most frequently given reason for unmet fertility expectations across European countries. Especially when nearing the socially acceptable age limit for childbirth, the presence of a partner could influence fertility intentions more strongly. Studies provide evidence of positive effects of partnership on fertility intentions, but results in terms of a variation in this relation across the life course are mixed. **Objective** I am analysing how overall fertility intentions of childless men and women are influenced by partnership status and how this relation varies by age and across countries. **Data and methods** The data stems from the first wave of the Generations and Gender survey. The sample consists of childless respondents across 12 European countries between the ages of 18 to 45. I am calculating logistic regressions and average marginal effects as well as the predicted probability of fertility intentions at different ages. **Results** Partnership influences the intention to have at least one child positively but the effect varies considerably by age. After an increase of the positive effect up to a certain age threshold, the difference between singles and partnered people turns insignificant. Across countries and males and females, I find high variation in terms of the interaction between partnership and age. Educational level is found to be positively associated with fertility intentions. **Conclusion** By including the predicted probabilities of fertility intentions at different ages, my results reveal a non-linear interaction between partnership and age that cannot adequately be modelled by logistic regressions and AMEs.

Keywords: Fertility intentions, Partnership status, Age, Theory of Conjunctural Action, Predicted probabilities, Average marginal effects, Cross-country comparison

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III.   List of abbreviations

AME	Average marginal effect
AUT	Austria
BEL	Belgium
BRG	Bulgaria
DEU	Germany
FRA	France
GGS	Generations and Gender Survey
HUN	Hungary
ITA	Italy
LTU	Lithuania
NLD	Netherlands
NOR	Norway
ROU	Romania
RUS	Russia
SWE	Sweden
TCA	Theory of Conjunctural Action
TDIB	Theory of traits-desires-intentions-behaviour
TPB	Theory of Planned Behaviour

1   Introduction

After a decline in marriages, fertility rates and partnership stability in the latter part of the twentieth century, recent developments are indicating a slowing down and even reversal of these trends in some countries (Esping-Andersen & Billari, 2015). Although significant changes in fertility levels and the emergence of alternative partnership arrangements were noticeable, there is little evidence that preferences towards family formation have changed: In terms of fertility, the mean ideal family size has not declined below replacement level (Sobotka & Beaujouan, 2014) and a stable desire to have at least one child remained (Morgan & King, 2001). Besides, a clear preference for marriage before child birth prevails even in liberal countries such as Sweden and Norway (Holland, 2013; Rutigliano & Esping-Andersen, 2018). Holland (2013) stresses that marriage is considered as a sign of permanency in a relationship and that marrying before having children is a long-standing socio-historical family formation norm. Across European countries, a lack of the right partner for raising children is the most frequently given reason for not meeting fertility expectations (Testa, 2007) and being in a relationship is associated with an increase in fertility desires (Gray et al., 2013; Iacovou & Tavares, 2011; Wagner et al., 2019). Consequently, relationship status can be expected to have a large influence on the intention to have a child.

Moreover, clear norms exist in terms of the timing of birth for both men and women (Billari et al., 2011) and fertility intentions seem to decline steadily over the life course (Gray et al., 2013; Iacovou & Tavares, 2011; Liefbroer, 2009). While some women do not intend to have children throughout their life course, others repeatedly postpone childbirth and therefore remain childless (Rybińska & Morgan, 2019). Amongst others, postponement of childbirth is influenced by employment as well as partnership status (Rybińska & Morgan, 2019). Due to the norms in terms of timing of childbirth, having a partner might especially influence fertility intentions when nearing the social age deadlines for parenthood. Therefore, it is relevant to understand in how far the decision for or against having children is influenced by the current partnership status and age. In addition, while partnership status can be expected to have an influence on fertility intentions across countries, country-level factors such as family policies and gender equality influence fertility levels (Esping-Andersen & Billari, 2015; Gauthier, 2007) and might decrease obstacles towards single parents (see e.g. Pollmann-Schult, 2018). This could lead to a lower dependence on a stable partnership. My analysis therefore sets out to compare the connection between partnership status, age and fertility intentions in different countries. In conclusion, the following research question is addressed:

How are fertility intentions of childless men and women influenced by partnership status and how does this relation vary by age and country?

A promising theoretical framework which has been applied in research about fertility intentions is the Theory of Conjunctural Action (Rybińska & Morgan 2019). The theories' strength lays in the interaction of individual preferences with material constraints (Morgan & Bachrach, 2011). Furthermore, the approach stresses that attitudes towards fertility can change within the life course: "Attitudes and norms can also be dramatically altered across periods because of events that change how people think about (or reinterpret) their past and recent experience" (Morgan & Bachrach, 2011, p. 13). In this thesis, I am therefore applying the Theory of Conjunctural Action to the relationship between partnership status and fertility intentions and a possible variation in this effect due to age. My analysis is based on a harmonized data set of the first wave of the Generations and Gender Survey (GGS). The sample consists of childless respondents across 12 European countries between the ages of 18 to 45. I am conducting logistic regressions and calculate average marginal effects as well as predicted probabilities of fertility intentions at different age points. My study adds to prior research by including an analysis of how the association between partnership status and fertility intentions varies during the life course. Furthermore, previous studies on the relation between partnership status, age and fertility intentions have focused on single countries (e.g. Iacovou & Tavares, 2011; Liefbroer, 2009), while I am comparing this relation across 12 countries. Finally, I am expanding previous research on fertility intentions of men, which remain a less frequently studied group.

2 Theoretical background and state-of-the-art

In the following section, the theoretical background on the relation between partnership status and fertility intentions and its variation according to age is presented. First, the concept of intentions and the distinction between intentions and desires (2.1.1) and ways how to measure fertility intentions (2.2.2) are discussed in order to evaluate previous empirical evidence. Secondly, social-psychological explanations of intention formation (2.2) and specifically the Theory of Conjunctural Action (TCA) (2.2.1) are explained. Based on this theory and previous empirical findings from comparative and single-country studies, the influence of partnership status on fertility intentions (2.3), a possible variation of this effect due to age (2.4) and differences across countries (2.5) are discussed.

2.1 Conceptualizing fertility intentions

Different concepts and measurements of fertility intentions have been applied in fertility research so far. The variety in the conceptualization of fertility intentions has been criticized in the past since it limits understanding of fertility intentions and leads to inconsistent results (Miller & Pasta, 1995). Authors operationalized intentions by asking respondents whether they *intend* to have children, *want* children or if they *expect* to have another child. Moreover, asking whether someone intends to have children *at all*, *how many* children he or she plans to have in total or *when* someone is intending to have children are conceptually distinct types of fertility intentions (Miller & Pasta, 1995). A clear conceptualization of fertility intentions and understanding of their theoretical basis is important in order to interpret previous study results and compare results across surveys. In the following sections, I am therefore elaborating on how different theories of fertility conceptualize fertility intentions and in how far fertility intentions and desires are distinct concepts.

2.1.1 Differences between fertility intentions and desires

In general, the aim of fertility theories is to predict actual fertility outcomes such as childbearing or, more rarely, adoption. Commonly applied theories of fertility are the Theory of Traits-Desires-Intentions-Behaviour (TDIB) (Miller & Pasta, 1995), the Theory of Planned Behaviour (TPB) (Ajzen, 1991) and more recently the Theory of Conjunctural Action (TCA) (Johnson-Hanks et al., 2011). Although the theories differ in terms of the predictors of fertility outcomes, their underlying definition of intentions is similar and follows the psychological literature. According to Ajzen (1991, p. 181), "intentions are assumed to capture the motivational factors that influence behaviour" and draw on attitudes and beliefs, as well as the perception of attitudes and beliefs of the social surroundings. Positive and negative attributes are associated with the outcome of a behaviour and make certain behavioural outcomes more desirable than others (Ajzen 1991). In the TDIB, certain motivations, attitudes and beliefs towards fertility activate conscious desires, which translate to intentions (Miller and Pasta 1995). Intentions, here, are understood as "conscious commitments to act in a certain way or to try to achieve a certain goal at some future time" (Miller and Pasta 1995, p. 533). Following Malle et al. (2001), Bachrach and Morgan (2013, p. 460) define intentions as "complex mental states in which there is a desire for some outcome, a belief that taking a particular action will lead to that outcome, and some degree of commitment to perform the action".

As becomes apparent in these understandings and definitions of fertility intentions, desires are interpreted as one of the predictors of fertility intentions. According to Miller & Pasta (1995), desires and intentions differ, since desires do not lead directly to actions but are first translated into intentions. In all three theories, the role of the social environment is taken into account to some extent. In the TDIB, fertility desires of more closely related individuals, for example the fertility desires of a partner, are considered as influential towards the personal fertility intentions (Miller & Pasta 1995). In the TPB, intentions are also influenced by the so-called subjective norm, which refers to the perceived social pressure to perform an action or not (Ajzen, 1991). As will be explained later in more detail, the TCA views fertility intentions as deeply rooted in schemas about fertility, which are shared in the social surroundings and shape someone's fertility intentions early on (Bachrach & Morgan, 2013). Furthermore, different from desires, intentions are more directly influenced by situational factors. These factors, which might prevent or enable a certain desire, are already considered in the formation of an intention (Miller & Pasta 1995) or influence the perceived behavioural control that persons have over their actions (Ajzen, 1991). As Miller et al. (2004, p. 194) put it: "The

difference between desires and intentions is akin to the difference between what one would like to do given no situational constraints and what one actually plans to do given the reality within which one ordinarily operates." In the TCA, individual preferences as well as situational material constraints play a role in the formation of intention (Morgan & Bachrach, 2011).

In conclusion, drawing on these theories, desires are less likely to be influenced by social and situational factors, whereas intentions are more closely related to expectations and desires of the social surroundings and possible constraints, which might complicate the realization of a certain behaviour.

2.1.2 From conceptualization to operationalization: measuring fertility intentions

To understand how fertility desires and intentions differ from each other, I will take a look at previous studies on fertility intentions and give examples of how fertility desires and intentions are operationalized in relation to the research aim. Furthermore, I will reflect on different types of fertility intentions.

Fertility intentions concerning childbearing are typically measured with the following question: "Do you *intend* to have (a) child(ren)?". They are also measured by asking respondents whether they are (currently) planning to have children (see e.g. Wagner & Wanyenze, 2013), which lays more emphasis on the actual realization of an fertility outcome. Desires, on the other hand, are usually measured by asking whether someone *wants* to have children (see e.g. Freitas & Testa, 2017). In the Generations and Gender survey (GGS), which is applied by several studies (e.g. Freitas & Testa, 2017; Hiekel & Castro-Martín, 2014; Mönkediek & Bras, 2018), questions capture the short-term fertility intentions ("Do you intent to have (a) child(ren) in the next three years?") as well as long-term or overall fertility intentions ("If not, do you intend to have a child after three years?"). Desires to have children are measured by the question "Do you *want* to have children now?", which, in this case, also includes a timing factor. Hiekel and Castro-Martín (2014) use the data on short-term fertility intentions in their analysis of the effect of different types of cohabitation forms on intentions. In their study, short-time intentions are especially interesting since they reflect the more immediate effect of certain types of cohabitations. Mönkediek and Bras (2018) analyse overall fertility intentions by combining short-term and long-term fertility intentions. Their aim is to analyse in how far childbearing intentions are influenced by norms and values that are shared within the family system of an individual. In their case, the aim to have children at all lies in the focus of the study. Further studies combine or compare the effects of fertility intentions and desires: Freitas and Testa (2017) show that an individual's own fertility intentions are more predictive of a birth than the combined fertility desires of both partners, although an agreement with the partner on wanting a child increases the chances of a birth (Freitas and Testa 2017). If the desire to have a child is not met by the partner, the individual intentions still increase the chances to have a child significantly (Freitas & Testa, 2017).

Another important predictor of fertility behaviour are fertility expectations which, for example, are measured by asking respondents about the number of children they are expecting to have (Iacovou & Tavares, 2011; Liefbroer, 2009; Rybińska & Morgan, 2019). While the difference between desires and intentions is pronounced, the difference between expectations and intentions is considered as subtler (Iacovou & Tavares, 2011). According to Rybińska and Morgan (2019), expectations "are people's best predictions of future outcomes" and as such include preferences but, for example, also expectations about ones fecundity. Especially if the total number of children someone is expecting to have is of interest, the person's individual knowledge about his or her reproductive health and the subjective perception of age limits would have an influence on adjusting family size expectations downwards. Empirical evidence shows that whether someone is asked about expected or intended fertility does not lead to different results, although there is a conceptual difference between the two (Morgan, 2001). This is explained by the fact that respondents cannot anticipate unexpected events, so that similar considerations are taken into account when commenting on intentions or expectations (Morgan, 2001). In conclusion, asking about someone's expected or intended family size would yield similar results.

Furthermore, it is important to differentiate between asking if someone intends to have children in general or asking about the number of children he or she is intending to have. For example, Liefbroer (2009) operationalizes fertility intentions as the total number of children expected and

measures this variable on a continuous scale. His results therefore display the effect that different factors have on reducing or increasing family size expectations. In this case, even after controlling for parity, it is not possible to distinguish whether a childless woman expects to have fewer children or expects to remain childless – which is arguably an important difference. Rybińska and Morgan (2019), on the other hand, also measure fertility intentions by the expected family size but analyse the factors which increase or decrease the probability of belonging to the group of childless women who expect to remain childless or childless women who expect to have children. In the latter case, there is a clear focus on childless women and whether or not they would like to have children at all. Asking about the intended family size is referred to as *quantum intention,* while asking about the intentions to have a(nother) child at all or within a given period is referred to as *parity-progression intention* (Balbo et al., 2013).

Understanding the different conceptualizations of fertility desires, intentions and expectations is important in order to grasp the results of previous studies and to select an operationalization of fertility intentions which matches the research aim. Firstly, rather than looking at the short-term fertility intentions, I am interested in whether someone would in general like to have children. Especially at a younger age, being in a relationship might not influence short-term fertility intentions as strongly, since someone who is 18 is likely not to plan to have a child in the next three years, especially in the European context. Still, being in a relationship at that age might increase the overall intentions to have a child, for example if the relationship is expected to last, or not have an influence on it, if the overall intention to have a child remains strong independently of being in a relationship or not. In my thesis, I am focussing on the effect that being in a partnership has on fertility intentions, measured as whether someone intends to have children at all. Secondly, I am interested in first childbirth rather than higher parity births, since the intention to have a first child is driven by different considerations and formed in a different context than having a second child. First births are to a lower extent influenced by factors such as institutional support, more gender equal labour markets and support by extended family or the partner, which supports the assumption that rational consideration of potential constraints play a larger role for higher order births (Harknett et al., 2014). Thirdly, I am focussing on general fertility intentions rather than actual fertility outcomes. I am less interested in whether the partnership status acts as an actual constraint and rather in how far having a partner is already taken into account in the formation of the intention to have a child.

2.2   Social-psychological explanations of intention formation

As mentioned earlier, different social-psychological theories explain how fertility intentions are formed and how they influence actual fertility behaviour. While the understanding of the concepts of desires and intentions is similar, the theories differ in terms of the determinants of intentions. The TPB (Ajzen, 1991) is applied by many of the previously mentioned studies and was used as the theoretical basis for developing the Generations and Gender survey (Vikat et al., 2007). The TCA approach, which Bachrach and Morgan (2013) apply to fertility intentions, is an alternative to the previously mentioned theories. This approach is similar to the TPB in that it also accounts for the influence of social factors and experiences, attitudes and individual control mechanism on the formation of intentions. An important difference between the two approaches is that behaviour is influenced by conscious intentions – like the TPB assumes – but can also "occur in the absence of a relevant intention" (Bachrach & Morgan, 2013, p. 469). Therefore, fertility behaviour might also rather be result of automatic processes rather than only rational thoughts. Furthermore, fertility intentions are more interdepending on other life behaviours such as working and partnering than explained in the TPB, which rather describes fertility behaviour as an isolated outcome (Morgan & Bachrach, 2011). The way that interactions are formed and influenced by a specific environmental structure is discussed in more detail in the TCA approach, since it gives an explanation of how individual preferences interact with material constraints and schemas regarding fertility. Bachrach and Morgan (2011) conclude that the TPB is clearly situated on the micro level, while the TCA incorporates not only perceived views of significant others, but also material influences and events which can change fertility intentions during the life course. Since I am interested in how far fertility intentions are influenced by partnership status, the connection of being in a relationship with material constraints, as well as schemas about union formation and fertility, plays an important role. In the following chapter, I am therefore explaining the main characteristics of the TCA in more detail.

2.2.1 The Theory of Conjunctural Action

The TCA sets out to develop a new model of fertility trends and does so by incorporating existing work from social, psychological and biological sciences (Johnson-Hanks et al., 2011, p. 14). Firstly, the approach draws on the 'duality of structure' model which views structures as "durable forms of organization, patterns of behaviour, or systems of social relations" (Johnson-Hanks et al., 2011, p. 1). Structure "shapes and directs [social action] leading to debate on relative importance of structure and agency in driving human action" (Johnson-Hanks et al., 2011, p. 2). A dual understanding of structure refers to the idea that these structures are influenced by (1) *schemas* and (2) *materials*.

Schemas can be understood as "relatively stable and abstract representations of the meaning of an object or event" (Bachrach & Morgan, 2013, p. 461). They can refer to concepts such as partnership or to actions which are usually taken in a specific context, for example using contraception. According to cognitive science, humans automatically create an understanding of the world and categorize events and objects through schemas, instead of repeatedly experiencing them for the first time. Therefore, "humans almost invariably experience and respond to the world through schemas [and schemas] are an unavoidable component of ordinary human perception and interpretation" (Johnson-Hanks et al., 2011, p. 3). Schemas are derived primarily through repeated social interactions. Due to repeatedly encountering specific schemas in the close social surroundings they are legitimized, strengthened and perceived as "non-ideological and non-controversial" (Johnson-Hanks et al., 2011, p. 6). Therefore, "[un]contested schemas, hegemonic ones, are experienced as normal and transparent modes of being or acting—not as options, but as 'just the ways things are.'" (Johnson-Hanks et al., 2011, p. 6). Furthermore, schemas are strongly related to a person's identity. Bachrach and Morgen (2013) explain this with the example of a schema for 'baby' which – in case it evokes pleasant feelings and thoughts which are repeatedly experienced when encountering babies – leads to a higher likeliness of being connected to positive schemas towards parenthood. In conclusion, schemas are automatically produced as a reaction to objects, actions or concepts and guide behaviour in day-to-day life, as well as expectations about future behaviour. Schemas are learned and reiterated through social interaction and are closely linked to one's sense of self.

Materials, however, refer to objects, performances or organizations which are connected to at least one schema (Johnson-Hanks et al., 2011). They are also referred to as "observable manifestations of schemas" (Bachrach & Morgan, 2013, p. 464). On the one hand, materials are interpreted in terms of schemas and, on the other hand, existing schemas lead to the emergence of certain materials (Johnson-Hanks et al., 2011, p. 12). For example, in the past 50 years, new contraceptive methods have been developed only for women and not for men, which results from gender-specific schemas about sexuality and responsibility (Johnson-Hanks et al., 2011, p. 12). Applied to the relation of fertility intentions and partnership, the meaning attached to having a child within a stable partnership would refer to a schema. The observation that, in most jurisdictions, a father has to be legally recognized as such, if a couple is not married prior to birth, or the way in which single-parents are portrayed in the media would constitute a material which leads to the creation of certain schemas. In terms of family systems, alternative family models are legally and in consequence economically often still less protected than the traditional, nuclear couple which is arguably also influenced by schemas connected to sexuality and family life (see e.g. Cahn and Carbone (2018) on the legal recognition of families based on function rather than biology or marriage).

Finally, structure is the product of schemas and materials. It is a relatively stable construct based on the recurrent experience of different schemas in connection to materials and shapes the interpretation of new information, which are embedded in existing structures (Bachrach & Morgan, 2013). Structure also influences how a specific situation is evaluated and which opportunities and constraints are taken into account during decision-making. For example, a women experiencing an unwanted pregnancy could face alienation from her conservative family when seeking an abortion or experience rejection from an environment which would expect her to decide against a child (Bachrach & Morgan, 2013). Certain structures are also distributed differently across social variables such as age, sex or socio-economic background which influence in how far people become exposed to a specific structure (Bachrach & Morgan, 2013).

In conclusion, the meaning that people attach to an event and the idea that people have about the opportunities and constraints connected to an event or action is framed by a specific structure,

which is rooted in long-standing schemas and manifestations of these schemas, referred to as materials. The repeated exposure to schemas has a crucial influence on intention formation: "Because we are exposed to these schemas repeatedly and learn them thoroughly, they become the taken-for-granted baseline assumptions for intention formation" (Bachrach & Morgan, 2013, p. 468). Bachrach and Morgan (2013) explain this process with the example of childbearing intentions: The formation of the intention to have a child implies the desire for this outcome and a belief that a certain action will lead to it. This implies that a positively valued schema of becoming a mother or father exists and is furthermore connected to the image of a future self. Action is then motivated, when the schema of becoming a parent is connected to the schema of a particular action leading to the realization of this outcome.

In terms of the influence of partnership, a positively valued schema of having a child within a stable relationship would be connected to childbearing intentions. Marrying, becoming a parent or having a successful career, are goals which are justified and motivated by a range of interconnected schemas (Johnson-Hanks et al., 2011, p. 75). According to Johnson-Hanks et al. (2011), these schemas characterize marriage and childbirth as part of the normative life course. The norm to have children within a stable relationship is acknowledged by most individuals in contemporary developed societies (see e.g. Holland, 2013; Lappegård & Noack, 2015). Even if persons do not adhere to this norm, "their intentions are formed in relation to a structured world" (Bachrach & Morgan, 2013, p. 468).

Furthermore, being in a relationship creates a structure which is connected to family life and parenthood and might therefore "bring parenthood to mind" (Bachrach and Morgan 2013, p. 474). Being in a relationship provides opportunities which increase the likelihood of intending to become a parent. According to Bachrach and Morgan (2013), fertility intentions are formed early on, based on the given structure at that time, but are also influenced by potentially changing structural frameworks: "Because fertility intentions may be rooted in deeply valued, long-standing schemas about the family, whereas their implementation necessarily depends on contemporary structural conditions, there is much room for aggregate-level intentions and fertility to diverge during a cohort's reproductive years" (Bachrach & Morgan, 2013, p. 479).

To summarize, long-standing schemas regarding parenthood and partnerships and connected materials influence individual fertility intentions and guide actions. These schemas are widely shared in society and provide a normative framework in which fertility decisions are formed. In the next section, I am therefore reflecting on previous studies which analyse the association between partnership status and fertility intentions.

2.3   Intentions and their roots: The effect of partnership status

In the previous chapter, I mentioned that the formation of an intention implies the desire for an outcome, as well the belief that a certain action will lead to the favoured outcome. In the case of becoming a parent, the TCA approach argues that a positively valued schema of having a child exists. Parenthood is deeply valued in most societies. Even across European countries, characterized by lowest-low fertility, the ideal of a two-child family persists (Sobotka & Beaujouan, 2014). Furthermore, the value attached to becoming a parent is intertwined with the ideal of having a partner within a stable relationship (Lappegård & Noack, 2015). As mentioned in the previous chapter, even if a person does not adhere to a certain norm, individual decisions are made in relation to attitudes and values widely shared in the society (Bachrach & Morgan, 2013). Secondly, being in a relationship creates a certain structure which is connected to family life and parenthood (Bachrach & Morgan, 2013).

In general, stable, long-term partnerships, are considered as the ideal environment for childbirth (Holland, 2013; Lappegård & Noack, 2015). Union formation and dissolution are common and the motivation to enter a relationship is increasingly driven by internal factors such as pleasure rather than externally reinforced (Morgan & King, 2001). The relationship to a child, on the other hand, "is still strongly enforced by societal norms and perceived to have an enduring character unlike any other interpersonal connection" (Morgan & King, 2001, p. 14). Having a child, is therefore considered a life-long commitment and also entails the idea of a life-long connection to the other parent (Lappegård & Noack, 2015).

Especially marriage and parenthood are closely linked in the expectations about appropriate family behaviour (Hayford, 2009), although the influence and meaning of marriage differs across societal settings (see e.g. Lappegård and Noack 2015 for the meaning of marriage and cohabitation among a sample of Norwegian women). Holland (2013) stresses that marriage is considered as a sign of permanency and long-term commitment in a relationship and that people that marry before having children are conforming to socio-historical family formation norms. These societal norms imply that parents are the primary care givers and responsible for the support of their children and that this can best be realized in a committed union. Both parents influence a child's socialization and "time resources and parental support to children can more easily be balanced by two residential parents" (Holland 2013, p. 277). Even in liberal countries such as Sweden and Norway, where people enjoy similar rights whether married or cohabiting, marriage before forming a family is common and a sign that a certain amount of stability is favoured before a child is born (Holland, 2013; Rutigliano & Esping-Andersen, 2018).

According to previous findings, married women are both less likely to remain childless, as well as expect childlessness - even if they continue to remain childless over the life course - at every stage of their life (Rybińska & Morgan, 2019). In an analysis of the effect of different types of cohabitation on fertility intentions, Hiekel and Castro-Martín (2014) find that people who cohabited and viewed their union as a step before marriage were most likely to plan a child in the future. While the majority of studies point at a positive influence of having a partner on fertility intentions, there are also studies which find diverging results. Berrington (2004) finds that being in a co-residential partnership (both married and cohabiting) does not have a significant effect on childbearing intentions among childless women, but that it does increase the odds of actually having a birth by three times. Besides using different control variables, these differences in findings might be related to the sample choice, since Berrington (2004) restricts her sample to women between the ages of 30 to 39. According to Kapitány et al. (2012), single males and females are significantly more likely to postpone childbirth and to abandon short-term child-bearing plans in comparison to married and cohabiting respondents in Hungary, Bulgaria, Switzerland and the Netherlands. Harknett and Hartnett (2014) find that among those intending to have a child in the next three years, the proportion of childless, partnered women is twice as high as the proportion of childless, single women in France, the Netherlands and Germany. Furthermore, people who never had a partner, as well as people who were in several living-apart-together relationships during their life course are most likely to remain childless in Germany (Raab & Struffolino, 2020) and Finland (Saarela & Skirbekk, 2020).

The fact that remaining childless or raising a child alone is considered a deviation from the norm is reflected by the experiences of childless people. Respondents who have a partner and reach a certain age report that they are more often asked whether they would like to have a child and sometimes interpret this as increasing pressure by their environment (Lappegård & Noack, 2015). A qualitative survey of 76 single, childless women in the UK shows that issues of pity, stigmatization and confrontation with stereotypes of being lonely or unwanted play a role in their lives (Hafford-Letchfield et al., 2017). Both women who decide to marry or women who are cohabiting want to avoid to "end up as a single mum" (Lappegård & Noack, 2015, p. 298). Similarly, childless males can also be negatively affected by norms regarding parenthood and partnership (Hadley, 2017). A further aspect, which is mentioned in a qualitative survey, is the worry about financial insecurity in later life and the costs of living alone in comparison to sharing costs with a partner (Hafford-Letchfield et al., 2017). On the other hand, results of a quantitative study show that childless men and women across European countries and Israel do not differ significantly compared to parents in terms of their economic situation and psychological or social wellbeing (Hank & Wagner, 2013). Nevertheless, the anticipation of difficulties as a single, childless person in later life might contribute to an increased motivation to both becoming a parent and raising a child within a stable relationship.

In conclusion, based on the TCA approach, marriage and being in a relationship in general could be associated with fertility intentions, since it presents a deeply rooted value in regards to family life. According to the majority of empirical results, being in a relationship increases the probability of reporting the intention or expectation to have a child, for both short-term as well as long-term fertility and across parity. Based on the theoretical background and prior empirical evidence, I would therefore argue that being in a relationship is positively associated with fertility intentions. The first hypothesis states the following:

H1: Childless men and women in a relationship are more likely to intend to have (a) child(ren) than people who are not in a relationship.

2.4 Age, partnership status and fertility intention

Norms also play a role in the timing of births. Based on a study of Dutch participants, Liefbroer and Billari (2010) find clear age norms regarding the timing of first childbirth. Both men and women in the study argue that people should stop having children at 44 to 45 years. In a study covering 25 European countries, Billari et al. (2011) find the social age deadline to be even lower than the actual biological limit. Furthermore, the perceived disagreement of others with the personal intention to have children increases with age (Klobas & Ajzen, 2015). As people get older and move closer to the normatively accepted age for having children, the decision for or against children could therefore have a higher urgency than for example in their early twenties. As Bachrach and Morgan (2013, p. 475) argue, the influence of current structures are weaker if they refer to future behaviour: "Intentions refer to future behaviour, and the further off that future seems, the greater the likelihood that contemporaneous structures that conflict or compete with long-standing schemas of parenthood will be discounted." Whether people are in a relationship or not when they are close to the socially acceptable age for childbirth, might have a more immediate and therefore significantly larger effect on fertility intentions for people at the age of, for example, 40 compared to individuals who still have more time ahead of them.

In terms of the main effect of age on fertility intentions, studies find that fertility desires and the expected number of children decline steadily during the life course (Gray et al., 2013; Iacovou & Tavares, 2011; Liefbroer, 2009). Based on Australian longitudinal data, Gray et al. (2013) find that men and women under the age of 30 are more likely to experience an increase in their general desire to have a child in comparison to the reference category (30 to 34). Those respondents aged 35 and above are experiencing a decline in fertility desires. In general, the mean desire to have children, measured on a scale from one to ten, declines across the age groups. Similarly, Iacovou and Tavares (2011) find a decline in fertility expectations (measured as the expected number of children), starting from the early twenties onwards. According to their results, expectations are not adjusted strongly when nearing the socially acceptable age limits, but decline already in advance to that (see also Rybińska & Morgan, 2019). Liefbroer (2009) finds that expectations are, on average, adjusted downwards – although some people do not adjust their intentions or even do so upwards. Both studies find that, on average, family size is adjusted downwards, while the variation in expected number of children also increases with age.

In terms of an interaction between age and partnership status, mixed results are found across studies. Iacovou and Tavares (2011) do not find significant interaction effects between partnership status and age and conclude that partnership variables do not have a greater effect on changes in expectations towards the end of the fertile years. In contrast, Liefbroer (2009) finds that differences in expected number of children between partnered and single respondents increase with age: As people grow older, the expected family size declines across both groups, but the decline is most pronounced for people without a partner. This finding supports the assumption that partnership status has a larger effect as people grow older. Nevertheless, the results change when controlling for the number of children. Over time, the difference in mean reported family size of childless married and un-married respondents becomes smaller (Liefbroer 2009). A possible explanation could be that the group of childless people becomes increasingly selected and consists of a larger share of people who are voluntarily childless. This would mean that, on average, younger adults are more affected by their partnership status while if someone is *still* childless in later adulthood the influence of partnership status declines in comparison, since a larger share of respondents do not intend to have children *independently* of having a partner or not. Despite the limited and mixed empirical results in terms of an increasing effect of partnership status on age among childless people, the second hypothesis is following the theoretical assumption that, on average, the effect of partnership status on fertility intentions should be larger with increasing age:

H2: Among childless men and women, the effect of partnership status on fertility intentions increases with age.

2.5 Partnership status and fertility intentions: Differences on country-level

In the previous chapter, I explained why having a partner is likely to influence overall fertility intentions positively and that the strength of effect is arguably varying during the life course. Nevertheless, whether someone would like to have children, the age at which a person is planning to have children and the role that a partner plays in fertility decisions is likely to vary across countries (see e.g. Liefbroer et al., 2015 on fertility-related norms across Europe). On the one hand, family-friendly policies could reduce the cost of having children and therefore increase the probability of intending to have a child even without a suitable partner. On the other hand, if norms towards union formation and childbirth are strong, country-level factors might not have such a large influence on the relation between partnership status and fertility intentions. In this chapter, I will therefore reflect on possible differences and similarities of the relationship between partnership and fertility intentions across European countries.

The type of partnership at first birth varies considerably across European countries. Starting in the early 1970s, a steep increase in the proportion of non-marital births could be observed in many countries (Perelli-Harris et al., 2009; Sobotka & Toulemon, 2008; Timberlake & Heuveline, 2005). In 2005, one-third of all births in countries within the European Union occurred outside of marriage, while the rate increased to over 40% in 2016 (Eurostat, 2019). Importantly, this increase in non-marital births is attributed to an increase in cohabitation rather than an increase of births outside of partnerships or within unstable relationships (Sobotka & Toulemon, 2008). Lower shares of children born outside of a marital context can typically be found in Southern European countries like Italy, although an increase in cohabitation and childbirth outside of marriage occurred here, too (Perelli-Harris et al., 2009; Sobotka & Toulemon, 2008). In Northern European countries, but also in Austria and France, over 40 to 50% of childbirths occur outside of marriage (Eurostat, 2019). Moreover, there are also considerable differences in terms of the share of single family households across Europe (Chzhen & Bradshaw, 2012; Sobotka & Toulemon, 2008). In 2009, the percentage of children below 18 living in a single parent household ranged from 3% in Greece to 19% in Ireland, with the highest lone parent rates in Nordic - with the exception of Finland - and Baltic countries, the UK and Ireland and relative low shares of lone parent rates in Southern European countries (Chzhen & Bradshaw, 2012).

The variation across countries in terms of living arrangements at first birth or after, raises the question in how far country-level factors can explain the variation in relation between partnerships and fertility intentions. Firstly, from a rational choice and economic perspective, family policies and welfare systems could be expected to have an influence on this relationship, since they might remove obstacles of realizing fertility intentions without a suitable partner (see e.g. Mack 2017, p. 126ff., on the likelihood to be married at childbirth in a context of high child-care provision). For example, the poverty risk of lone mothers varies across European countries and a high correlation of poverty risk and single motherhood can be found in countries with a lower supply of public childcare and a stronger focus on earnings-related insurances (Hübgen, 2018). In general, empirical evidence shows that higher investments in family policies correlate with higher fertility levels (Castles, 2003), although the results differ between studies and outliers exist (Gauthier, 2007). Especially family policies which facilitate the combination of labour force participation and childcare have found to increase fertility levels (Luci-Greulich & Thévenon, 2013; Thévenon & Gauthier, 2011), reduce lone mothers' poverty risk (Misra et al., 2012) and increase life satisfaction of single mothers (Pollmann-Schult, 2018). Within Europe, Thévenon (2015) distinguishes three groups of countries with comparable levels of financial and practical support for families. In Nordic countries, comparably high support is provided to working parents with children below the age of three through more extensive leave arrangements and child-care services. In Ireland and the UK, financial support rather than childcare services is provided for low-income families. The third, more heterogenous, group consists of continental and Eastern European countries and can be situated in between the Nordic and English-speaking countries.

Furthermore, welfare systems can be distinguished by the extent to which they support 1) a traditional breadwinner model, in which one parent is able to return to work and the other is supported in their role as caregivers and 2) a two-earner model, in which both partners are able to return to work (Billingsley & Ferrarini, 2014; Thévenon, 2015). A system which provides tax incentives for

two earners, longer paternal leave and coverage for child care services for children below the age of three supports a two-earner model. Higher tax incentives for one-earner families and longer paid maternal leave are indicators of a traditional earner-carer model. Importantly, a country can provide high levels of both types of supports although "policies may favour one type of household more than another, which may limit the extent to which households are actually free to choose their preferred organisation" (Thévenon, 2015, p. 32). In Nordic countries, both models receive comparably high support, although the focus lies more on the two-earner model. Investment in each of the mentioned policy instruments has a positive effect on fertility levels, although Thévenon (2015) mentions that child-care provision for children under the age of three has the strongest effect. In a multi-level study covering 21 European countries, Billingsley and Ferrarini (2014) find that both traditional and two earner family support are positively related to the intention to have a first child within the next three years. Based on a study of 24 European countries, Pollmann-Schult (2018) conclude that more generous financial benefits for families and extensive child-care provision are associated with higher life satisfaction of single mothers.

While substantive research on the relation between family policies and fertility levels has been conducted, fewer comparative studies shed a light on the effect of institutional influences on the role of partnership in fertility decision-making. Billingsley and Ferrarini (2014) include partnership status as a control variable and find that the negative effect of being single on the likelihood of intending to have a child within the next three years remains significant in both the traditional and the dual earner model. In his dissertation, Mack (2017) analyses the influence of institutional contexts on the probability of having children in a marital context. He concludes that, in a context of extensive provision of childcare, a higher level of education is less strongly related to the likelihood of child-birth within a marriage, since females have the opportunity to use their higher educational capital and are therefore more independent from their partner. Nevertheless, this effect is only significant when comparing low to high levels of education. Furthermore, Mack (2017) does not find significant effects of childcare provision on the likelihood of having a child while being single versus cohabiting or being married. In conclusion, previous research demonstrates that increasing support in terms of financial benefits and especially childcare provision have a positive effect on the likelihood to intend to have children. Research also indicates that the provision of childcare lowers the probability that highly educated females bear a child within a marriage, although little empirical evidence on this relation exists.

A further important influence on country-level are norms and attitudes regarding the role of relationships in fertility decisions. According to Liefbroer et al. (2015), about 15 to 40% of the variation of approval of fertility behaviour - such as voluntary childlessness, the relationship status at birth of a child or women combining child-care and full-time work - is situated at the country-level. The variation between countries in terms of the prevalence of births outside of marriage is mostly explained by gender role attitudes and, not surprisingly, the attitude that people have towards cohabitation in general (Lappegård et al., 2018; Mack, 2017). In Scandinavian countries, the disapproval of having a child within cohabitation is considerably low, while the levels of disapproval are highest among some Eastern European countries such as Romania, with a share of 40% disapproving of this type of family formation (Liefbroer et al., 2015). In terms of fertility intentions, the differences of approval of marriage and cohabitation lead to interesting results. For example, marriage is found to have a significant, positive effect on fertility intentions in France whereas this relation is not significant in Italy (Régnier-Loilier & Vignoli, 2011). This can be explained by the fact that births within cohabitation are far more common and approved in France, whereas marriage is rather considered as an outdated institution. If a couple does marry in this context, they are also more likely to want children, whereas this effect is more independent from marriage in Italy (Régnier-Loilier & Vignoli, 2011).

Due to the low prevalence of births outside of a union, research analysing normative influences on the relation between fertility intentions and having a partner at all are more rare. On an aggregate level, attitudes towards single-motherhood, which might influence the dependence on a partner indirectly, do not affect satisfaction of single mothers significantly across European countries (Pollmann-Schult, 2018). A recent study by Jirjahn and Chadi (2019) compares the likelihood of childbearing while being single in East and West Germany. According to their results, single women in East Germany are more likely to give birth to a child in terms of both unplanned and planned

pregnancies. Here, single women are defined as women who are single at birth as well as one year prior to birth. As this finding persists after controlling for non-marital fertility, economic factors and availability of childcare, which is higher in East Germany, the authors conclude that more egalitarian gender role models in East Germany are the main explanation for the East-West difference.

In conclusion, countries vary in terms of the share of women having a birth within a marital or non-marital context. Since a non-marital context usually implies childbearing within the context of a stable union, research on country differences in terms of births outside of a union are limited. Results from previous studies suggest that higher financial benefits and childcare provision increase the life satisfaction of single-mothers, are connected to higher aggregate fertility levels and lower the likelihood that highly educated women give birth within a marriage. Furthermore, single women in East Germany are more likely to give birth to a child, which is attributed to the higher prevalence of egalitarian gender norms. Therefore, different institutional and cultural settings might increase or decrease the dependence on a partner and could influence whether having a partner has a significantly positive effect on fertility intentions. Nevertheless, based on the empirical evidence presented in chapter 2.3, which shows that the majority of studies find a positive relation between partnership and fertility intention across countries, I would expect that being in a relationship is related to a higher probability of intending to have children across all countries – despite possible variations in the strength of the effect.

2.6   Further influences on fertility intentions: Gender[1] and educational level

In general, the majority of studies focus on fertility intentions and behaviour of women. Nevertheless, norms and attitudes towards childbearing, childlessness and partnerships affect both women and men (Hadley, 2017). Arguably, the influence of partnerships on fertility intentions might vary due to gender, since realizing fertility intentions without a partner is more difficult for men than women (Iacovou & Tavares, 2011). On the other hand, this might apply more directly to short-term fertility intentions rather than the overall intention to have children. Furthermore, the relation between age and fertility intentions could vary considerably by gender, since females' fecundity declines earlier with age (Iacovou & Tavares, 2011). This is also reflected by the socially acceptable age limits for childbearing: Across European countries, the mean age at which people are considered too old to become parents is between 40 and 42 for women and around 46 for men (Liefbroer et al., 2015). Still, if men reach a certain age, the majority of women with which they could have children would also be in a similar age group (Iacovou and Tavares, 2011). I would therefore expect that the effect of having a partner on fertility intentions is similar for men and women.

A further important influence on fertility intentions is the educational level of a person. A higher educational level is associated with an increase in the mean intended family size among women in European countries (Testa, 2014). According to Testa (2014), a possible explanation for this finding is that countries with a high share of educated women are also countries in which combining family and work is supported institutionally, for example through the universal provision of childcare, and higher gender equality levels. Therefore, while a higher education is associated with the postponement of childbearing (Billari et al., 2006; Ní Bhrolcháin & Beaujouan, 2012) and higher opportunity costs of having children (Rondinelli et al., 2010), in general, I expect education to be positively associated with the intention to have children. Nevertheless, the effect of educational level on the overall intention to have children might be lower than on the mean intended family size.

Moreover, educational level influences the partnership status at first birth, although this effect varies across countries (Koops et al., 2017; Perelli-Harris et al., 2010). According to Koops et al. (2017), a lower parental educational level increases the likelihood of a first birth while being single compared to being married in North American and several Western and Eastern European countries. If a higher educational level increases the likelihood of having a child within a stable partnership, the relation between partnership status and fertility intentions might be higher among the highly educated. On the other hand, Mack (2017) finds that the likelihood of a highly educated women to be married at first birth is lower in a context of high childcare provision. Nevertheless, this result might be explained by the positive correlation between levels of cohabitation with levels of

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[1] When talking about gender in this thesis, I am referring to the categories of females and males. Nevertheless, it should be acknowledged that gender identities outside the gender binary exist.

childcare provision in Nordic countries so that the question of causality remains open. Analysing a possible variation in the effect of partnership status on fertility intentions due to educational level goes beyond the scope of this thesis. Still, educational level is controlled for in the analysis.

3   Methodology

3.1   Data and sample

The analysis is based on data of the first wave of the Generations and Gender Survey (consolidated GGS data set, version 4.3.1), which contains harmonized cross-sectional data on fertility intentions and behaviour as well partnership status. Questions about fertility intentions are asked to different samples across countries. In order to generate a comparable data set, the following respondents are included: The sample consists of men and women between the ages of 18 to 45, who themselves or their partner are not pregnant at the time of the interview and who did not answer that themselves or their partner are physically definitely not able to have children. Furthermore, with the exception of Sweden, the question was not asked to respondents in a same-sex partnership. Males whose partners are above the age of 45 are also excluded. After excluding respondents who already had biological children, in total, the sample consists of 31,083 respondents.

The main variables of interest are relationship status and fertility intentions of men and women. In order to obtain reliable results, countries with high missings on the fertility variable were excluded from the analysis. This is the case for males in Poland, where 61% of the respondents did not receive the question as well as in Norway, where 56% of the male respondents are missing. In Poland, about 90% of these respondents do not have a partner (n=962) and in Norway this is the case for 98% of the missings (n=898). Since the difference between partnered and single respondents can therefore not be analysed, males are excluded from the analysis in these countries. Missings on fertility intentions among male respondents range from 25 to 25% in Czech Republic, Belgium and the Netherlands to below 5% in the remaining countries. Again, the missings are biased in terms of the respondents who do not have a partner (about 90% of the missings) in the case of Czech Republic (n=336) and Belgium (n=170) and therefore have to be excluded. The number of missing among men without partner is also high in the Netherlands (n=115), but in total the number of missings is lower and 68% of these missings are among single males, which is comparably lower to the other countries. I decided to keep the male respondents of the Dutch sample in the analysis, but these issues have to be kept in mind when

Table 1 Information on the datasets: year of collection (year) and sample size

Country	Year	Sample size[2]		
		Total	Women	Men
Scandinavian countries				
Norway	2007-08	1203	1,203	-
Sweden	2012-13	2,054	937	1,117
Western European countries				
Belgium	2008-10	614	614	-
Austria	2008-09	1,105	1,014	2,119
Germany	2005	1,304	657	-
France	2005	1,936	1037	899
Netherlands	2002-04	1,481	758	723
Eastern European countries				
Bulgaria	2004	2,814	1,246	1,568
Hungary	2004-05	2,585	1,061	1,524
Romania	2005	1762	604	1,158
Lithuania	2006	1,967	796	1,171
Russia	2004	792	-	792
Southern European country				
Italy	2003-04	2,746	1,248	1,498

Source: Generations and Gender survey, wave 1

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[2] Sample size after deleting respondents with values missing on the (in)dependent variable(s).

interpreting the results. Finally, 317 single males in Germany received the questions on fertility intentions but did not answer to them. Since this makes up 63% of the single males in the sample, German male respondents are also excluded from the analysis.

Among the female respondents, high missings on fertility intentions can be found in Russia (63%), Czech Republic (26%), the Netherlands (20%) and Poland (20%). Female respondents from the Russian, Czech Republican and Polish sample are excluded, since about 80 to 90% of the missings are women without partner (with the exception of Russia, where 70% of the missings are among the women in a relationship). The missings in the Dutch sample are comparably high in total, but are evenly distributed among single and partnered females (50%). They are therefore kept in the sample. Finally, Estonia is not included in the analysis, since questions about fertility intentions were not asked to men and the sample size among females is low (for example, only 4 respondents have a partner and do not intend to have a child). Due to too low sample sizes, Georgia is also excluded from the sample. Table 1 provides an overview of the remaining sample.

3.2   Variables

The dependent variable is *fertility intentions*. In the GGS, fertility intentions are measured with three questions: Whether someone intends to have children within three years (fertintent_within3), would like to adopt children (fertintent_adopt) and – if not – whether he or she would like to have children at all (after three years – fertintent_after3). In most countries, the answer categories are "Definitely not", "Probably not", "Probably yes" and "Definitely yes". In Hungary, Norway and the Netherlands, the questions can be answered with "Yes" or "No". To compare the data sets, the answer categories are therefore summarized in the following way: If someone answers definitely or probably yes, he or she is intending to have children, while definitely or probably not are recoded as a negative response to childbearing intentions.

In the majority of countries, except for Italy, the Netherlands and Hungary, respondents were explicitly asked if they intend to adopt or to take a foster child in the next three years. Instead of asking if someone intends to have children after three years, respondents in France and Belgium are asked whether they would like to have a child of their own or adopt a child after three years. Therefore, both the intention to have a child and the intention to adopt a child are included in the final variable to give a more accurate reflection of the data. Nevertheless, the number of persons mentioning that they probably or definitely intend to adopt a child is small and ranges from 155 (3.26% of the sample) in France to 41 (0.96%) in Czech Republic. On average, 1.31% of the final sample would like to adopt children across countries.

Respondents in the GGS are asked about their fertility intentions by firstly asking whether they intend to have or adopt children within the next three years. If they do not intend to do so, they are asked if they would like to have children at all (after the three years). As I am interested in the overall intention to have children, rather than the short-term intentions, I am summarizing the questions in the following way: If a respondent answers 'definitely yes' or 'probably yes' to either fertintent_within3, fertintent_adopt or fertintent_after3, I consider him as intending to have children. If a respondent answers 'definitely no' or 'probably no' to all three questions, I consider him as not intending to have children. If a respondent did not answer clearly to fertintent_within3 nor fertintent_adopt he is not considered, since it is not possible to clearly say whether or not he wanted to have children within three years. On the other hand, if a respondent did not receive the questions to fertintent_within3 or fertintent_adopt , but answered 'no' to fertintent_after3 he is counted as not intending to have children.

For the descriptive statistics, *age* of respondents is recoded as categorical variable. In this way, I can address the nonlinearity of fertility intentions across different stages of the life course. The four age groups are "below 25", "25 to 29", "30 to 34" and "above 34". For the models, age is measured as a continuous as well as squared variable. Due to the small sample size, this strategy allows me to explore the interaction between partnership status, fertility intentions and age. The variable *partnership status* measures whether someone is in a relationship (married, non-marital cohabitation, living-apart-together) or if a person does not have a partner. Due to the relatively low number of childless people and the resulting low sample size within the sub-groups, it is not possible to distinguish between different types of relationships. The socioeconomic background is measured by the *highest educational level* of a respondent. The highest educational level in the GGS is transformed

into a continuous scale which represents the ISLED (International Standard Level of Education) score for every participant. The ISLED score was developed by Schröder and Ganzeboom (2014) and gives every country-specific educational category a score from 1 to 100. The advantage of using the ISLED score is, firstly, that educational level can be treated as a continuous variable. Secondly, the continuous ISLED variable represents the country-specific educational system more accurately since it reflects educational levels, which otherwise would have been summarized in a single category (Schröder & Ganzeboom, 2014). I am therefore measuring highest educational level by a harmonized, continuous variable developed by Brons and Mooyaart (2018) for the GGS Wave 1, which is based on the ISLED score.

3.3   Analytical strategy

After interpreting the descriptive statistics and distribution of the intention to have children across countries, age groups, partnership status and gender, I am conducting separate logistic regressions for each country and men and women. This gives a first overview on the influences of partnership, age and educational level on the intentions to have children. In the second step, I am calculating the *average marginal effect* (AME) of having a partner on the probability of intending to have children (H1) across countries and genders. The coefficients of partnership then show the average increase in percentage points of the probability to intend to have children if someone is in a relationship (see Williams, 2012). In order to test a possible interaction effect between partnership status, age and fertility intentions (H2), I am calculating the *predicted probability* of intending to have children while including an interaction effect between age and partnership status. The results display the predicted probability of intending to have children over the life course for individuals with and without partner at a mean level of education. In the last step, I am testing whether the *difference in predicted probability* of fertility intentions between the two groups are actually significant over the life course. The methods and their interpretation are explained in more detail when presenting the results of the multivariate analysis at the beginning of chapter 4.2.

4   Results

4.1   Descriptive statistics

In the following section, the descriptive results of the analysis are presented. Table 2 contains the share of respondents intending to have a child across countries, gender, age group and partnership status. For example, 89.3% of the Norwegian female respondents without partner below the age of 25 intend to have a child (see first column and row in table 2). Since the number of respondents across age categories are not distributed equally, the results have to be interpreted with caution. Nevertheless, the results give a first impression of the relation between age, partnership status and fertility intentions. First, I am comparing the differences in share of positive fertility intentions among the group of single and partnered people. Then, I am considering the differences in share across age groups. Finally, I am comparing the share of positive fertility intentions across countries.

Partnership status and fertility intentions

Across all countries and both genders, the share intending to have children (averaged across age groups) is higher among those in a partnership, which points at the positive correlation between being in a partnership and intending to have children. Nevertheless, the differences in share vary across countries. Among females, the highest difference in share is about 10 percentage points in Italy, France and Belgium. For males, the highest difference can be found in France (10%), Russia (9%) and Hungary (8%). In other countries, the shares of people intending to have children among those in a relationship and single respondents are very similar, for example among males in the Netherlands: 69.9% among the single and 70.6% among the partnered respondent intend to have children. Interestingly, this trend seems to reverse in the higher age groups in some countries. Especially among females in Sweden and males in the Netherlands, the share of respondents intending to have children among those above 34 years is noticeably higher among singles than among partnered people.

Table 2 Share in % of respondents intending to have children across countries, age groups, gender and partnership status

Age	Coun.	Women		Men		Coun.	Women		Men	
		No partner	Partner	No partner	Partner		No partner	Partner	No partner	Partner
Scandinavian countries										
< 25	NOR	89.3	93.6			SWE	90.6	93.1	90.3	96.6
25 - 29		81.5	93.5				87.3	94.4	90.0	94.6
30 - 34		82.8	89.4				79.3	91.6	82.0	87.7
> 34		27.4	41.6				50.0	34.9	47.5	49.4
Ø		*78.8*	*86.3*				*86.1*	*86.5*	*80.6*	*85.8*
Western European countries										
< 25	AUT	88.4	92.1	86.4	92.5	BEL	82.0	84.2		
25 - 29		87.7	90.1	83.3	95.3		68.9	90.2		
30 - 34		81.5	83.6	74.6	91.4		63.6	75.5		
> 34		43.5	43.3	75.2	67.4		20.8	24.6		
Ø		*79.0*	*81.4*	*82.1*	*87.4*		*65.4*	*74.3*		
< 25	FRA	74.0	83.4	72.4	75.7	DEU	81.3	92.6		
25 - 29		79.5	94.2	71.8	88.4		90.0	85.1		
30 - 34		91.1	85.0	74.6	81.4		55.6	79.6		
> 34		32.0	39.8	42.9	42.7		17.0	15.1		
Ø		*67.5*	*79.6*	*63.6*	*73.6*		*65.3*	*70.4*		
< 25	NLD	89.5	95.8	91.0	94.9					
25 - 29		88.0	93.9	89.0	93.5					
30 - 34		78.5	74.0	75.0	85.1					
> 34		19.2	17.2	34.3	25.6					
Ø		*68.7*	*74.6*	*69.9*	*70.6*					
Eastern European countries										
< 25	HUN	93.4	96.3	90.1	92.5	BGR	93.4	99.1	90.8	92.4
25 - 29		92.1	98.0	89.9	95.4		91.5	99.2	92.2	99.1
30 - 34		88.1	92.3	81.8	91.8		89.0	90.0	86.4	96.2
> 34		40.0	55.6	57.2	73.8		54.7	76.7	65.7	81.8
Ø		*87.1*	*93.8*	*83.3*	*91.1*		*88.1*	*95.1*	*86.7*	*93.0*
< 25	LTU	98.8	99.3	97.7	98.4	ROU	96.2	98.7	93.3	98.1
25 - 29		96.8	100.0	92.2	100.0		92.8	98.7	95.9	96.9
30 - 34		91.2	95.8	76.2	91.1		87.8	95.4	86.1	97.7
> 34		26.3	31.2	20.6	42.0		46.4	50.9	49.4	67.9
Ø		*87.3*	*91.5*	*84.2*	*91.2*		*86.5*	*88.6*	*82.7*	*88.9*
< 25	RUS			86.4	98.1					
25 - 29				90.0	96.9					
30 - 34				84.6	85.4					
> 34				50.0	55.7					
Ø				*81.1*	*90.1*					
Southern European country										
< 25	ITA	88.3	98.0	89.2	91.6					
25 - 29		93.9	97.9	89.7	94.9					
30 - 34		84.7	95.6	88.1	93.7					
> 34		37.2	53.9	53.7	65.7					
Ø		*71.8*	*84.4*	*77.6*	*84.7*					

Source: Generations and Gender survey, wave 1; own calculations

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Age and fertility intentions

In the age groups below 25, the percentage of female respondent intending to have a child varies from 74% in France to 98.9% in Lithuania. Among males, the lowest percentage below the age of 25 can also be found in France (72.4%) and the highest one in Lithuania (98.4%). Across all countries, the percentage of people intending to have children is by far lower in the age category above 34. In many but not all countries the percentage intending to have children is highest among the respondents below 25. While the intention to have children generally declines across age groups, this points at a non-linear effect between age and fertility intentions. Within countries, the shares of people who intend to have children are relatively comparable. Nevertheless, above the age of 34, the share of men intending to have children is larger than the share of women when comparing single and partnered women to their male counterparts. In general, this would indicate that fertility intentions among men decline at a later stage. The only exception is Lithuania, where a higher share of single women (26.3%) than a share of single men (20.6%) intends to have children above the age of 34.

Country differences in terms of fertility intentions

In terms of differences between countries, the overall intention to have children among men and women is especially high in the Eastern European countries ranging from 89% in Bulgaria to 86% in Romania and the Scandinavian countries. Among the Western European countries, the highest share can be found in Austria (82%) and the average across the countries is at 72.5%. Therefore, the overall intention to have children is considerably lower across the Western than the Eastern European countries. Furthermore, on average, the difference between people with and without partner seem to be especially large among people above the age of 34 in the Eastern European countries and Italy. In the Western European countries, the group differences are not as large or, as mentioned above, even turn negative, as is the case for females with partner in Germany and the Netherlands, respondents in Austria and especially pronounced for female respondents in Sweden and males in the Netherlands. Possible explanations for this finding will be discussed later on.

4.2 Multivariate analysis

The multivariate analysis consists of three main methods. Firstly, I am calculating separate logistic regressions for men and women for each country, in order to detect the influence of having a partner on the likelihood of intending to have children. I am controlling for the influence of age and educational level, but do not include an interaction between age and partnership status yet. To model a possible non-linear effect between age and fertility intentions, age is firstly measured in four age categories. The reference category is the group of 30- to 34-year olds (see appendix table 1). Secondly, I measure age as a continuous variable but add age squared to the model (see appendix table 2). To facilitate the interpretation of the non-linear effect of age, the variable is centred at 18.

In a second step, from the logistic models, I am calculating the *average marginal effects* of having a partner on the intention to have a child (see table 3). In theory, average marginal effects are calculated by computing the predicted probability for each case given that someone changes from being single to having a partner and assuming similar values - in this case for the covariates age and educational level - for every observation. The overall average across differences in predicted probability of each single case computes the AMEs. Since the AMEs are not influenced by unobserved heterogeneity, the effect of partnership on the probability of intending to have children can be compared across countries (Mood, 2010).

In the third step, in order to analyse the influence of having a partner during the life course, I add an interaction effect between partnership status and age to the model and calculate the predicted probability of intending to have a child for people with and without partner conditional on age. By calculating the difference in probability, I am furthermore analysing whether the difference between the two groups is significant. Different from the AMEs, the coefficients are now influenced by unobserved heterogeneity and therefore the level of probability cannot simply be compared across countries (Mood, 2010). On the other hand, since the predicted probabilities show the effect of having a partner conditional on age, non-linear effects can easily be detected within countries.

In the following sections, I am jointly considering the results of the mentioned methods in terms of 1) the influence of partnership on fertility intentions and 2) fertility intentions during the life

course. In doing so, I am considering differences across countries. While I am primarily focussing on the results for women, I conclude the results with a comparison to the findings for males and a short reflection on the effect of educational level on fertility intentions (4.3).

Partnership status and fertility intentions

The results of the logistic regressions show that the effect of having a partner increases the likelihood of intending to have children significantly in the majority of countries (see appendix table 1 to 2). When age is measured as a categorical variable, the results are positive but insignificant for females in Sweden, Belgium, the Netherlands and Lithuania (appendix table 1). When considering a continuous and squared measurement of age (appendix table 2), the positive effect of having a partner on fertility intentions turns significant in Belgium and Lithuania. The effects remain insignificant in Sweden and the Netherlands and furthermore turn insignificant for females in Austria, indicating that the effect of partnership status is depending on how age is measured and pointing at a varying effect of partnership across age.

In the next step, from the logistic models, I am calculating the average marginal effects of having a partner on the intention to have a child. Both measuring age as a squared variable (see table 3) and as a continuous variable (see appendix table 3) yields similar results aside from small differences in the coefficients. As mentioned, the AMEs represent the averaged difference in probability of fertility intentions if someone has a partner, given that the values of the covariates age and education remain the same for each observation. The results can be interpreted in the following way: For example, for partnered females in Norway, the likelihood of intending to have a child increases on average by 8.2 percentage point compared to single women.

Moreover, the results can now be compared across countries. For females in Sweden, the likelihood increases by 3.7 percentage points. Among the Western European countries the highest increases can be found in France (8.6 percentage points) and Austria (7.9 percentage points). Among females in Belgium and the Netherlands, the results are not significant. Across all Eastern European countries, the difference between singles and partnered females is significant. In summary, across all countries, the highest increase in likelihood of intending to have children can be

Table 3 Average marginal effect of having a partner on fertility intentions (with age as squared variable); M = Males, F = Females

Coun.	F/M	Partner	95% - confidence interval	
Scandinavian countries				
NOR	F	0.080***	0.0425	0.117
SWE	F	0.037+	-0.004	0.078
	M	0.040*	0.001	0.078
Western European countries				
AUT	F	0.079*	0.015	0.143
	M	0.050*	0.006	0.094
BEL	F	0.027	-0.017	0.070
DEU	F	0.072*	0.015	0.129
FRA	F	0.086**	0.036	0.136
	M	0.071*	0.013	0.129
NLD	F	0.029	-0.020	0.077
	M	-0.007	-0.057	0.043
Eastern European countries				
BUL	F	0.068***	0.041	0.095
	M	0.062***	0.032	0.092
HUN	F	0.048**	0.017	0.080
	M	0.063***	0.031	0.010
ROU	F	0.060**	0.019	0.101
	M	0.069***	0.034	0.103
LIT	F	0.029*	0.002	0.056
	M	0.051***	0.023	0.078
RUS	M	0.084***	0.039	0.128
Southern European countries				
ITA	F	0.117***	0.081	0.153
	M	0.072***	0.036	0.108

Average marginal effects;
+ p<0.10, * p<0.05, ** p<0.01, *** p<0.001;
Source: Generations and Gender survey, wave 1; own calculations

observed for females in Italy (11.7 percentage points) and France (8.6 percentage points) and the lowest in Belgium (2.7 percentage points), followed by Lithuania (2.9 percentage points).

Considering both the results of the logistic regressions and the AMEs, I am concluding that the effect of partnership is significant in the majority of countries, but that the results are depending on whether the non-linear effect of age is modelled by a categorical age variable or by adding a squared age variable and on whether logistic regressions or AMEs are calculated. Females in the Netherlands are the only group for which both the logistic regressions and the AMEs do not yield significant results in terms of a positive effect of partnership on fertility intentions. Within the geographical regions, the coefficients vary considerably. Drawing on these results, no clear pattern is observable across countries.

To explore the variation of the effect of partnership status in more detail, I added an interaction effect between partnership status and age to the model and calculated the predicted probability of fertility intentions for people with and without partner across the life course. Furthermore, I calculated the difference in probability to analyse whether the groups differ significantly from each other. The results across countries can be grouped according to three main variations of the interaction between age and partnership status. To provide a comprehensive overview, I am only presenting the results for females in Sweden, Bulgaria and the Netherlands, which represent the three typical variations of the effect of partnership status across the life course. A complete overview of the predicted probabilities and difference in probabilities across all countries and both genders can be found in the appendix (table 4).

Figures 1 to 3 display the results of 1) the predicted probabilities of fertility intentions (graphs on the left) and 2) the difference in probability (graphs on the right) for each of the three countries. In the graphs on the left, the black dots display the conditional predicted probabilities of fertility intentions for partnered women. The white dots represent the predicted probabilities for singles. The graphs on the right display the difference in probability when having a partner, which is represented by the solid curve. The dotted lines represent the 95%-confidence intervals. When the *bottom* dotted curve moves below zero, single and partnered people do not differ significantly from each other. When the solid curve as well as the *upper* dotted line are below zero, this indicates that the probability of intending to have children is significantly higher for singles compared to people in a relationship. Again, it is important to note that the results display the predicted probabilities at the mean level of education within each country.

Overall, the results clearly show that the effect of partnership on fertility intentions is varying during the life course. The predicted probabilities indicate that the overall probability to intend to have children decreases during the life course. People with a partner have a higher probability of reporting positive fertility intentions than those without partner. Nevertheless, the two groups seem to approach each other towards the end of the observed age period (for example for women in Bulgaria; see figure 3) and the effect even reverses in some countries, so that the group of singles seemingly has a *higher* predicted probability of intending to have children than the group of people with a partner (for example in Sweden and the Netherlands; see figure 1 and 2). Furthermore, countries vary in terms of the age point at which the difference between single and partnered women turns insignificant or reverses.

Figure 1 Predicted probability of intending to have children (left) and difference in probability of fertility intention when being in a relationship (right): Females in Sweden
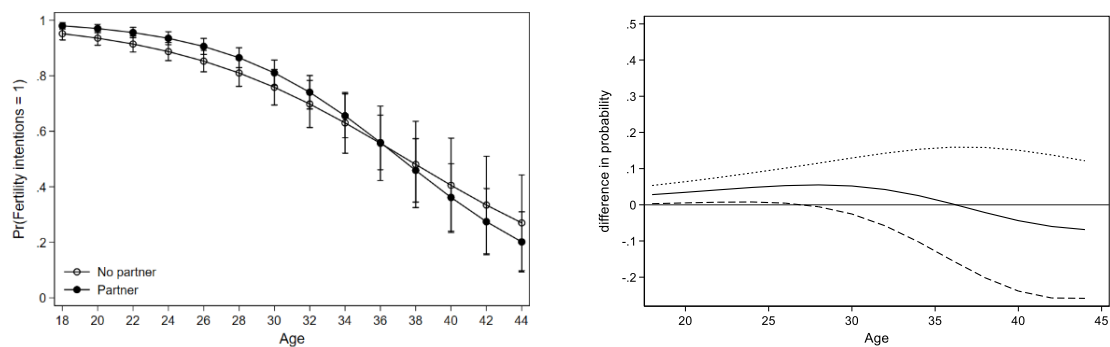
Source: Generations and Gender survey, wave 1; own calculations

In several countries, the effect of having a partner is only small according to the predicted probabilities and furthermore tends to turn insignificant between the age of 25 to 35. These countries are represented by the Swedish results. According to the predicted probabilities (graph on the left), Swedish females with partner have a higher probability of intending to have children until about the age of 36 after which singles seem to have a higher probability of positive fertility intentions. The difference in probability (graph on the right) shows that the difference between singles and partnered women in terms of their fertility intentions only differs slightly from zero and turn insignificant already between the age of 25 to 30. This fits to the previous results of the logistic regressions, which did not yield significant results. Taking the difference in probability into consideration, I would argue

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that having a partner does have a slightly positive effect for females in Sweden but that this difference in terms of their fertility intentions is very small and can only be observed before the age of thirty.

Similarly small effects can be found in Belgium, the Netherlands and Hungary. Nevertheless, at some age point, the effect of having a partner has a significantly positive effect on fertility intentions across all countries – with the exception of Austria, where it does not turn significant at any point. Again, it is important to note that the predicted probabilities are presented at a mean educational level, which could explain why the AMEs did yield positive significant results for Austria, while the predicted probabilities did not.

Figure 2 Predicted probability of intending to have children (left) and difference in probability of fertility intention when being in a relationship (right): Females in Bulgaria
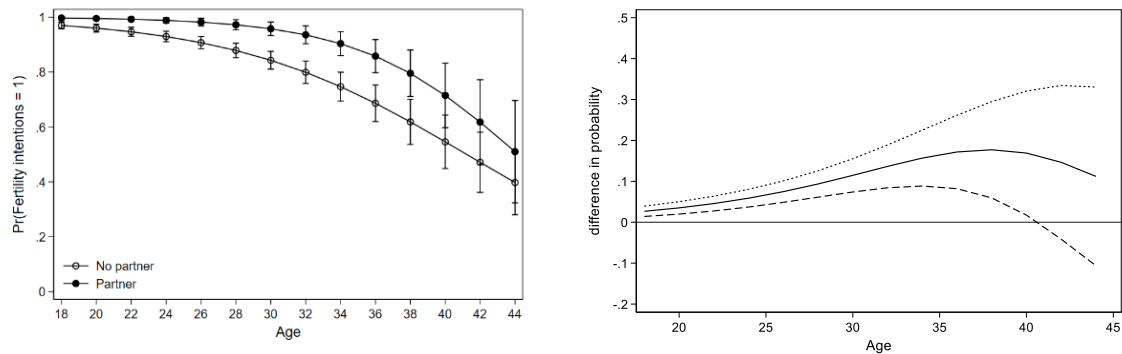
Source: Generations and Gender survey, wave 1; own calculations

The conditional predicted probabilities for Bulgaria represent the second variation of the interaction effect. Compared to the results for Sweden, the effect of having a partner remains significant and positive until approximately the age of 40. Compared to the Western European countries, the period in which the difference between singles and partnered people is significant seems to be larger across Eastern European countries and Italy - with the exception of females in Lithuania, where the groups only differ significantly between the ages of approximately 28 to 35. This results will be discussed in more detail in the following section.

Figure 3 Predicted probability of intending to have children (left) and difference in probability of fertility intention when being in a relationship (right): Females in the Netherlands
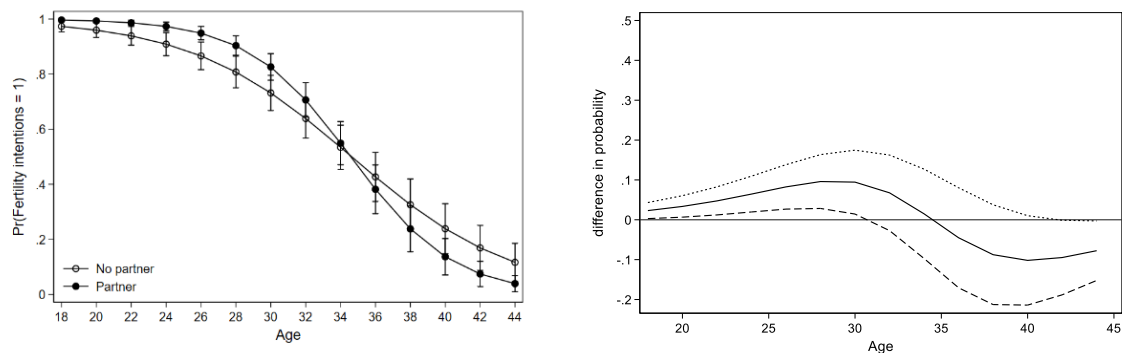
Source: Generations and Gender survey, wave 1; own calculations

In the majority of countries, the group of partnered people have a higher probability of intending to have children up to a certain age threshold after which the difference turns insignificant. Still, according to the predicted probabilities, this effect not only turns insignificant but also reverses in a couple of countries, which represents the third variation in the interaction. For females in Sweden, Germany, Austria, the Netherlands and Hungary, the predicted probability of intending to have a child among the singles surpasses that of people in a relationship approximately at the age of 35 or above, but this finding is only significant for the Dutch female respondents after the age of 42 to 44. While the effect of having a partner among Dutch respondents does increase earlier in the life course,

it decreases and even reverses later, meaning that single respondents are more likely to intend to have children than partnered people after around the age of 42. Possible explanations for this finding will be discussed in the conclusion. Furthermore, comparing the results of the predicted probabilities to the previous findings of the logistic regression and the AMEs- which did not find a significant effect of partnership on the intention to have children for the Netherlands - shows that the conditional predicted probabilities capture a non-linear relation between age and having a partner, which cannot be modelled by the previous methods.

Age and fertility intentions

In terms of age, the results reflect the prior finding that the likelihood of intending to have children decreases with age. According to the results of the logistic regression and the categorical age variable, respondents above the age of 34 report a significantly lower intention to have children across all countries (see appendix table 1). Given that the highest age category includes respondents from the age of 34 to 45 this finding is not surprising. Across the majority of countries, with the exception of females in Italy and France, individuals below the age of 25 are more likely to report positive fertility intentions than respondents between the ages of 30 to 34. Adding a squared age effect shows that a significant, non-linear effect between age and fertility intentions exists for females in the majority of countries, with the exception of Lithuania. This implies that the strength of the negative effect of age on the likelihood of intending to have children is increasing with age. Furthermore, among females in France and Italy the likelihood of intending to have children increases significantly after the age of 18 before declining. In the remaining countries, the overall intention to have children declines from the start of the observed age period.

As mentioned in the previous section, the relation between partnership status and fertility intentions varies strongly with age. For females across all countries, with the exception of Austria, the effect of partnership increases up to a certain threshold before single and partnered females no longer differ significantly in terms of their fertility intentions or before the effect between single and partnered people reverses in the case of the Netherlands. Importantly, the effect turns insignificant at different age points across countries. Among females in the Western European countries – with the exception of Austria, where the effect is not significant at any point – the difference turn insignificant approximately between the ages of 30 to 35. In Bulgaria, Romania and Italy the positive effect of having a partner turns insignificant around the age of 40 or above. In Lithuania, on the other hand, the effect of having a partner only has a significant positive effect approximately between the age of 28 to 35. In Hungary, the effect also turns insignificant slightly before the age of 35, similar to the pattern in the Western European countries. In Norway, the difference between singles and partnered people turns insignificant shortly before the age of 40. Possible explanations for the difference in the interaction effect are discussed in the conclusion.

4.3   Other findings

While my focus lays on women's fertility intentions, I also compare the results to those of men. Due to high missings or biased data, as explained in chapter 3.1., a comparison between men and women is only possible for nine countries in the sample. On the one hand, the descriptive results show that the average shares of men and women intending to have children are relatively similar within countries, indicating that the variation in fertility intentions can rather be found across countries than genders. On the other hand, the difference between men and women in terms of their fertility intentions seem to be more pronounced in the upper age category. Given that female fecundity declines earlier with age and that higher societal age limits of parenthood are reported for men than women (Iacovou & Tavares, 2011; Liefbroer et al., 2015) this finding would make sense.

These results are also reflected in the multivariate analysis: Among the nine countries in which men and women can be compared, the AMEs show that the overall average influence of having a partner on the probability of intending to have children yields comparable results. For example, the effect is insignificant for both genders in the Netherlands and significantly positive among both genders in the remaining countries. Nevertheless, at a medium level of education, the predicted probabilities and differences in probability show that there are considerable differences in the effect of partnership on fertility intentions during the life course. In Sweden, Hungary and Lithuania the differences between singles and people in a relationship turn insignificant considerably later for males

than for females. In France, the Netherlands, Romania and Italy the results turn insignificant – or in the case of the Netherlands reverse – at relatively similar age points. Males in Bulgaria are the only group across the sample in which the effect of having a partner remains significantly positive across the entire observed age period from 18 to 45. In Austria, the effect of having a partner is not significant at any point for females, while the difference is significant for males until approximately between the ages of 30 to 35. In conclusion, while the descriptive analysis and the AMEs suggest a similar pattern across genders within the countries, the predicted probabilities and difference in probability show that the relation between partnership status, age and fertility intentions plays out differently for men and women. In some countries, the decline in fertility intentions is less steep for men, which fits the explanation that men's fecundity declines later and that parenthood is on average accepted until later ages. Since the predicted probabilities cannot directly be compared to each other, the results have to be considered cautiously.

The models also controlled for the effect of educational level on fertility intentions or, in case of the predicted probabilities, reported the effect of partnership at a mean level of education among each country. As assumed in chapter 3.1, an increase in educational level is associated with a higher likelihood of intending to have children in the majority of countries. Nevertheless, whether the results turn significant depends on the way that age is measured in some cases. Furthermore, relations that were significant in the logistic regressions or the AMEs turn insignificant when calculating predicted probabilities at a mean level of education in the case for females in Austria. In conclusion, educational level has a significant positive effect in the majority of countries, but the variation in terms of educational level is complex and cannot be definitively modelled in my study.

5   Conclusion & discussion

Previous studies have supported the assumption of a positive effect of partnership on fertility intentions (see e.g. Kapitány et al., 2012; Rybińska & Morgan, 2019) but different results have been found in terms of a variation in this effect due to age: Iacovou and Tavares (2011) did not find a significant interaction between age and partnership status for a British sample. Liefbroer (2009) found a positive interaction between having a partner and age for Dutch parents and a negative interaction for childless respondents, indicating that the positive influence of partnership on the expected number of children decreases as childless persons age. In contrast to the previous studies, I operationalize fertility intentions as the overall intention to have children rather than the expected number of children. Moreover, my sample consists only of childless respondents, meaning that the focus of my study lays on the general intention to have children, which is a persistent normative goal in contemporary societies (Sobotka & Beaujouan, 2014), rather than the decision to have additional children, which is driven by more rational considerations (Harknett et al., 2014). Based on data from the first wave of the Generations and Gender survey, I analysed the relation between partnership, age and fertility intentions across 12 European countries. By combining the results of logistic regressions, average marginal effects and predicted probabilities at different age points, I provide a better understanding of the effect of partnership status on fertility intentions.

The results of the logistic regressions and the AMEs show that the effect of having a partner on the intention to have children is positive across the majority of countries. Nevertheless, in some countries diverging results in terms of the significance can be found when measuring age as categorical or squared variable in the logistic regressions or when calculating AMEs. Males and females in the Netherlands are the only group in which none of the models yield a significantly positive effect of partnership on fertility intentions. In comparison, the AMEs of having a partner on fertility intentions vary between approximately 3 percentage points in Belgium and Lithuania to 12 percentage points in Italy. Besides the fact that the average overall intentions to have children is lower in Western than in the Eastern European and Scandinavian countries and Italy, no clear pattern indicating a correlation between a more extensive welfare system or liberal norms and a lower influence of having a partner on fertility intentions can be observed from this data.

To explore the effect of partnership during the life course, I calculated the predicted probabilities of fertility intentions at different ages. The results show that the influence of having a partner varies greatly during the life course. Across the majority of countries, the influence of having a partner initially increases starting from the age of 18, indicating that whether someone is in a partnership or

not at that age is less influential than at later stages in life. Importantly, the effect of having a partner turns insignificant across all countries and genders, with the exception of males in Bulgaria. There, the positive effect of having a partner remains significant across the observed age period.

When comparing the results of the logistic regressions and AMEs to the predicted probabilities, the results of two countries stand out. Firstly, while the AMEs revealed a positive influence of partnership on fertility intentions among females in Austria, the predicted probabilities did not turn significant at any point. A possible explanation would be that the predicted probabilities are reported at a mean level of education. Arguably, the relation between partnership and fertility intentions might vary by educational level, since educational level also has an influence on the partnership status at childbirth (see e.g. Koops et al., 2017; Mack, 2017; Perelli-Harris et al., 2010). Secondly, for females and males in the Dutch sample, the influence of having a partner is positive, but the difference between singles and partnered people turns insignificant and then reverses after approximately the age of 40. After that age, singles report a significantly higher probability of intending to have children than people in a relationship. Interestingly, no significantly positive effect of partnership can be found for Dutch respondents in the logistic regressions and the AMEs, indicating that – at least at a mean level of education – the predicted probabilities uncover a non-linear effect of partnership during the life course. For a Dutch sample, Liefbroer (2009) finds a negative interaction between partnership and fertility intention for childless people, indicating that the positive effect of having a partner decreases especially strongly for childless respondents. Based on my results, I would argue that the effect of having a partner actually increases initially for childless respondent but then turns insignificant or reverses. This is more accurately modelled by the predicted probabilities at different age points.

In terms of the effect of age on fertility intentions, the results show that the probability of intending to have children declines during the life course. This effect is non-linear in the majority of countries and shows that fertility intentions decline especially strongly in the older age categories. Nevertheless, with the exception of Italy and France, the effect declines steadily from the beginning of the observed age period at 18. This is in line with previous studies, which find that the overall fertility intentions primarily reflect the social influences at a younger age and are then adjusted downward during the life course (Liefbroer, 2009; Rybińska & Morgan, 2019). In terms of the interaction between partnership, age and fertility intentions three, main patterns can be found. Especially in several Western European countries and Sweden, the difference in fertility intentions between singles and partnered people turns insignificant at an earlier stage between the ages of 25 and 35. In the majority of Eastern European countries and Italy, this pattern can only be observed around the age of 40 or later.

In terms of the hypotheses, I am therefore drawing the following conclusions: Hypothesis 1, which states that men and women in a relationship are more likely to intend to have a child, is supported when considering the results of the logistic regressions, the AMEs and the predicted probabilities at different age points. Importantly, the effect of having a partner turns insignificant across all countries (except of males in Bulgaria) or even reverses for females and males in the Netherlands. Hypothesis 2 states that the influence of partnership status on fertility intentions increases during the life course, since whether or not someone has a partner has a stronger influence on the intention to have a child when nearing the socially acceptable ages at first birth. Indeed, the results show that the influence of having a partner increases from the start of the observed age period. Nevertheless, the positive influence decreases and turns insignificant after a certain age across countries.

Several explanations for this diminishing difference between singles and partnered people in terms of their fertility intentions have to be considered. Firstly, I would assume that for both women and men - although arguably at a later stage - the presence of a partner does not play a role after a certain age threshold, since the decision not to have children is finalized at some stage and therefore no longer significantly dependent on partnership status. According to Rybińska and Morgan (2019), expectations of childlessness vary considerably during the life course. Their results show that half of the female respondents who remained childless during the life course repeatedly postponed childbearing before they adopted childlessness expectations, especially after the age of 35 to 40. Socio-demographic and situational factors such as employment and partnership status have a lower *immediate* influence on the expectation of childlessness but lead to repeated postponement. Given the social age deadlines which are on average lower for women (Liefbroer et al., 2015) or the

habituation to a life without children (Rybińska & Morgan, 2019), women could stop planning to have children independent of whether they have a partner or not. However, the fact that the difference between single and partnered people turns insignificant could also imply that childless people are even more determined to fulfil their childbearing intentions at a later stage in life, even if they are currently not in a relationship. Findings by Wagner et al. (2019) indicate that women and men between the age of 35 to 37 are more polarized in terms of their fertility intentions. While the majority changes from intending to not intending children, others are increasingly likely to report short term fertility intentions. If a person would like to realize the wish of having a child, he or she could for example intensify the search for a suitable partner and the fact that this person is single at the moment of the study does no longer influence her overall intentions significantly. I would argue that both explanations seem plausible and could jointly lead to the insignificant difference between singles and partnered individuals at later stages in life. Furthermore, data structure also has to be considered. Since I am looking at a sample of childless people, the large majority of the sample are younger people, while the share of older childless people is comparably small, even in the European low-fertility context. While the low sample size could influence the significance level, this is an issue generally faced by studies about childlessness.

A further possible reason for the diminishing difference between single and partnered people is connected to the increasingly selected sample of childless respondents. If a person has a partner but is still childless at a later stage in life, the chances might be higher that this person voluntarily chose not to have children. For singles, on the other hand, the missing partner could act as a constraint, limiting the realization of their fertility intentions. After a certain age, singles might then, on average, even report higher fertility intentions than partnered people, as can be observed for the Dutch respondents, or the differences between the two groups might simply decrease as the results for the remaining countries show.

Interestingly, the results also show that the difference between singles and partnered people, on average, turns insignificant at later stages across Eastern European countries and Italy compared to Western European and Scandinavian countries. According to Merz and Liefbroer (2012), the levels of voluntary childlessness are lower in the Eastern and Southern European countries than in Western European countries, which was also reflected in the overall share of people intending to have children across countries. In a context of lower voluntarily childlessness, the difference between single and partnered people could remain significant across a larger age period since respondents might, in tendency, report the intention to have children even at older ages. Nevertheless, this finding has to be considered carefully, since the predicted probabilities are not directly comparable across countries and since the question of causality remains open. Finally, similar to Rybińska and Morgan (2019), I find a significant, positive effect of educational level on fertility intentions across the majority of countries. While a higher education level is associated with a postponement of births, it also increases the expectation (Rybińska & Morgan, 2019) as well as the intention to have children, as my results have shown.

Finally, several limitations of the analysis and points of departure for future studies should be mentioned. Firstly, focussing on childless respondents leads to a highly selective sample at later stages of the life course. The overall number of respondents, which is comparatively high in the GGS in comparison to other surveys, and the fact that a large number of countries can be included, are the main advantages of the chosen data set. Secondly, differences in the way that questions on fertility are asked across countries, for example including adoption and childbearing in a question in one country and not asking about adoption at all in another as well as different answer categories, might influence the results. Nevertheless, I would expect that general trends can still be observed with the data, despite small differences in operationalization. Thirdly, the question of causality remains unanswered: For example, it is plausible that people who are more likely to intend to have children are also more likely to be in a relationship in order to realize this intention. Nevertheless, previous studies support the theoretically derived causal relationship between partnership and fertility intentions (see e.g. Rybińska & Morgan, 2019; Wagner et al., 2019). In order to draw causal inferences from the results, future studies should continue to test the relation with the use of longitudinal data. Due to the low prevalence of people who decide to have a child independently of a partner, an additional analysis could distinguish between people who are in relationship and view it as a stable commitment and people who question the stability of their relationship. A further fruitful approach, which was

touched upon in chapter 2.6., would be to analyse the discussed relations at different educational levels, since previous studies suggest a considerable variation in effect due to socio-economic background. Finally, this study could be replicated using data from the Family and Fertility survey, which was conducted approximately 10 years earlier than the GGS, or data from future GGS waves. Although the intention to become a parent as well as having a child within a stable relationship has remained stable so far and is not expected to change in near future, technological advances might, for example, influence females fecundity and consequentially the relation between age and fertility intentions. Monitoring future developments in the relation between partnership status, age and fertility intentions and possible variations due to further variables is therefore an important task for future research.

6 Appendix

Table 1 Results logistic regression: Effect of partnership, age (categorized) and educational level on intention to have children; odds ratios; M = Males, F = Females

| Coun.	M/F	Partner(ref.: no partner)	Age				Educational level
			<25	25-29	Ref: 30-34	>35	
Scandinavian countries							
NOR	F	2.050***	2.092*	1.233	1.000	0.084***	1.007
SWE	F	1.308	2.217*	1.675	1.000	0.090***	1.019+
	M	1.458*	3.392***	3.392***	1.000	0.178***	1.027**
Western European countries							
AUT	F	1.610*	2.448**	1.900+	1.000	0.126***	1.016*
	M	1.486*	1.972*	1.985*	1.000	0.452**	1.019**
BEL	F	1.180	2.414**	1.791*	1.000	0.166***	1.017**
DEU	F	1.639*	3.474***	2.882**	1.000	0.076***	1.019*
FRA	F	1.682**	0.521*	1.045	1.000	0.077***	1.003
	M	1.338+	0.831	1.208	1.000	0.229***	1.006
NLD	F	1.184	4.596***	3.795***	1.000	0.074***	1.004
	M	0.989	3.520***	2.741**	1.000	0.107***	1.019***
Eastern European countries							
BUL	F	3.065***	3.774***	2.175+	1.000	0.200***	1.028***
	M	2.140***	1.635+	2.097*	1.000	0.279***	1.034***
HUN	F	2.160**	2.523*	2.067+	1.000	0.088***	1.029***
	M	1.878***	1.828*	1.841*	1.000	0.289***	1.026***
ROU	F	1.871*	3.594*	1.840	1.000	0.076***	1.018*
	M	2.248***	1.950+	2.544*	1.000	0.123***	1.014+
LIT	F	1.616	9.400**	3.942	1.000	0.027***	1.016
	M	2.737***	15.244***	5.021***	1.000	0.085***	1.026**
RUS	M	2.338***	2.371*	2.934*	1.000	0.209***	1.013
Southern European countries							
ITA	F	2.505***	1.490	2.592*	1.000	0.083***	1.016***
	M	1.704***	1.092	1.169	1.000	0.157***	1.020***

Odds ratios; + p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Source: Generations and Gender survey, wave 1; own calculations

Table 2 Results logistic regression: Effect of partnership (ref.: no partner), age (continuous), age (squared) and educational level on intention to have children; odds ratios; M = Males, F = Females

| Coun.	M/F	Partner	Age	Age (squared)	Education
Scandinavian countries					
NOR	F	2.134***	1.101+	0.989***	1.005
SWE	F	1.415	1.073	0.990***	1.014
	M	1.495*	0.888**	0.999	1.026**
Western European countries					
AUT	F	1.195	1.039	0.993***	1.015*
	M	1.467*	1.059	0.994**	1.017**
BEL	F	1.585*	1.094	.0.990***	1.012+
DEU	F	1.710*	0.996	0.992***	1.021**
FRA	F	1.632**	1.269***	0.987***	1.000
	M	1.340+	1.164***	0.992***	1.005
NLD	F	1.240	1.112	0.985***	1.004
	M	0.914	0.969	0.993**	1.021***
Eastern European countries					
BUL	F	3.291***	0.920+	0.997+	1.033***
	M	2.137**	1.043	0.995***	1.035***
HUN	F	2.007**	1.037	0.991**	1.030***
	M	1.879**	0.995	0.997*	1.024***
ROU	F	2.461**	0.938	0.995*	1.016+
	M	2.150**	1.028	0.994***	1.019*
LIT	F	2.349*	0.830+	0.995	1.025*
	M	2.654**	0.775***	1.000	1.028**
RUS	M	2.278**	1.029	0.994**	1.014+
Southern European countries					
ITA	F	3.227***	1.098*	0.990***	1.018**
	M	1.712**	1.067*	0.994***	1.023***

Odds ratios; + p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Source: Generations and Gender survey, wave 1; own calculations

Table 3 Average marginal effect of having a partner on fertility intentions (with age as continuous variable); M = Males, F = Females

Coun.	M/F	Partner	95% - confidence interval	
Scandinavian countries				
NOR	F	0.082***	0.044	0.119
SWE	F	0.039+	-0.004	0.081
	M	0.044*	0.005	0.082
Western European countries				
AUT	F	0.084*	0.019	0.159
	M	0.051*	0.007	0.095
BEL	F	0.029	-0.014	0.074
DEU	F	0.075*	0.017	0.132
FRA	F	0.094***	0.040	0.141
	M	0.075*	0.017	0.134
NLD	F	0.030	-0.019	0.080
	M	-0.004	-0.055	0.047
Eastern European countries				
BUL	F	0.070***	0.043	0.097
	M	0.063***	0.034	0.093
HUN	F	0.051**	0.019	0.083
	M	0.066***	0.034	0.098
ROU	F	0.064**	0.024	0.106
	M	0.073***	0.038	0.109
LIT	F	0.029*	0.001	0.057
	M	0.053***	0.025	0.081
RUS	M	0.088***	0.043	0.133
Southern European countries				
ITA	F	0.119***	0.082	0.156
	M	0.076***	0.040	0.112

Average marginal effects;

+ p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Source: Generations and Gender survey, wave 1; own calculations

Table 4 Predicted probability of intending to have (a) child(ren) (left) and difference in probability of fertility intention when being in a relationship (right); M = Males, F = Females

Scandinavian countries

N O R   F

S W E   F
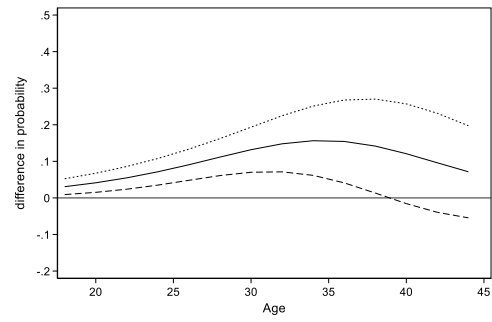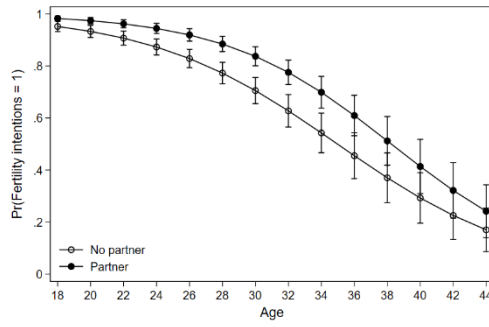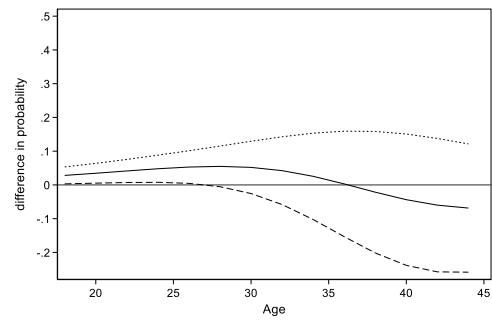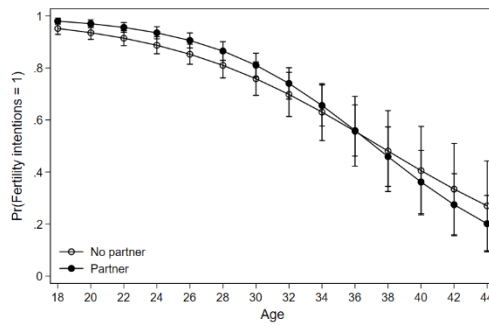
M

Western European countries

A U T   F

M
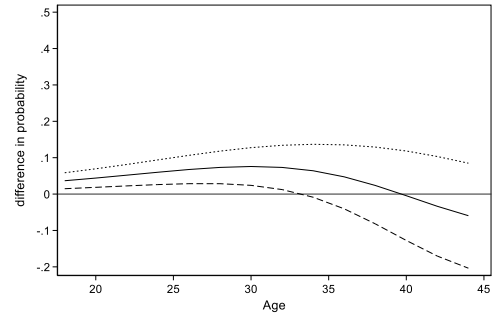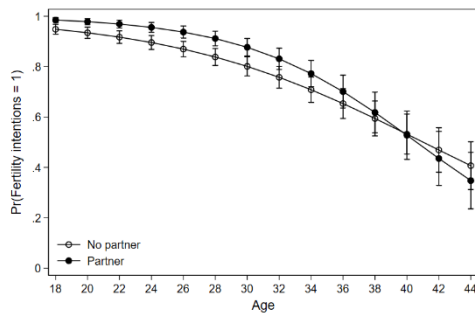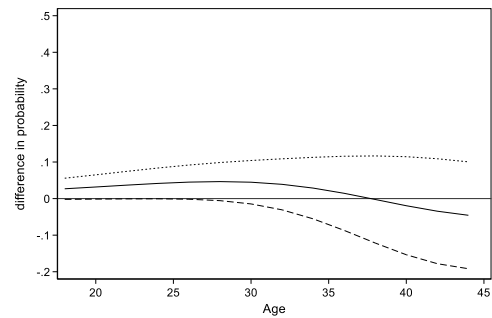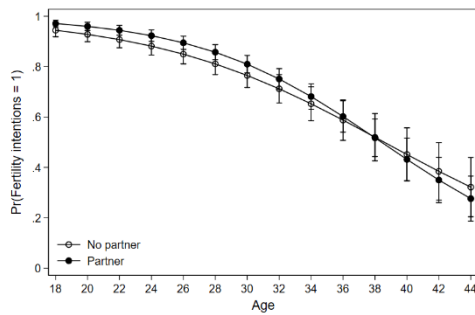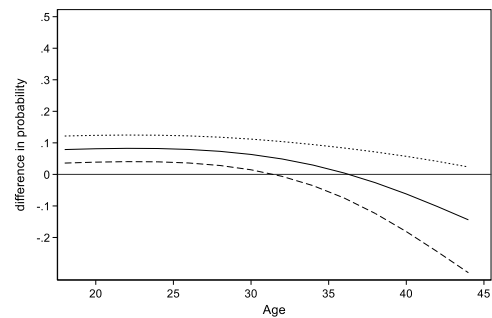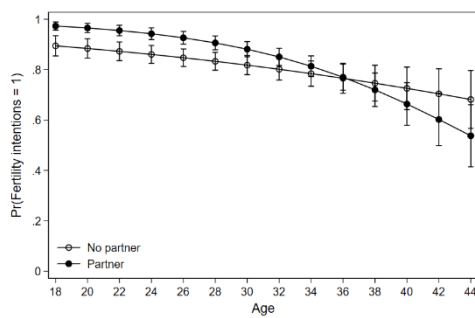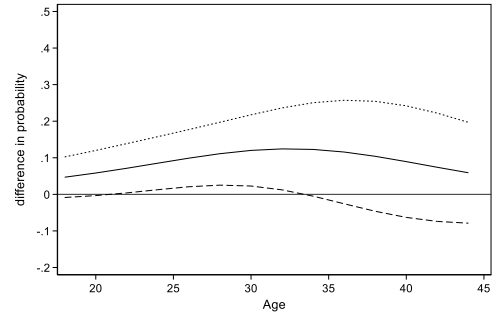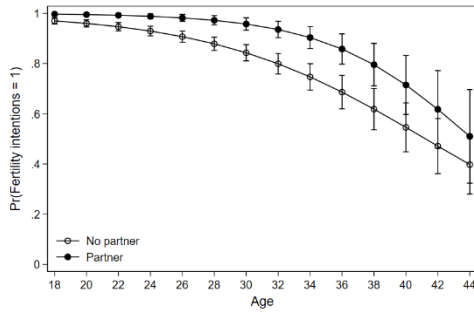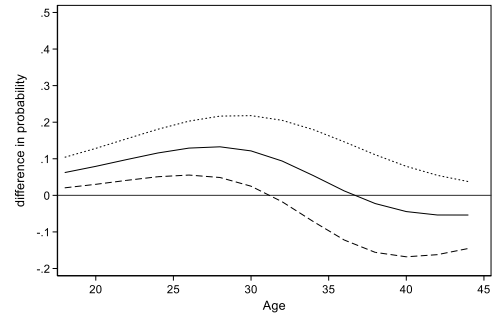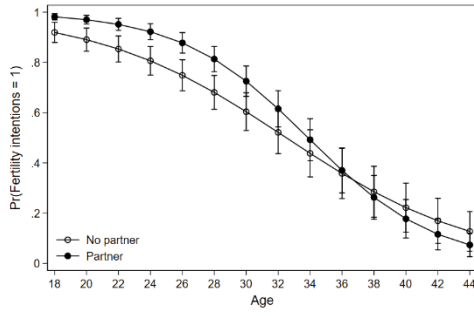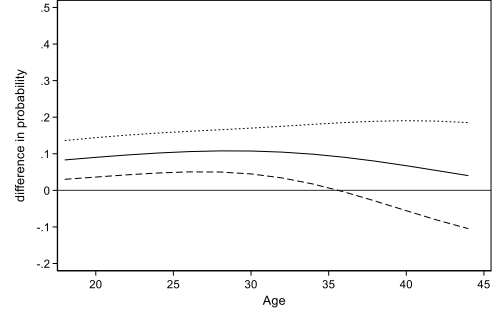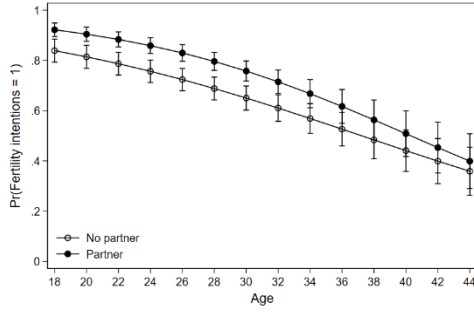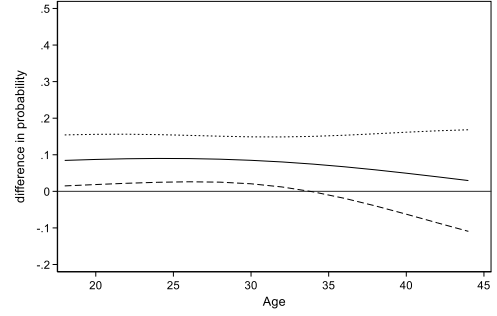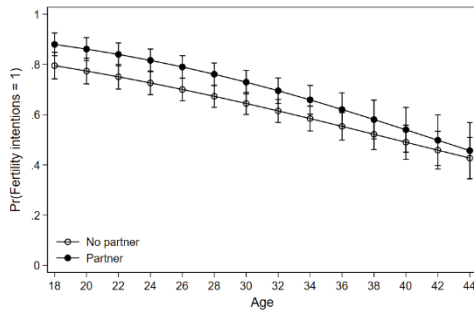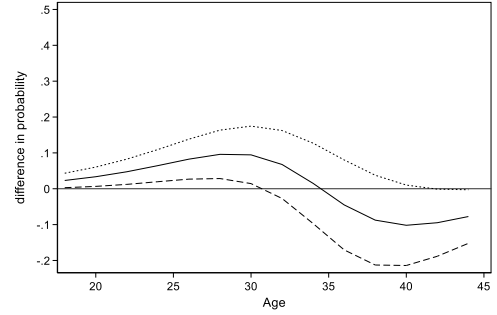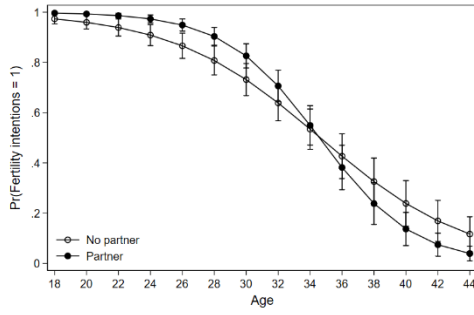
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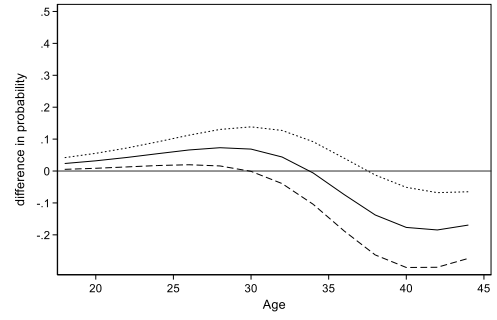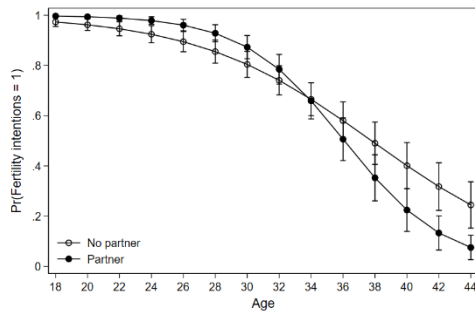
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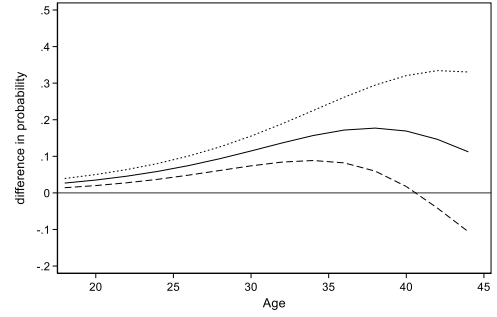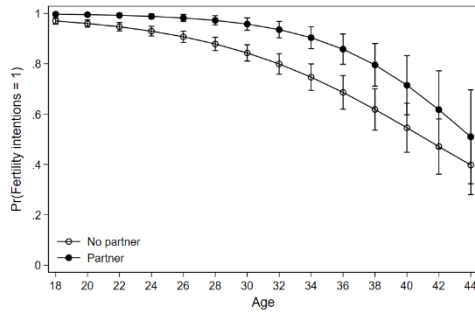
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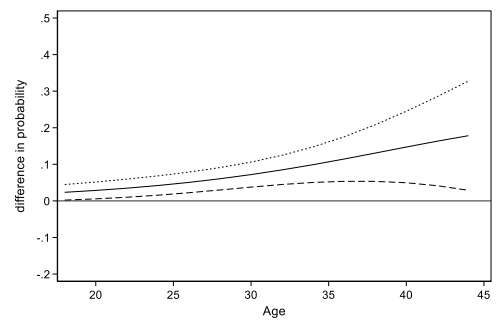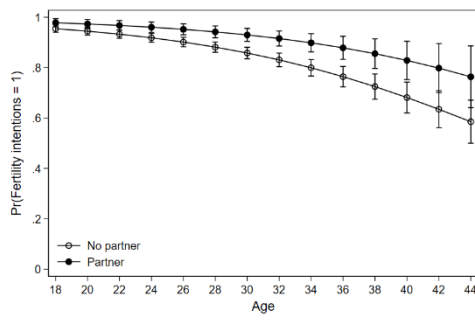
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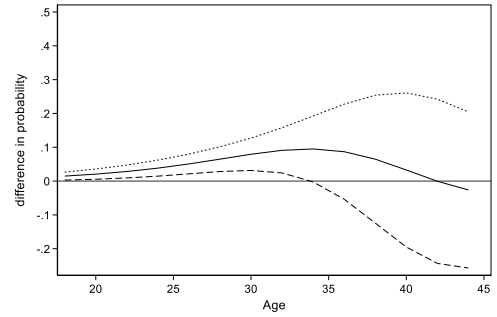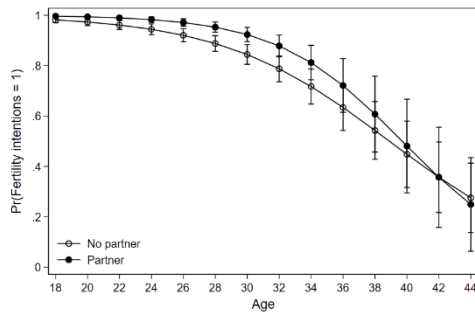
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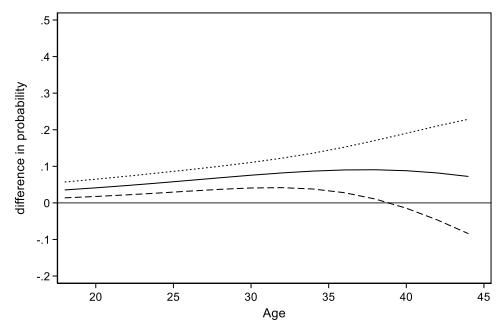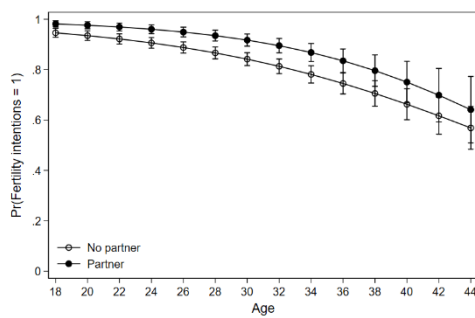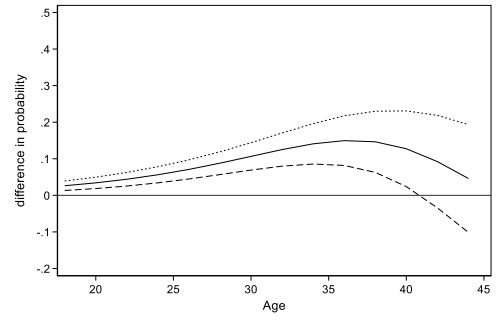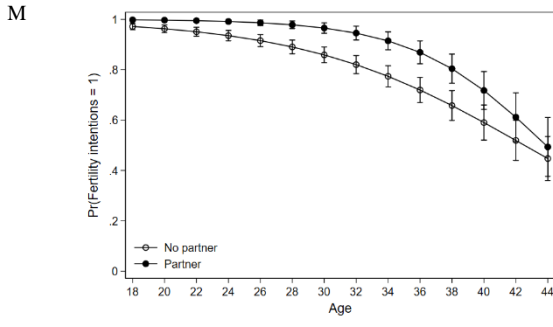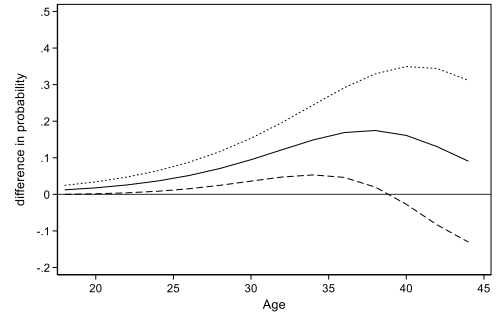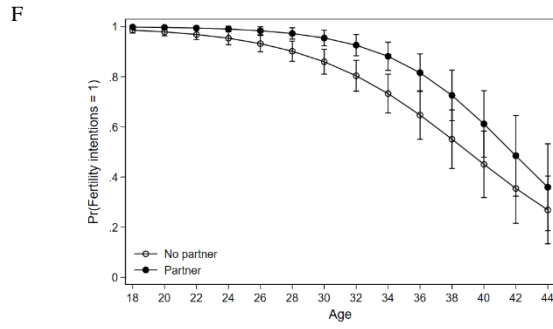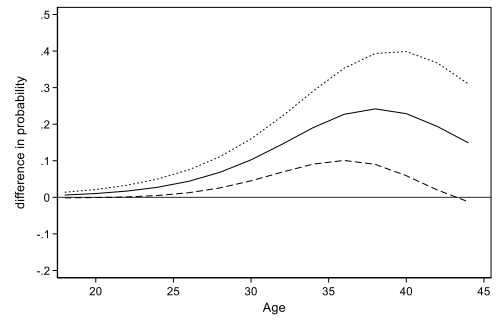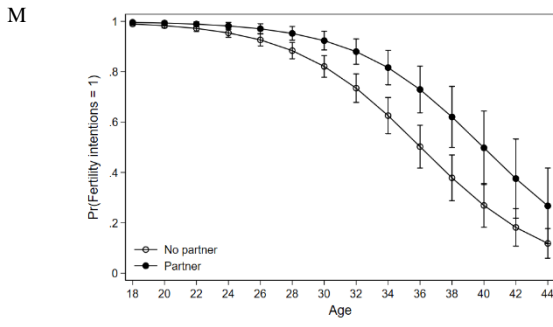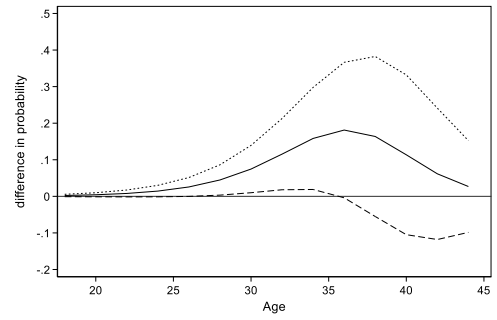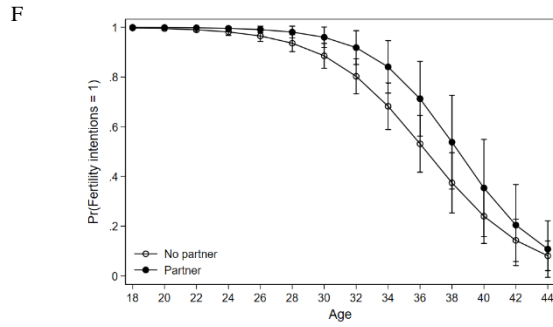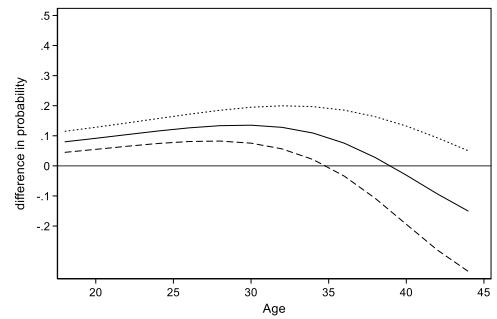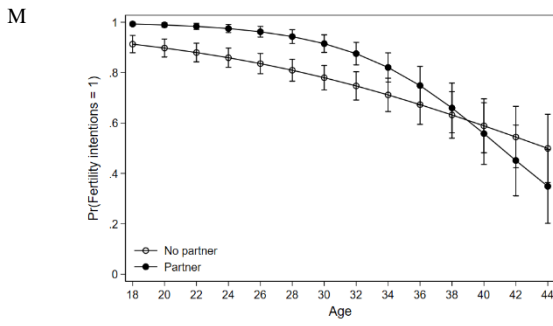
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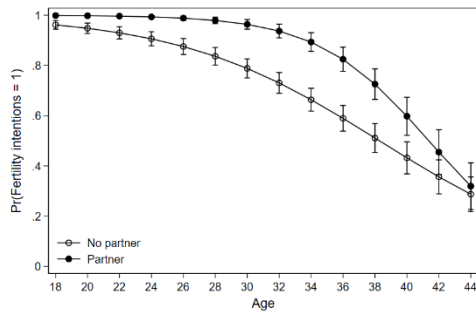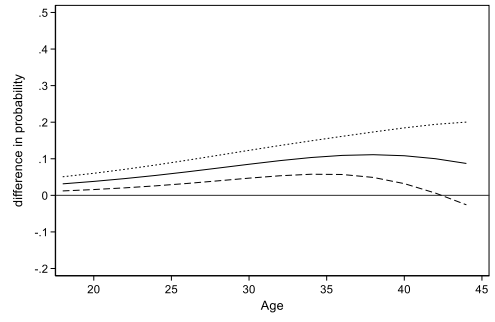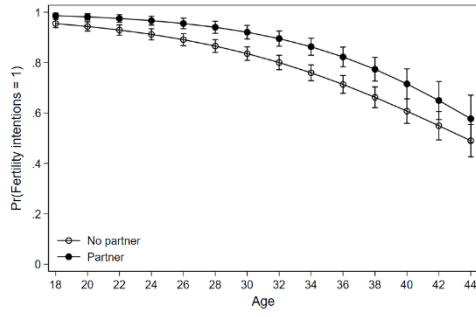
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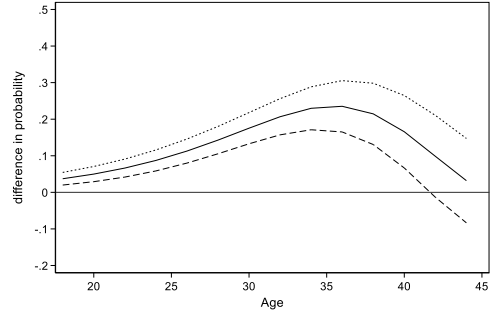
Source: Generations and Gender survey, wave 1; own calculations

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