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## UNCERTAINTY AND FLEXIBILITY OF FERTILITY INTENTIONS

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## ABSTRACT

Large-scale survey data is widely used to study the intention to have a(nother) child. However, there are further opportunities to understand how these intentions are revised over the life course and the uncertainty surrounding them. We aim to further outline the importance of simultaneously considering change and uncertainty in fertility decision-making. Specifically, we identify uncertainty in the “probably not” and “probably yes” responses to questions on whether an individual intends to have a(nother) child, and compare the differences in individuals’ stated intention between survey waves. Using panel data from the Generations and Gender Survey (GGS) for Austria, France, Hungary, Italy, and Poland, we study short-term followed by long-term (overall) fertility intentions. First, descriptive analyses compare and visualise the prevalence of uncertainty intentions at first and second wave using Sankey diagrams. Next, multivariate analyses on transitions in intentions focus on partnership and employment context. The results reveal that for both short-term and overall intentions, four in ten respondents are uncertain about intending a (further) child. Further, one in two report a different intention between waves, with changes mainly occurring from one “probably” response to another (e.g., “probably not” to “probably yes”) or through a shift in increasing or lessening certainty (e.g., “probably yes” to “definitely yes”). The childless exhibit by far the greatest uncertainty and revision. Multivariate analyses show that partnership and employment are associated with changes and transitions in intentions. Our results also show that fertility intentions form along a spectrum of certainty—from “definitely not,” to “probably not,” to “probably yes,” to “definitely yes,” and finally to the birth of a child.

## KEYWORDS

Fertility intentions, Europe, Uncertainty of fertility intentions, Revision of fertility intentions, Generations and Gender Survey (GGS), Sankey diagrams

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# 1 INTRODUCTION

Different dimensions of fertility intentions are captured in surveys, varying by timeframe, certainty, and whether the question relates to time-specific or quantity-specific intentions for (further) children. These aspects are important for how researchers construct, interpret, and communicate their work. Fertility research often examines the timing of childbearing, the intended number of children, and changes in individuals' intentions for (further) children (e.g., Jones, 2017; Kuhnt et al., 2021; Ní Bhrolcháin & Beaujouan, 2015).

A short-term fertility intention is generally considered as a plan of action to have a child in the near future, with the underlying rationale that an intention will be indicative of subsequent behaviour, considering the perceived costs and benefits of having children (Ajzen & Klobas, 2013; Raybould & Sear, 2021). The literature uses different definitions of uncertainty in fertility intentions (Kuhnt et al., 2021) and previous research has demonstrated the importance of uncertainty and change in overall intentions (e.g., Jones, 2017; Kuhnt et al., 2021). Scholars have emphasised that the presence of uncertainty in fertility intentions is genuine and that it is problematic to group “probably” and “definitely” intentions into either “yes” or “no” (Ní Bhrolcháin & Beaujouan, 2015). We take direction from Ní Bhrolcháin and Beaujouan (2019), who argue that fertility may be a discovery rather than a goal, and that the uncertainty expressed in intentions captures part of the decision-making process. By grouping positive and negative intentions and disregarding uncertainty, we may fail to capture a substantial population who, for various reasons, are not certain about intending to have or not have children. This issue becomes even more problematic when studying the change or revision of fertility intentions over the life course, as we may overlook transitions into or out of certainty.

When individuals change their intention to have a child, they may also change from uncertainty to certainty (or vice versa). To the best of our knowledge, literature on the movement between certain and uncertain fertility intentions, such as from “probably yes” to “definitely yes,” has not yet been studied in detail. Our aim is to gain further insight into the uncertainty in fertility intentions associated with events in life domains, such as changes in partnership or employment. In our paper, we define uncertainty as “probably yes/no,” in contrast to certainty as “definitely yes/no.” We view uncertainty as dynamic in that its extent changes throughout the life course. We identify patterns that may reflect a sequential progression of fertility intentions from “definitely not” intending to “definitely” intending a child. Therefore, we focus on changes alongside certainly not intending a child, probably not intending a child, probably intending a child, and certainly intending a child. We analyse both short-term and overall fertility intentions using two waves of the Generations and Gender Survey (GGS), where the time interval between the two observations is three to four years. We apply the life-course approach to fertility (Elder, 1994; Huinink & Kohli, 2014), considering the general uncertainty of life and the interdependency of life domains such as employment, partnership, and family. In the first step, we describe the prevalence of uncertainty and transitions between two observations, with a focus on age and parity. We then estimate the associations of life course events with the revisions and changes to fertility intentions. We add to the literature on the change in overall intentions by including the dynamics of “probably yes” and “probably no” responses. Further, we contribute to the literature on short-term intentions by simultaneously considering uncertainty and revision.

This paper is structured as follows: First, we provide an overview of the background of uncertainty. Next, we present our framework, followed by a chapter on data and methods. The subsequent analysis is divided into short-term and overall fertility intentions, with both descriptive and multivariate analyses. Finally, we discuss our results and the challenges associated with longitudinal studies of fertility.

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## 2 PREVIOUS RESEARCH

The first studies on the uncertainty of fertility intentions focused on those who responded “don’t know” when asked about their family plans (Morgan, 1981, 1982). Since then, there has been a growth in the literature on this topic, often using the British General Household Survey (GHS), the German Family Panel (Pairfam), or the GGS (Brzozowska & Beaujouan, 2021; Kuhnt et al., 2021; Ní Bhrolcháin & Beaujouan, 2011). These studies measured uncertainty in different ways, depending on how the underlying data was coded. Some studies defined fertility intentions as uncertain if individuals answered “I am not sure” when asked about the number of (further) intended children (Kuhnt et al., 2021; Jones, 2017). Others defined fertility intentions as uncertain if individuals answered with “probably yes,” “probably no,” “don’t know,” or gave no response when asked about having any (more) children (Ní Bhrolcháin & Beaujouan, 2011). A slightly narrower definition included only those answering with “probably yes” or “probably no” (Brzozowska & Beaujouan, 2021). In an alternative approach, Buhr and Huinink (2017) distinguished between individuals considering having children, persons giving up on having children, those permanently not considering having children, and those switching. They define “considering having children” for certainly intending a child, but also for being uncertain about future childbearing plans or not having thought about having (further) children. Applying a qualitative approach, Bernardi and colleagues (2015) emphasise different types of uncertainty. For example, they identify temporary indifference towards having a child, where some individuals take the approach of “if it happens, it happens.” Based on their interpretation of the interviews, they identify six categories; namely, “definitely no,” “definitely yes,” and four levels of uncertainty (named “contingent intention,” “far intention,” “indifferent intention,” and “ambivalent intention”). However, the authors state that it is not the degree of uncertainty they identify, but that uncertainty is broad—relating to timing, quantum, or difficult-to-measure variables such as personality type. Due to difficulties in pinpointing the meaning and scale of uncertainty, demographers have advocated for new ways to conceptualise and measure childbearing intentions, particularly in response to uncertainty (Guzzo & Hayford, 2020; Ní Bhrolcháin & Beaujouan, 2019).

Research on the uncertainty of fertility intentions has primarily focused on overall fertility, with fewer studies concerned about the level of uncertainty in short-term intentions. This is justified by short-term intentions already being difficult to interpret (e.g., Beaujouan, 2013). Two general and often separate approaches have been applied. First, a cross-sectional one that compares the proportions of individuals uncertain about (further) childbearing (e.g., Ní Bhrolcháin & Beaujouan, 2011); second, a longitudinal approach researches the change in uncertainty of overall intentions over the life course or within a certain period of time (e.g., Jones, 2017; Kuhnt et al., 2021). Most research has applied a cross-sectional approach to understand the prevalence of “probably yes/no” or “don’t know” responses in short-term intentions (e.g., Beaujouan, 2013), while longitudinal studies have focused on understanding the prevalence of being “unsure” or “uncertain” about having any (more) children (e.g., Bernardi et al., 2015; Berrington & Pattaro, 2014; Ní Bhrolcháin et al., 2010).

The proportion of the population considered uncertain of fertility intentions varies widely, depending not only on the country, but also on the definition or measurement of uncertainty (e.g., Beaujouan, 2013; Kuhnt et al., 2021; Morgan, 1981). According to the Austrian GGS, four in ten persons aged 18 to 45 years were uncertain about having (further) children, with 28 percent responding “probably yes” and 14 percent responding “probably no” (Buber-Ennser et al., 2014). Ní Bhrolcháin and Beaujouan (2019) identified over 30 percent of the population aged 18 to 44 in the UK as unsure of whether they will have any (more) children by combining “probably yes/no,” “don’t know,” and “no answer” responses. Using three survey waves of women aged 18 to 39 in the US over the course of one year, Jones (2017) found that 39 percent of individuals were not sure of whether they would have any (more) children in at least one interview. Jones (2017) also stressed that uncertainty in fertility intentions is a temporary state, as demonstrated by widespread changes in just one year, as only nine percent were uncertain of their fertility intentions in each wave. Similarly, Kuhnt and colleagues (2021) examined the flexibility between negative, uncertain, and positive overall intentions in Germany. They found a remarkable level of volatility in fertility plans, as 51 percent of individuals had changed their overall fertility intentions over the course of 11 years.

Uncertainty in overall fertility intentions has been associated with various life domains, like partnership, employment and economic situation, and family background (Berrington & Pattaro, 2014; Kuhnt et al., 2021). Additionally, age and parity have been related to uncertainty in having (further) children. Berrington and Pattaro (2014) found that educational level,

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employment status, partnership status, and number of siblings were associated with uncertain overall fertility intentions in the UK. Using multinomial logistic regression, they showed that economic uncertainty (being unemployed or economically inactive) was associated with greater uncertainty in intentions, and that fertility intention uncertainty was highest in those who were never married and without a partner. Several studies stress that parity can help predict the level of uncertainty in overall intentions (e.g., Berrington & Pattaro, 2014; Kuhnt et al., 2021; Ní Bhrolcháin & Beaujouan, 2019). Similarly, Jones (2017) found that having one or more children, being aged above 30, and perceiving a partner's intentions as uncertain were associated with uncertainty in fertility intentions.

In general, changes in expected overall fertility have been associated with age, family formation, partnership status, young age at first birth, and background factors such as growing up with both parents or having more siblings (Buhr & Huinink, 2017; Gray et al., 2013; Hayford, 2009; Heiland et al., 2008). Further, an individual's ability to revise the intended number of children is related to uncertainty in life domains such as employment and relationships (Trinitapoli & Yeatman, 2018). Given the evidence that uncertain intentions appear to be transitory, we might expect that the variables associated with changes in the number of intended children are also significant for changes in the level of certainty. In fact, changes in uncertainty in intentions have been associated with getting older, separating from a partner, the number of children, and being male (Buber-Ennser et al., 2014; Kuhnt et al., 2021).

Research on short-term fertility intentions has revealed that the proportion of women and men definitely and probably intending a child in the near future changes over the life course, with both groups being of similar size. A substantial share of persons in their late twenties, which are the prime years of family formation, certainly want to have a(nother) child in the near future (Brzozowska & Beaujouan, 2021). As expected, those who certainly wanted a child within the next three years fulfilled this concrete plan much more often than those who answered the question about having a child within three years with "probably yes" (Brzozowska & Beaujouan, 2021; Buber-Ennser et al., 2014). Similar studies such as Beaujouan (2013) and Bernardi and colleagues (2015) identify broad meanings of uncertain intentions (such as ambivalence or ambiguity towards the timing of having children) and large proportions who pass through or express uncertainty. To the best of our knowledge, there is a lack of literature regarding transitions within uncertain short-term intentions.

## 3 THEORETICAL FRAMEWORK AND HYPOTHESES

We apply a life-course approach that enables simultaneously examining various interdependent changes in individual trajectories (Udry, 1983). This approach does not conceptualise fertility intentions as independent, but rather dependent on other areas of life and change over time. Individuals have agency and construct their life course based on opportunities and constraints, such as the beginning of a new partnership or change in employment (Testa & Bolano, 2021). The life-course approach has been applied to cases where individuals revise and adapt their fertility desires throughout the life course (Gray et al., 2013; Kuhnt et al., 2021). Such studies use the approach to identify how changes in intentions are related to changes in life domains.

Following the approach by Kuhnt and colleagues (2021), we assume a sequential pattern of fertility intentions, with uncertainty at its centre as a transitional phase between positive and negative intentions. Figure 1 illustrates the potential sequences of fertility intentions throughout life along a spectrum of certainty. Within this framework, intentions can move up or down a spectrum of certainty and may be influenced by changes in life domains. This process begins in early adulthood and fluctuates throughout life. Starting cohabitation with a partner may lead to a reduction in uncertainty and increasingly positive intentions, while becoming unemployed may increase the intention to not have children in the near future. After the birth of a child, fertility intentions may be revised, especially short-term intentions.

The aim of this research is to provide insights on the prevalence of fertility intention uncertainty alongside the change or revision of fertility intentions over time. We propose the following hypotheses:

H1: Changes and revisions of fertility intentions occur gradually—between certainly yes, probably yes, probably no, and certainly no.

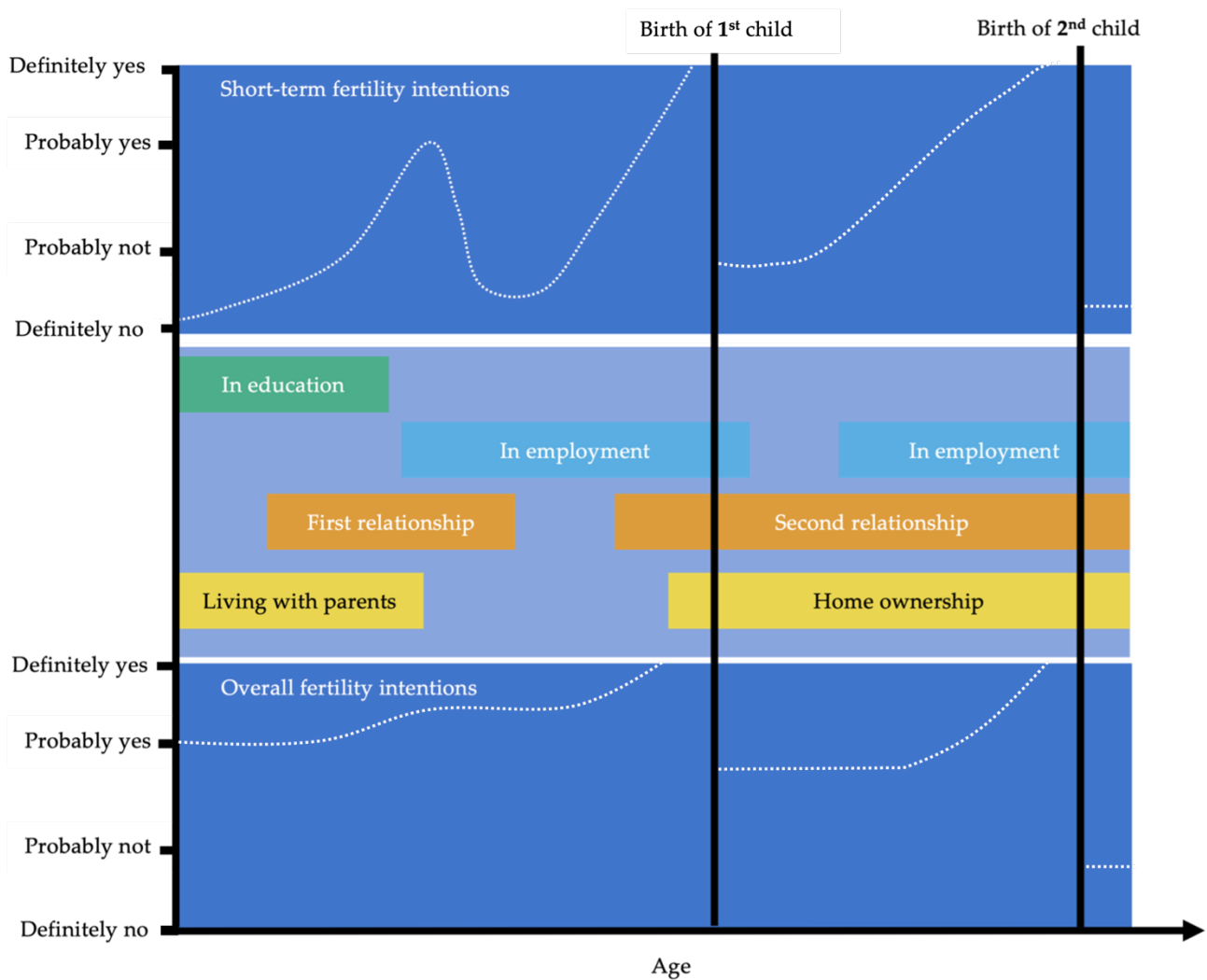
H2: Changes to uncertain intentions are more frequent than changes to certain intentions.

H3: Changes in partnership are associated with changes and revisions of fertility intentions.

H4: Changes in employment are associated with revisions of short-term fertility intentions.

H5: Life events are correlated with short-term intentions to a higher degree than with overall intentions.

**FIGURE 1: EXAMPLE OF UNCERTAINTY IN INDIVIDUALS' SHORT-TERM AND OVERALL FERTILITY INTENTIONS ACROSS STAGES OF THE LIFE COURSE**



## 4 DATA AND METHODS

### 4.1 DATA

This study is based on the Generations and Gender Survey (GGS) and uses data from waves 1 and 2 (DOIs: 10.17026/dans-z5z-xn8g, 10.17026/dans-xm6-a262). We refer to Gauthier and colleagues (2018) or to the GGP website (<https://www.ggp-i.org/>) for methodological details. The GGS—a leading source for studying fertility intentions in Europe—provides individual-level data that is available longitudinally via two waves with a three- or four-year interval. We have selected five European countries based on data availability, similar timeframes, and similarity in questionnaire structure; namely, Austria, France, Hungary, Italy, and Poland.

Questions on fertility intentions were asked to women and men below age 50 years as well as men above 50 years whose female partner was below age 50. The module on fertility intentions started with the question (1) “Do you yourself want to have a/nother baby now?” and in France, “Are you trying to have a baby now?” Possible responses were “yes,” “no,” and “maybe, do not know yet.” The question about short-term intentions was framed as: (2) “Do you intend to have a(nother) child within the next three years?” The response options were “definitely yes,” “probably yes,” “probably not,” and “definitely not.” Persons who were expecting a child at the time of the interview were not asked about their short-term intentions. France and Hungary had an option for “don’t know” for the intention questions. Overall, fertility intentions were asked to persons who responded negatively to the short-term intentions question (either definitely not or probably not intending a child in the next three years) with an additional question: (3) “Supposing you do not have a/another child during the next three years, do you intend to have any (more) children at all?” The same response options were provided as for the short-term intentions question.

For individuals who expressed wanting to have a child or actively trying to have a child at the time of the interview, both their short-term intentions and overall intentions were coded as “definitely yes.” As persons who were definitely or probably intending to have a child in the near future were not further asked about their overall fertility intentions, we recoded their overall fertility intentions to match their short-term intentions.

In selecting the sample, we excluded individuals with missing information on fertility intentions in wave 1 due to the above-mentioned age restrictions or pregnancy, as well as infecundity (i.e., individuals who physically—according to their provided information—were definitely not able to have (further) children at wave 1 or wave 2). As Austria limited the survey to persons aged 18 to 45 years and as persons above age 46 had reached age 50 by wave 2 and were thus no longer asked about fertility intentions, we restricted our analyses for all countries to persons aged 18 to 45 years at the time of wave 1. Moreover, we dropped a few Hungarian records with “don’t know” responses for short-term intentions at wave 1.<sup>1</sup> Further, individuals with missing fertility intentions at wave 2 were excluded, except for those expecting a child at the time of wave 2.

Our final sample included individuals aged 18 to 45 years who participated in both waves, totalling to 15,369 persons across the five countries (Table 1). As the Hungarian questionnaire did not include uncertain responses to overall fertility questions, the country was excluded from analyses on overall fertility intentions. Moreover, we dropped 233 respondents with missing long-term intentions at wave 1 or 2, which reduced the sample size for analysing overall intentions and changes therein to 12,530 persons. In our study, data were weighted with post-stratification country weights, and weights were applied to ensure that each country in the sample was equally represented.

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<sup>1</sup> As mentioned above, respondents in Hungary and France had the option of “don’t know” for short-term intentions. After excluding individuals with missing information on fertility intentions in wave 1 due to the above-mentioned age restrictions, infecundity, or current pregnancy, the Hungarian dataset contained 1.5 percent “don’t know” responses, whereas zero cases were counted in France.

**TABLE 1: SAMPLE SIZE**

	Wave 1	Wave 2	Sample for short-term intentions	Sample for overall intentions
Austria	2008/2009	2012/2013	3,030	2,986
France	2005	2008	2,516	2,449
Hungary	2008/2009	2012/2013	2,606	
Italy	2003/2004	2007	3,000	2,921
Poland	2010/2011	2014/2015	4,217	4,174
Total			15,369	12,530

Source: GGS, individuals aged 18 to 45 years (Austria, France, Poland, and Italy) and aged 24 to 45 years (Hungary) at wave 1.

The attrition rates between waves 1 and 2 varied among the countries in our sample. Overall, the attrition rate amounted to 38 percent in Poland (Kotowska et al., 2016), 35 percent in France (Régnier-Loilier, 2017), and 28 percent in Austria (Buber-Ennser, 2014). Between wave 2 and wave 3 of the Hungarian GGS, which we use in this analysis, attrition was low (18 percent). However, over the long term—from the first wave in 2001/2002 to the third wave—attrition amounted to 51 percent. Italy did not conduct the GGS survey similarly to other countries, but used data from the *Famiglia e Soggetti Sociali* (FSS) for wave 1, and a subsample thereof for wave 2 (Régnier-Loilier & Vignoli, 2011). We calculated attrition in the Italian sample based on the 24,551 individuals aged 18 to 45 years at wave 1, physically able to have a child, and with information on short-term fertility intention at wave 1 (Table A1). Therein, attrition amounted 34 percent, which was highest in Poland (45 percent) and lowest in Austria (23 percent). Further, it must be noted that attrition varied by short-term intentions stated at wave 1: Persons who “probably” intended a(nother) child at wave 1 dropped out of the panel to a greater extent (39 percent) than those with certain intentions (33 percent). Women and men who were “probably not” intending a child in the near future had a similar attrition rate to certain respondents at 35 percent. Variation in attrition might lead to somewhat biased results regarding uncertainty and dynamics therein.

## 4.2 METHODS

Three research questions underlie the current study. What is the proportion of the surveyed population reporting uncertainty in fertility intentions? What is the share of persons reporting different short-term and overall fertility intentions from one wave to the next? Which life course events are associated with the revision or change of individuals’ intentions over time? Throughout the paper, we distinguished individuals’ fertility intentions into four groups: (1) Definitely no, (2) probably no, (3) probably yes, and (4) definitely yes.

Short-term fertility intentions and overall fertility intentions were studied separately, following a similar structure: First, we examined the prevalence of uncertainty at wave 1 and at wave 2, differentiated by age. This was followed by visualising transitions and changes in individuals’ fertility intentions between wave 1 and wave 2 using Sankey diagrams. For the latter, we further differentiated by parity and provide separate analyses for the childless, persons with one child, as well as persons with two and more children. Second, we performed regressions to identify factors associated life with changes and transitions in fertility intentions. Importantly, the term “change” is not always appropriate and that “transition” or “revision” might better capture the process and the dynamic of fertility intentions, especially those for the near future.

We used a set of binary and multinomial logistic regression models to estimate the likelihood of transitions (or realisation) of fertility intentions between waves and followed the path outlined in Figure 1 with a step-by-step progression from “definitely no,” to “definitely yes,” and to the birth of a child (Table 2). Following our hypothesis of a gradual or stepwise



revision or change in fertility intentions, we neglected more pronounced changes in multivariate analyses, like from “definitely no” to “definitely yes.”<sup>2</sup>

Results are presented as average marginal effects (AME). They represent the average effect of a variable on the probability of changing fertility intentions. AMEs allow for the direct comparison of effect sizes between different models (Best & Wolf, 2012; Mize, 2019). Positive coefficients indicate that a group changed or revised fertility intentions more often than the reference group, while negative coefficients indicate that a group did so less often.

To explain our strategy, we provided detailed descriptions of two models for transitions in short-term intentions: Model 1 included persons “definitely not” intending a child within the next three years. In the binary regression, the outcome was 0 if the person gave the same answer in the next wave, and 1 if the respondent answered with “probably no” at wave 2. Model 2 included persons “probably not” intending a child within the next three years. We applied a multinomial regression and differentiated for the outcome between answering “definitely no,” “probably no,” and “probably yes” at wave 2.

**TABLE 2: MODEL SPECIFICATIONS**

	Model 1		Model 2			Model 3			Model 4	
Wave 1	Definitely no		Probably no			Probably yes			Definitely yes	
Wave 2	Definitely no	Probably no	Definitely no	Probably no	Probably yes	Probably no	Probably yes	Definitely yes	Definitely yes	Had or expected a child

Our main explanatory variables were age and parity as well as changes in two life-course domains that occurred between waves; namely, partnership and employment status. Regarding partnership, we differentiated between seven categories: (1) cohabiting at both waves, (2) living apart together (LAT) at both waves, (3) no partner at both waves, (4) partner at wave 1 (either cohabiting or LAT) and no partner at wave 2, (5) no cohabiting partner or LAT at wave 1 and cohabiting with a partner at wave 2, (6) no partner at wave 1 (neither cohabiting nor LAT) and LAT at wave 2, and (7) cohabiting at wave 1 and LAT at wave 2. For employment status, we distinguished between eight categories: (1) employed<sup>3</sup> at both waves, (2) unemployed<sup>4</sup> at both waves, (3) student<sup>5</sup> at both waves, (4) unemployed or student<sup>6</sup> at wave 1 and employed at wave 2, (5) employed at wave 1 and unemployed at wave 2, (6) on parental leave or homemaker at both waves, (7) employed at wave 1 and on parental leave or homemaker at wave 2, and (8) others. We acknowledge that changes in employment and partnership are based on the comparison between waves 1 and wave 2, and we were unable to capture further changes occurring between the waves (such as being employed at wave 1, experiencing unemployment, and being employed again at wave 2). Further, we controlled for sex and country. As employment status was not coded in the Italian wave 2, we excluded Italy from regressions that included changes in employment status.

Respondents were on average 33 years at wave 1. Four out of ten were childless, two out of ten had one child, and the remaining group had two or more children (Table A2). The majority was cohabiting at both waves or had no partner at both points in time. About two in ten reported a different partnership status at both waves. Regarding employment situation, 64 percent were employed at both points in time, while 14 percent were unemployed at wave 1 and employed at wave 2. The remaining categories, described above, comprised less than five percent.

<sup>2</sup> As shown in descriptive analyses, part of those “probably” intending a child at wave 1 reported a newborn child or pregnancy at wave 2. We did not include these cases in our multivariate analyses.

<sup>3</sup> Employment includes self-employment and the group “helping family member in family business.”

<sup>4</sup> Including few respondents whose employment status was “ill or disabled for a long time.”

<sup>5</sup> Including respondents whose employment status was “military service or social service.”

<sup>6</sup> Including military service or social service, parental leave, homemaker, ill, or other non-(un)employment status.

# 5 RESULTS

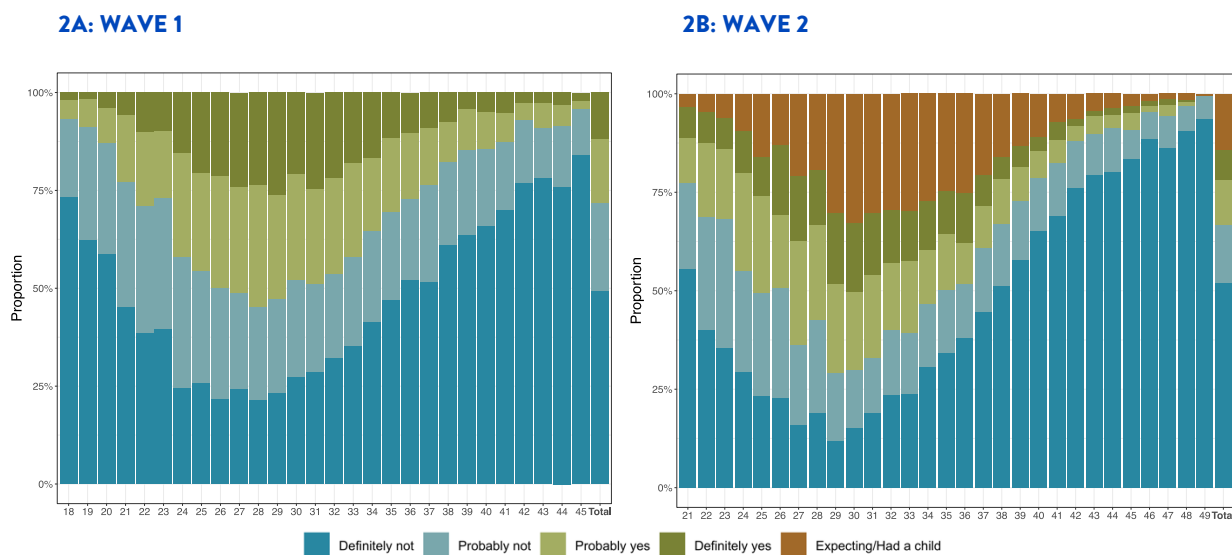
## 5.1 SHORT-TERM FERTILITY INTENTIONS

Uncertainty in short-term fertility intentions was substantial. In the first wave, four in ten were somewhat uncertain regarding having a(nother) child in the near future (i.e., in the next three years): 17 percent answered with “probably yes” and 23 percent with “probably no” (Figure 2a). Overall, the largest group comprised those definitely not planning a child in the near future (roughly one half), whereas about one in eight had very concrete plans and “definitely” intended a child within the next three years.

The distribution of short-term fertility intentions by age showed a U-shaped pattern in terms of certainty, with the highest levels of certainty found at the youngest and highest ages. As expected, especially in very early adulthood and at late reproductive age, women and men did not intend to have children in the near future. The highest levels of uncertainty occurred in the mid and late 20s (Figure 2a), reaching values between 50 and 60 percent. Uncertain positive answers were pronounced in late 20s and early 30s, when roughly three in ten answered the question on intending a child within the next three years with “probably yes.” We found that at almost all ages, the group of persons with uncertain positive intentions was larger than that with certain positive intentions. The share of those “probably not” intending a child in the near future remained rather stable until the late 30s (around 25 percent) and declined thereafter.

When asked again about short-term intentions in the second wave, roughly one in four gave an uncertain response (12 percent “probably yes;” 16 percent “probably no”), while 15 percent either had a child between waves or were expecting one. As the cohorts aged, there was an increasing proportion of individuals who “definitely” did not intend to have a child within the next three years at higher ages (Figure 2b).

**FIGURE 2: SHORT-TERM FERTILITY INTENTIONS AT WAVE 1 AND WAVE 2**



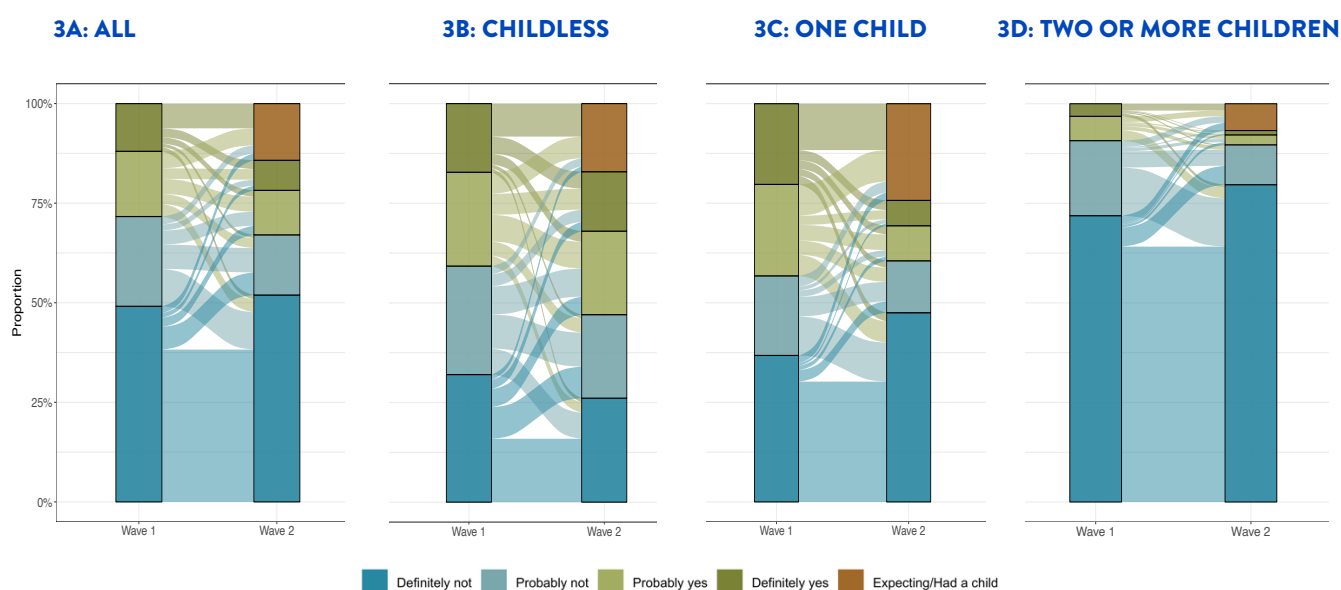
Source: GGS, 15,369 individuals aged 18 to 45 years at wave 1, Austria, France, Hungary, Italy, Poland. Weighted data.

Comparing short-term fertility intentions at both waves clearly revealed that largest group (37 percent) comprised those who “definitely” did not intend a child in the near future at both waves (Figure 3a). Individuals realising strong short-term fertility intentions (i.e., “definitely” intending a child at wave 1 and reporting a newborn or pregnancy at wave 2) comprised

six percent of the surveyed population. Of smaller size were those “probably” intending a child at wave 1 and reporting a newborn or pregnancy in the second interview (four percent). Further, some respondents “definitely” or “probably” not intending a child in the near future at wave 1 also had a newborn or were expecting one at wave 2. It is not possible to deduce to what extent these pregnancies were unintended or intended when conceived, as individuals might have changed previous negative intentions between the two interviews.

One in two surveyed persons (49 percent) reported the same short-term fertility intentions at both waves and, as mentioned above, 11 percent realised certain or uncertain short-term intentions. Therein, 40 percent gave different answers for short-term intentions at both points in time. Gradual transitions between “certainly yes,” “probably yes,” “probably no,” and “certainly no” were frequent (26 percent) as compared to more pronounced shifts (14 percent). Transitions between “definitely no” and “definitely yes” were negligible (about 1 percent in each direction). The same holds for transitions from “definitely yes” to “probably no,” whereas transitions in short-term intentions between the 3- to 4-year period from “definitely no” to “probably yes” were slightly more frequent (2 percent). Our results thus confirm hypothesis H1 that changes and revisions of fertility intentions occur gradually. Overall, the sources of differences in individuals’ intentions between waves primarily came from the uncertain responses. Almost two thirds who answered “probably no” in wave 1 reported a different short-term intention three or four years later; further, nine percent became the parent of a newborn or expected one meanwhile. Additionally, transitions were especially frequent among those who initially answered with “probably yes” in wave 1, as one in two reported a different intention in the following wave and a substantial share (26 percent) had a newborn child or expected one at wave 2. These findings confirm our hypothesis H2 that changes of uncertain intentions are more frequent than changes of certain intentions. Our descriptive results thus indicate that “probably” intending a child within the next three years especially appears to be a transitory stage.

**FIGURE 3: COMPARISON OF SHORT-TERM FERTILITY INTENTIONS BETWEEN WAVE 1 AND WAVE 2**



**Source:** GGS, 15,369 individuals aged 18 to 45 years at wave 1, of which 6,067 were childless, 3,154 had one child, and 6,148 had two or more children at wave 1. Austria, France, Hungary, Italy, Poland. Weighted data.

When separating by parity, the childless turned out to have the most transitory short-term fertility intentions (Figure 3b), with almost one in two reporting different short-term intentions at waves 1 and 2, and 16 percent having a child between waves or expecting one at the time of the second interview. Among parents with one child, one third reported different intentions across the two waves; at parity two and higher, the corresponding figure was 24 percent. Therein, stability in short-term intentions increases with parity, mostly due to individuals who “definitely” did not intend to have another child in the near future at the time of both interviews (Figures 3c and 3d). Further, parents with one child at wave 1 frequently enlarged their family, with one quarter having or expecting another child at the time of wave 2, which was much less often

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the case among parents with two or more children (seven percent having or expecting another child at wave 2). Respondents “probably” intending a child in the near future somewhat differ across parities. Realisation of previously uncertain fertility intentions was rather frequent among parents with one child. By contrast, the childless “probably” intending a child in the near future gave the same answer once more, transitioned to “certainly” intending one, or had/expected a newborn. Moreover, a non-negligible share of parents revised their short-term intentions downwards from “probably yes” to “definitely no.”

Country-specific analyses revealed that uncertain short-term fertility intentions were mentioned less often in France than in the remaining four countries included in our study (Figures A1 and A2). This was especially true for the group “probably not” intending a child in the near future, which was comparably small (wave 1: about 10 percent, as compared to roughly 20 to 30 percent in Austria, Hungary, Italy, and Poland). Further, uncertainty in short-term intentions was less pronounced in France from the mid-30s onwards, as most respondents aged 35 to 49 years gave “definitely yes” or “definitely no” answers. Changes or transitions in short-term fertility intentions varied across countries, ranging from 26 percent in France to 42 percent in Austria and Italy, with Hungary and Poland falling in between (Figure A3). Childbearing between the two waves was frequent in France, where almost two in ten reported a newborn child or a pregnancy at wave 2—especially French parents with one child who had or expected a second one at wave 2 (about one in three). Transitions from “probably no” to “definitely no” were substantial in Italy. In all countries, transitions were related to parity and were more frequent among the childless than among parents. Childless Austrians, Italians, Poles, and Hungarians reported higher rates of change (around 50 percent) than their French peers (about 42 percent). For those with two or more children, “definitely not” intending another child in the near future was the most common answer in all countries, followed by the group “probably not” intending to enlarge one’s family. Among parents with two or more children, a substantial group intended further children at wave 1 in France (13 percent) and by wave 2, while almost 10 percent of parents with two or more children had or expected another child at wave 2. Further childbearing at these parities was rare in Italy. The uncertain categories appeared more transitory in some countries than others. Among persons “probably not” intending a child in the near future, transitions to different answers on short-term intentions were frequently observed in Italy (75 percent) and less often in Poland (55 percent), with Hungary, France, and Austria ranging in between. However, differences in answers at wave 2 were less pronounced for those “probably” intending a child in the near future.

In multivariate analyses, we focused on childless persons, as changes were most pronounced in these groups, and provide results for parents in the Appendix (Tables A2 and A3). Results show that age and partnership context were significantly associated with transitions in short-term fertility intentions. With increasing age, revisions or changes in short-term intentions towards an increasingly positive direction became less likely (Table 3). For example, among childless women in Austria, cohabiting with a partner at both waves and “probably not” intending a child within the next three years, those aged 35 to 39 years gave a “probably yes” answer at wave 2 less often than their peers aged 30 to 34 years (11 percent points; model 2). Among respondents in their early 40s at wave 1, the difference amounted to 24 percent points. Further, transitions from “probably yes” to “definitely yes” and from “definitely no” to “probably no” were reported significantly less often among persons in their early 40s at the time of the first interview (Model 3).

Regarding partnership context, increasingly positive intentions in the sense of transitions from “probably no” to “probably yes” or from “probably yes” to “definitely yes” were mainly mentioned if living together with a partner at both waves, and significantly more often if entering a cohabitation with a partner (model 1 and model 3). Moreover, finding a partner and moving together with a partner was associated with the transition from “definitely not” to “probably not.” By contrast, separations were associated with increasingly negative intentions in the sense of transitioning from “probably yes” to “probably no,” which was also the case for individuals who had no partner at wave 1 or wave 2 (model 3). Our multivariate analyses confirm hypotheses H3 that changes in partnership are associated with changes and revisions of fertility intentions.

Further, employment status and changes therein between waves were associated with transitions in short-term intentions, supporting hypothesis H4 (Table 4). Persons in education throughout the observed period were more likely to further postpone short-term intentions in the sense that they less often changed from “definitely no” to “probably no” and from “probably no” to “probably yes,” and moved significantly more often from “probably no” to “definitely no” (Table 4, models 1 and 2). Downwards revisions of uncertain short-term intentions (“probably yes”) were associated with uncertain economic circumstances related to unemployment at both waves, losing a job, or longer periods of parental leave or homemaking (model 3). Additionally, persons losing employment more often revised their uncertain intentions downwards from



“probably no” to “definitely no” (model 3). Finally, the realisation of certain fertility intentions was associated with entering parental leave (model 4).

Gender differences turned out to be minor, with men more often providing identical uncertain answers at both waves. We might conclude that women tend to gradually revise uncertain short-term intentions more frequently than men. Finally, differences across countries were substantial. Negative uncertain short-term intentions were changed or revised to a larger extent in Italy and positive uncertain ones in France in Hungary.

**TABLE 3: ESTIMATED COEFFICIENTS FOR TRANSITIONS IN SHORT-TERM FERTILITY INTENTIONS BETWEEN WAVE 1 AND 2, PERSONS CHILDLESS AT WAVE 1, AVERAGE MARGINAL EFFECTS**

	Model 1	Model 2			Model 3			Model 4
Wave 1	Definitely no	Probably no			Probably yes			Definitely yes
Wave 2	Probably no	Definitely no	Probably no	Probably yes	Probably no	Probably yes	Definitely yes	Had or expected a child
Age (wave 1) (ref.=30-34)								
18-29	<b>-0.08</b>	<b>-0.06*</b>	<b>0.01</b>	<b>0.05</b>	<b>-0.03</b>	<b>-0.02</b>	<b>0.06</b>	<b>0.00</b>
35-39	<b>-0.24***</b>	<b>0.13**</b>	<b>-0.02</b>	<b>-0.11**</b>	<b>0.05</b>	<b>-0.03</b>	<b>-0.03</b>	<b>-0.11+</b>
40-45	<b>-0.34***</b>	<b>0.23***</b>	<b>0.01</b>	<b>-0.24***</b>	<b>0.19**</b>	<b>0.04</b>	<b>-0.23***</b>	<b>-0.19+</b>
Partnership status at wave 1 and wave 2 (ref.=cohabiting - cohabiting)								
LAT - LAT	<b>0.09</b>	<b>0.00</b>	<b>0.02</b>	<b>-0.02</b>	<b>0.01</b>	<b>0.10</b>	<b>-0.11</b>	<b>-0.42**</b>
No partner - no partner	<b>0.12*</b>	<b>-0.01</b>	<b>0.16***</b>	<b>-0.15***</b>	<b>0.17***</b>	<b>0.12**</b>	<b>-0.29***</b>	<b>-0.36*</b>
(Cohabiting) partner - no partner	<b>0.18**</b>	<b>0.02</b>	<b>0.18***</b>	<b>-0.20***</b>	<b>0.09*</b>	<b>0.10</b>	<b>-0.20***</b>	<b>-0.19+</b>
No (cohabiting) partner - cohabiting	<b>0.29***</b>	<b>-0.13**</b>	<b>0.02</b>	<b>0.11*</b>	<b>-0.05</b>	<b>-0.06</b>	<b>0.11**</b>	<b>-0.05</b>
No partner - LAT	<b>0.18*</b>	<b>0.01</b>	<b>0.03</b>	<b>-0.03</b>	<b>0.11</b>	<b>0.14*</b>	<b>-0.25***</b>	<b>-0.42+</b>
Cohabiting - LAT	<b>0.10</b>	<b>0.25*</b>	<b>0.04</b>	<b>-0.29***</b>	<b>0.06</b>	<b>0.27*</b>	<b>-0.33***</b>	<b>-0.55*</b>
Country (ref.=Austria)								
France	<b>-0.22***</b>	<b>0.17***</b>	<b>-0.10*</b>	<b>-0.07</b>	<b>-0.08</b>	<b>-0.08</b>	<b>0.17***</b>	<b>0.18***</b>
Hungary	<b>-0.06</b>	<b>0.08*</b>	<b>-0.16***</b>	<b>0.08</b>	<b>-0.07</b>	<b>-0.10*</b>	<b>0.17***</b>	<b>0.03+</b>
Italy	<b>-0.24***</b>	<b>0.24***</b>	<b>-0.28***</b>	<b>0.05</b>	<b>-0.17***</b>	<b>0.01</b>	<b>0.16***</b>	<b>0.11+</b>
Poland	<b>0.04</b>	<b>0.01</b>	<b>-0.04</b>	<b>0.03</b>	<b>0.09**</b>	<b>-0.02</b>	<b>-0.06*</b>	<b>0.09*</b>
Sex (ref.=female)								
Male	<b>0.05+</b>	<b>-0.02</b>	<b>0.05*</b>	<b>-0.03</b>	<b>0.02</b>	<b>0.02</b>	<b>-0.04</b>	<b>0.09+</b>
Pseudo R <sup>2</sup>	<b>0.1264</b>		<b>0.0866</b>			<b>0.1193</b>		<b>0.0939</b>
Observations	<b>1,471</b>		<b>1,396</b>			<b>941</b>		<b>728</b>

Note: \*\*\* p < 0.001; \*\* p < 0.01; \* p < 0.05.

Source: GGS, individuals aged 18 to 45 years at wave 1, Austria, France, Hungary, Italy, and Poland.

**TABLE 4: ESTIMATED COEFFICIENTS FOR TRANSITIONS IN SHORT-TERM FERTILITY INTENTIONS BETWEEN WAVE 1 AND 2, PERSONS CHILDLESS AT WAVE 1, AVERAGE MARGINAL EFFECTS, INCLUDING CHANGES IN EMPLOYMENT**

Wave 1 Wave 2	Model 1	Model 2			Model 3			Model 4
	Definitely no	Probably no			Probably yes			Definitely yes
	Probably no	Definitely no	Probably no	Probably yes	Probably no	Probably yes	Definitely yes	Had or expected a child
Employment status at wave 1 and wave 2 (ref.=employed – employed)								
Unemployed – unemployed	-0.07	-0.02	0.02	-0.01	0.22 <sup>†</sup>	-0.13	-0.09	0.00
Student - student	-0.12 <sup>**</sup>	0.23 <sup>***</sup>	-0.02	-0.21 <sup>***</sup>	0.13	-0.11	-0.01	0.13
Unemployed - employed	-0.03	0.08 <sup>†</sup>	-0.02	-0.06	0.03	-0.01	-0.02	-0.08
Employed - unemployed	-0.05	0.11 <sup>†</sup>	-0.06	-0.05	0.18 <sup>**</sup>	-0.19 <sup>**</sup>	0.01	-0.05
Leave/homemaker – leave/homemaker	-0.29	omitted	omitted	omitted	0.76 <sup>***</sup>	-0.44 <sup>***</sup>	-0.32 <sup>***</sup>	0.13
Employed - leave/homemaker	omitted	0.12	-0.04	-0.08	0.11	-0.02	-0.09	0.41 <sup>***</sup>
Other	-0.05	0.29 <sup>***</sup>	-0.21 <sup>***</sup>	-0.08	-0.07	0.09	-0.02	0.35 <sup>**</sup>
Pseudo R <sup>2</sup>	0.1362		0.1014			0.1242		0.1728
Observations	1,090		1,018			767		625

Note: \*\*\* p < 0.001; \*\* p < 0.01; \* p < 0.05.

Remark: See Section 4 on detailed information on various changes in the employment status. Controlled for age, partnership status at both waves, country, and sex. See Table A5 for the entire model.

Source: GGS, individuals aged 18 to 45 years at wave 1. Austria, France, Hungary, and Poland.

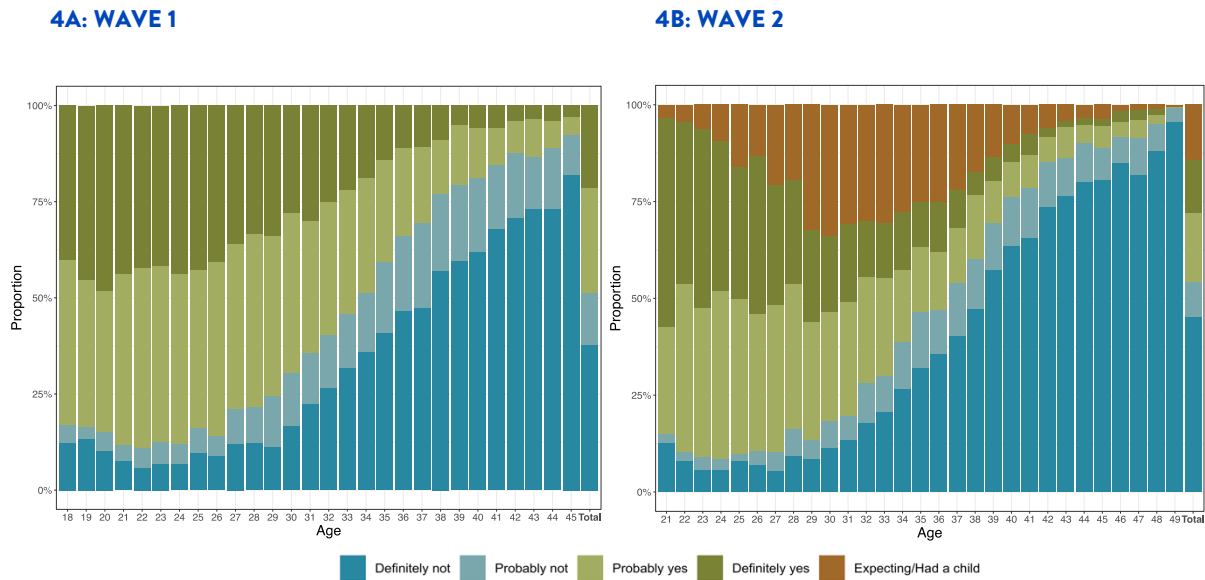
## 5.2 OVERALL FERTILITY INTENTIONS

When combining plans for the next three years and the time thereafter, we found that about four in ten surveyed persons were uncertain and answered the question on intending a(nother) child in the future either with “probably yes” (29 percent) or “probably no” (13 percent) at the time of wave 1 (Figure 4a). At the time of wave 2, three in ten gave an uncertain response (19 percent “probably yes,” nine percent “probably no,” and 15 percent either had a child between waves or were expecting a child at the time of wave 2 (Figure 4b).

Compared to short-term intentions, answers varied even more so with age and reflect reproductive behaviour in young and middle adulthood (Figure 4). The share of respondents “definitely” or “probably” intending no child in the future was low among persons below age 25 and reached levels above 80 percent at age 40 years and above. At young adulthood ages, about four in ten “definitely” wanted to have children in the future. The share of respondents expressing uncertainty regarding overall fertility intentions was high, amounting up to 56 percent until the early 30s. “Probably yes” answers outnumbered “probably no” answers until the mid-30s. With increasing age, this relationship reversed and the group “probably not” intending (further) children outnumbered those “probably” intending (further) children (Figure 4). By the time of the second interview, a substantial group (four in ten) had finished childbearing and was certain to intend no (further) children.

As expected, intentions to have a(nother) child at some point in the future were mentioned more often than intentions to have a child in the near future (“definitely yes:” 23 versus 12 percent; “probably yes:” 29 versus 17 percent; Figures 2a and 4a). This was especially the case for childless.

**FIGURE 4: OVERALL FERTILITY INTENTIONS AT WAVE 1 AND WAVE 2**

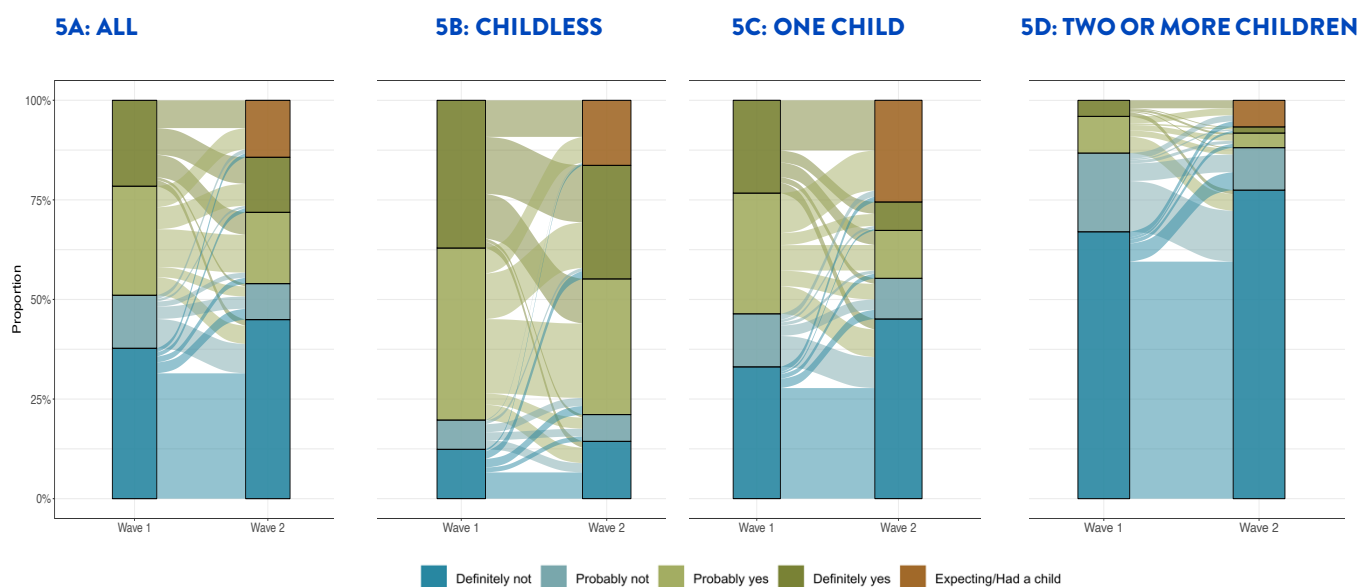


Source: GGS, 12,530 individuals aged 18 to 45 years at wave 1, Austria, France, Italy, Poland. Weighted data.



Comparing overall fertility intentions at wave 1 and wave 2, we found that—similar to short-term intentions—the largest group in the surveyed population by far comprised those who answered “definitely no” in both waves (29 percent, Figure 5a). The second-largest group comprised persons who answered “probably yes” in both waves (around 10 percent). As with short-term intentions, very few people changed their intention from one extreme to the other, such as from “definitely yes” to “definitely no.”

**FIGURE 5: COMPARISON OF OVERALL FERTILITY INTENTIONS BETWEEN WAVE 1 AND WAVE 2**




**Source:** GGS, 12,530 individuals aged 18 to 45 years at wave 1, of which 5,121 were childless, 2,526 had one child, and 4,883 had two or more children at wave 1. Austria, France, Italy, Poland. Weighted data.

Stability in overall fertility intentions was also substantial, as one in two (49 percent) gave the same answer at both waves. Further, 13 percent realised previously mentioned intentions. Therein, we observe a change in overall fertility intentions between waves among almost four out of ten. As with short-term intentions, gradual transitions between certainly yes, probably yes, probably no, and certainly no were frequent (26 percent) as compared to more considerable shifts (12 percent), while uncertain intentions were a common source of change between waves, also supporting hypotheses H1 and H2 for overall fertility intentions. “Probably no” answers turned out to be the least stable: About one in four “probably not” intending a child at wave 1 gave the same answer at wave 2. By contrast, 54 percent revised downwards towards “definitely not” intending further children, whereas 16 percent revised upwards towards “probably” or “definitely” intending further children. Additionally, a non-negligible share had or expected a child at wave 2, while “probably” not intending (further) children at wave 1. The “probably yes” group was somewhat more stable: 36 percent gave the same answer at wave 2, whereas 21 percent moved to “certainly yes” and 19 percent had or expected a child at wave 2. On the other hand, downwards revisions were less frequent (nine percent moving to “probably no” and 15 percent to “definitely no”).

Similar to short-term intentions, uncertain responses appeared to be a transitional phase towards either definitely negative or definitely positive fertility intentions (or the birth of a child), with infrequent changes from definitely negative to definitely positive intentions. However, for overall intentions, the direction of change tended towards certainly negative intentions, while the direction of revision to short-term intentions was more varied. Interestingly, a comparison between revisions in short-term and overall fertility intentions revealed that these turned out to be at the same level, namely 36 percent.

A differentiation by parity revealed that the childless reported the most transitory overall fertility intentions (Figure 5b), with 43 percent reporting a change in their intentions, and 16 percent having or expecting transition to parenthood. Stability



increased modestly with parity, as revisions were less frequent among parents of one or two and more children (34 and 27 percent, respectively). As mentioned in the chapter on short-term fertility intentions, a substantial share of persons with one child at wave 1 had or expected a second child at wave 2. In contrast to short-term intentions, we see the stability coming from different sources: For the childless, stability was found in positive intentions, whereas for those with more children, the stability came from negative intentions.

Overall fertility intentions varied between countries (Figures A4 and A5). Answers were somewhat similar in Austria, Italy, and Poland, but were different in France, where “definitely no” answers were more prevalent than in the other three countries. At wave 1, uncertainty was large in Poland and Italy (53 and 49 percent, respectively), tended to be less-frequently mentioned in Austria (42 percent), and comprised a much smaller group in France (22 percent) (Figure A4). Uncertain positive intentions varied between 21 percent and 34 percent. However, the share of individuals with uncertain negative intentions varied substantially and was as high as 23 percent in Poland and as low as one percent in France. The group definitely intending to have (further) children was largest in Austria and France (27 to 28 percent) and smallest in Poland (17 percent). Revisions varied between 25 percent in France and 41 percent in Austria and Italy (Figure A6). Across all countries, revisions became less frequent with increasing parity. We observed frequent changes among childless Italians (49 percent changed their intentions between waves and 14 percent had a child), whereas this was less often the case in Poland and France (38 percent revised; 17 to 22 percent had or expected a newborn).

According to multivariate analyses, parity was statistically significantly associated with changes in overall fertility plans. The likelihood of revising intentions downwards increased with the number of children (Table 5, models 2 and 3). For example, a 30 to 34-year-old woman with one child, living in Austria, cohabiting with her partner at both waves, and being employed at both waves was more likely (23 percent) to revise a “probably no” to a “definitely no” answer and to revise a “probably yes” to a “probably no” answer (13 percent) than a childless Austrian woman with the same partnership and employment characteristics. Women with two or more children had even higher probabilities of revising the described intentions downwards (26 percent and 23 percent, respectively). Age was crucial for changes in overall fertility intentions: With increasing age, intentions were revised downwards from “probably yes” to “probably no,” and from “probably no” to “definitely no.” Further, men changed their overall intentions upwards more often, from “definitely no” to “probably no,” and from “probably no” to “probably yes.” By contrast, women more often transitioned from “probably not” to “definitely not” intending (further) children, even after controlling for age.

Regarding partnership, entering a union as well as separating from a partner were related with changes in overall fertility intentions, supporting hypothesis H3 for overall fertility intentions. On the one hand, union formation (either cohabiting or LAT) was associated with upwards changes (from “probably no” to “probably yes,” and from “probably yes” to “definitely yes” when entering a cohabitation). On the other hand, those having a partner at wave 1 and being single at wave 2 were less likely to revise from “probably yes” to “definitely yes” and more likely to answer with “probably yes” at both waves. Unlike partnership context, changes in the employment situation were related with changes in overall fertility intentions to a lesser degree (Table 6). Changes from “probably yes” to “certainly yes” were observed to a higher extent among persons losing a job on the one hand, and among those in education at both points in time on the other hand. Further, moves from “probably yes” to “definitely yes” were more likely among women and men in education at both times, and less likely among persons experiencing unemployment at both times. As the estimated coefficients for employment were generally smaller in size and less often statistically significant in the regressions for overall fertility intentions than for short-term intentions, our results support hypothesis H5 that life events are correlated to a lower extent with overall intentions than with short-term intentions.

**TABLE 5: ESTIMATED COEFFICIENTS FOR TRANSITIONS IN OVERALL FERTILITY INTENTIONS BETWEEN WAVE 1 AND 2, AVERAGE MARGINAL EFFECTS**

	Model 1	Model 2			Model 3			Model 4
Wave 1	Definitely no	Probably no			Probably yes			Definitely yes
Wave 2	Probably no	Definitely no	Probably no	Probably yes	Probably no	Probably yes	Definitely yes	Had or expected a child
Age (wave 1) (ref.=30–34)								
18–29	0.01	-0.06	-0.06	0.11***	-0.07***	0.01	0.06**	-0.07*
35–39	-0.08***	0.16***	-0.09***	-0.08***	0.08***	0.01	-0.09**	-0.06
40–45	-0.12***	0.26***	-0.15***	-0.11***	0.20***	-0.04	-0.16***	-0.07
Parity (ref.=childless)								
1 child	-0.03	0.23***	-0.11**	-0.12***	0.13***	-0.02	-0.11***	0.11***
2+ children	-0.04**	0.26***	-0.12***	-0.14***	0.23***	-0.05	-0.18***	0.25***
Partnership status at wave 1 and wave 2 (ref.=cohabiting – cohabiting)								
LAT - LAT	0.06+	0.07	-0.09	0.03	-0.08***	0.17***	-0.09*	-0.44***
No partner - no partner	0.03*	-0.04	-0.00	0.04	0.04*	0.11***	-0.15***	-0.69***
(Cohabiting) partner - no partner	0.02	0.01	-0.04	0.03	0.01	0.10**	-0.12***	-0.39***
No (cohabiting) partner - cohabiting	-0.00	-0.17**	-0.04	0.21***	-0.06***	-0.03	0.09**	-0.12***
No partner - LAT	-0.01	-0.34***	-0.10	0.44***	-0.05*	0.13**	-0.08	-0.45***
Cohabiting - LAT	0.02	-0.10	0.09	0.01	-0.05	0.22*	-0.17	omitted
Country (ref.=Austria)								
France	-0.06***	0.21***	-0.11*	-0.10***	-0.08***	-0.09**	0.17***	0.07*
Italy	0.02	0.03	-0.03	-0.00	-0.09***	-0.03	0.13***	0.08**
Poland	0.06***	-0.11***	0.16***	-0.05**	0.04	0.07**	-0.11***	0.10***
Sex (ref.=female)								
Male	0.06***	-0.09***	0.02	0.06***	-0.02	0.02	-0.00	0.03
Pseudo R <sup>2</sup>	0.1167		0.1927			0.1265		0.3404
Observations	4,142		1,620			2,261		1,639

Note: \*\*\* p < 0.001; \*\* p < 0.01; \* p < 0.05.

Source: GGS, individuals aged 18 to 45 years at wave 1, Austria, France, Italy, and Poland.

**TABLE 6: ESTIMATED COEFFICIENTS FOR TRANSITIONS IN OVERALL FERTILITY INTENTIONS BETWEEN WAVE 1 AND 2, AVERAGE MARGINAL EFFECTS, INCLUDING CHANGES IN EMPLOYMENT**

	Model 1	Model 2			Model 3			Model 4
Wave 1	Definitely no	Probably no			Probably yes			Definitely yes
Wave 2	Probably no	Definitely no	Probably no	Probably yes	Probably no	Probably yes	Definitely yes	Had or expected a child
Employment status at wave 1 and wave 2 (ref.=employed – employed)								
Unemployed – unemployed	-0,01	0.04	0.04	-0.09***	0.02	-0.03	0.01	0.11
Student - student	-0.02	0.31***	-0.26***	-0.05	-0.04	-0.09	0.13**	-0.19**
Unemployed - employed	0.00	0.02	-0.02	-0.00	0.01	-0.01	0.00	-0.04*
Employed - unemployed	0.00	0.06	-0.08	0.01	-0.05	-0.07	0.13**	-0.10
Leave/homemaker – leave/homemaker	-0.03	0.02	-0.03	0.00	0.10	0.10	-0.20***	-0.07
Employed - leave/homemaker	omitted	0.16	-0.03	-0.13***	0.04	-0.03	-0.01	0.18***
Other	0.00	0.06	-0.02	-0.05	-0.00	0.06	-0.06	0.13*
Pseudo R <sup>2</sup>	0.1366		0.2022			0.1438		0.3322
Observations	3,211		1,154			1,693		1,321

Note: \*\*\* p < 0.001; \*\* p < 0.01; \* p < 0.05.

Source: GGS, individuals aged 18 to 45 years at wave 1, Austria, France, and Poland.

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## 6 DISCUSSION


Uncertainty is large for both short-term and long-term fertility intentions. A substantial proportion of women and men are uncertain when asked about intending to have (another) child in the near future (i.e., during the next three years) or later. Their share amounts to about 40 percent in the observed five European countries in this study, and their numbers are in line with previous finding (Jones, 2017; Ní Bhrolcháin & Beaujouan, 2019). As underlined by scholars in the realm of fertility and family, fertility intentions are not stable (Bernardi et al., 2015; Heiland et al., 2008) and our study provides further evidence therein. When taking uncertainty into account, we find that roughly four in ten changed their short-term intentions in a three- or four-year period, and a similar share revised overall fertility in this time interval.

The differentiation between certain and uncertain intentions reveals that uncertain intentions are an especially common source of change between waves and “probably no” are often transitory and the least stable. We find that almost at all ages, the group of persons with uncertain positive intentions is larger than the one with certain positive intentions. As seen in existing literature such as Brzozowska and Beaujouan (2021), our findings also support the idea that the two certain responses of definitely intending and definitely not intending (a)nother child are relatively stable and that realisation of short-term intentions are comparably high in the group of those “definitely” intending a child in the near future (Buber-Ennser et al., 2014). Moreover, especially for analyses on the realisation of short-term fertility intention, the differentiation between “definitely” and “probably” intending in a child in the near future is crucial.

Our findings support the argument that uncertain and certain responses should not be broadly combined into either positive or negative intentions (Ní Bhrolcháin & Beaujouan, 2011), and suggest that intentions may be imagined sequentially—moving up or down a spectrum of certainty with “definitely no” and “definitely yes” as opposite poles. The formation of certain childbearing plans (and their following realisation) appears to occur in a step-by-step process, with the decision to have a child passing through significant phases of uncertainty and change.

The life-course approach, which simultaneously considers interdependent changes in individual trajectories (Udry, 1983) proved to be an appropriate framework for studying fertility intentions and revisions therein. In line with previous literature on overall intentions (e.g., Kuhnt et al., 2021), partnership appears to be a leading life domain in the revision of short-term intentions. Changes in employment seem to be more influential in revising short-term intentions, while partnership and changes therein are crucial for changes and revisions of both short- and long-term intentions. Further, partnership appears to be more relevant in revising positive short-term intentions. In line with previous studies (e.g., Jones, 2017), age and parity are crucial in the context of certainty and uncertainty of fertility intentions and changes therein. This is reflected in a large share of persons certainly intending a child in the future in young adulthood and a majority of persons certainly not intending further children in the near future. Moreover, the fertility intentions of parents with two or more children are more stable, while the childless show the most transitory short-term intentions.

Several limitations should be mentioned. First, we are aware that we do not fully capture a change or revision of short-term intentions, as these intentions refer to the following three years. This is because the intention questioning is specific to the time when an individual is interviewed. For example, a person who does not intend to have a child during the next three years at wave 1, but within a period of five or six years, and whose plans remain the same over time, would—in our conceptualisation—change from not intending a child to intending a child. Such a situation is better described as a transition. Therein, we want to point out that—especially for short-term intentions—the term “transition” is more appropriate, whereas for long-term intentions the notation of “change” is applicable. Second, as persons who were definitely or probably intending to have a child in the near future were not further asked about their overall fertility intentions, we recoded their overall fertility intentions to match their short-term intentions. Third, variation in attrition might lead to somewhat biased results regarding uncertainty and dynamics therein. Fourth, partnership context and individuals’ employment situation are only two domains interfering with individuals’ fertility intentions. Further aspects include the partners’ employment situation or housing and changes therein. We agree with Kuhnt et al. (2021) that considering the couple-level experiences of “linked lives” (Elder, 1994) is crucial in moving forward in family research, especially considering the significance of partnership.



The uncertainty of intentions is of interest for policy considerations, because those who are uncertain may be more likely to be influenced by family policies (Kuhnt et al., 2021). Brehm and Schneider (2019) argue that studies often fail to explain the complexity and dynamic nature of fertility intentions, but this can be partially addressed by disaggregating by levels of certainty. When studying intentions, both cross-sectionally and longitudinally, it is important to consider the level of certainty alongside the instability of intentions. We suggest that future research should continue to distinguish intentions by degree of certainty and take into account the frequent revisions and fluctuations in short-term and overall intentions over the life course. Surveys might consider uncertainty in broader or more dynamic ways, such as including options for respondents to answer ambivalently or ambiguously.

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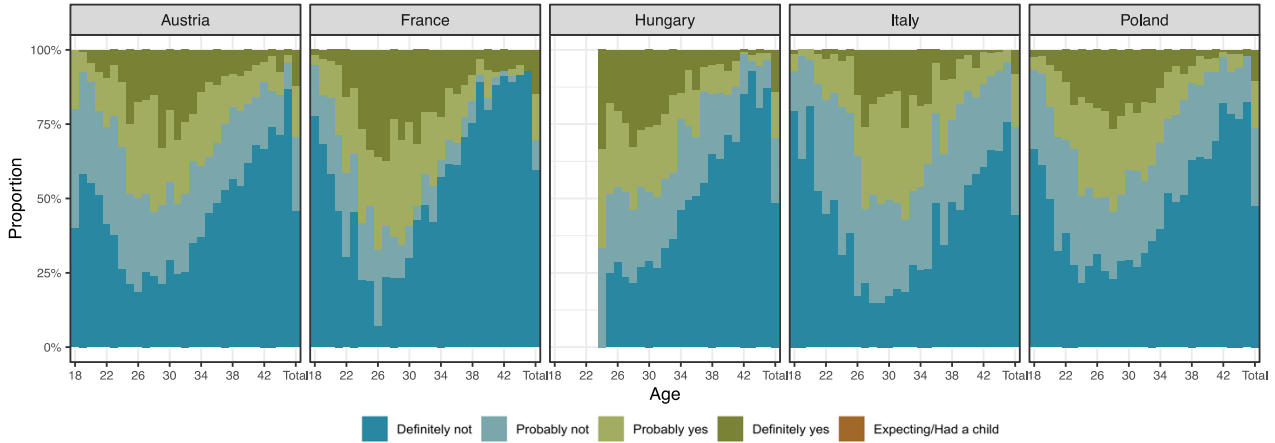
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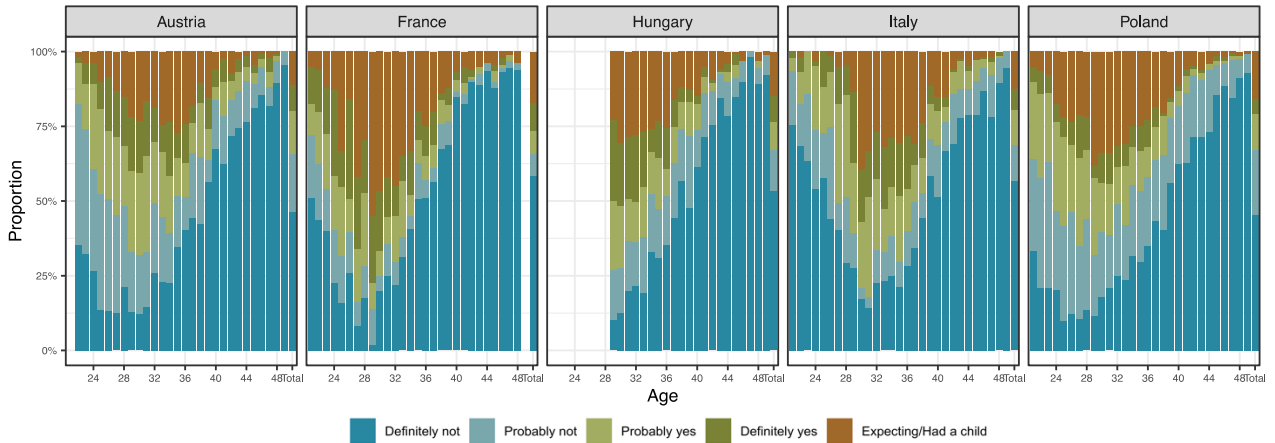
# APPENDICES

**FIGURE A1: COMPARISON OF SHORT-TERM FERTILITY INTENTIONS AT WAVE 1, BY COUNTRY**



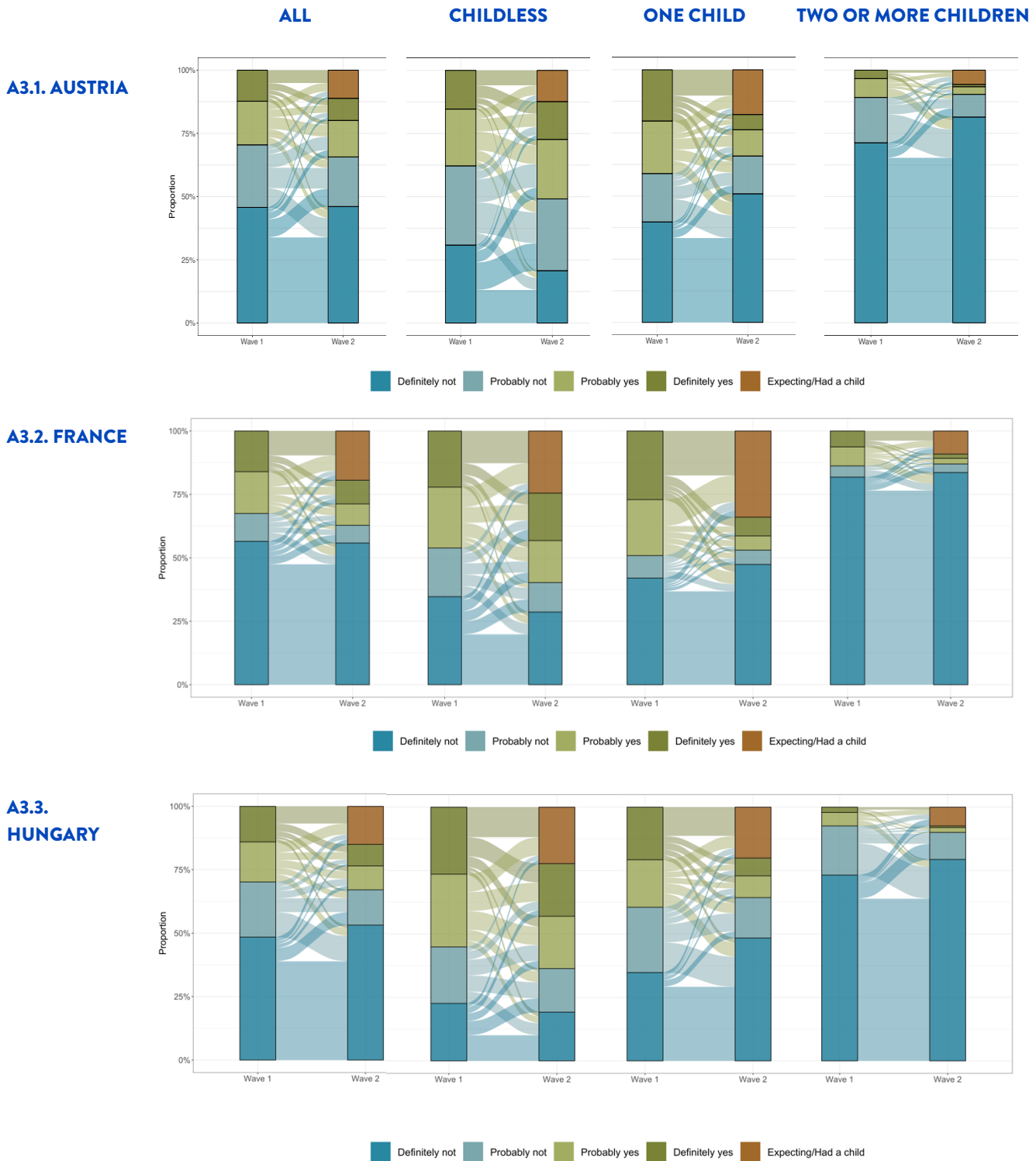
Source: GGS, 15,369 individuals aged 18-45 years at wave 1, Austria, France, Hungary, Italy, Poland. Weighted data.

**FIGURE A2: COMPARISON OF SHORT-TERM FERTILITY INTENTIONS AT WAVE 2, BY COUNTRY**

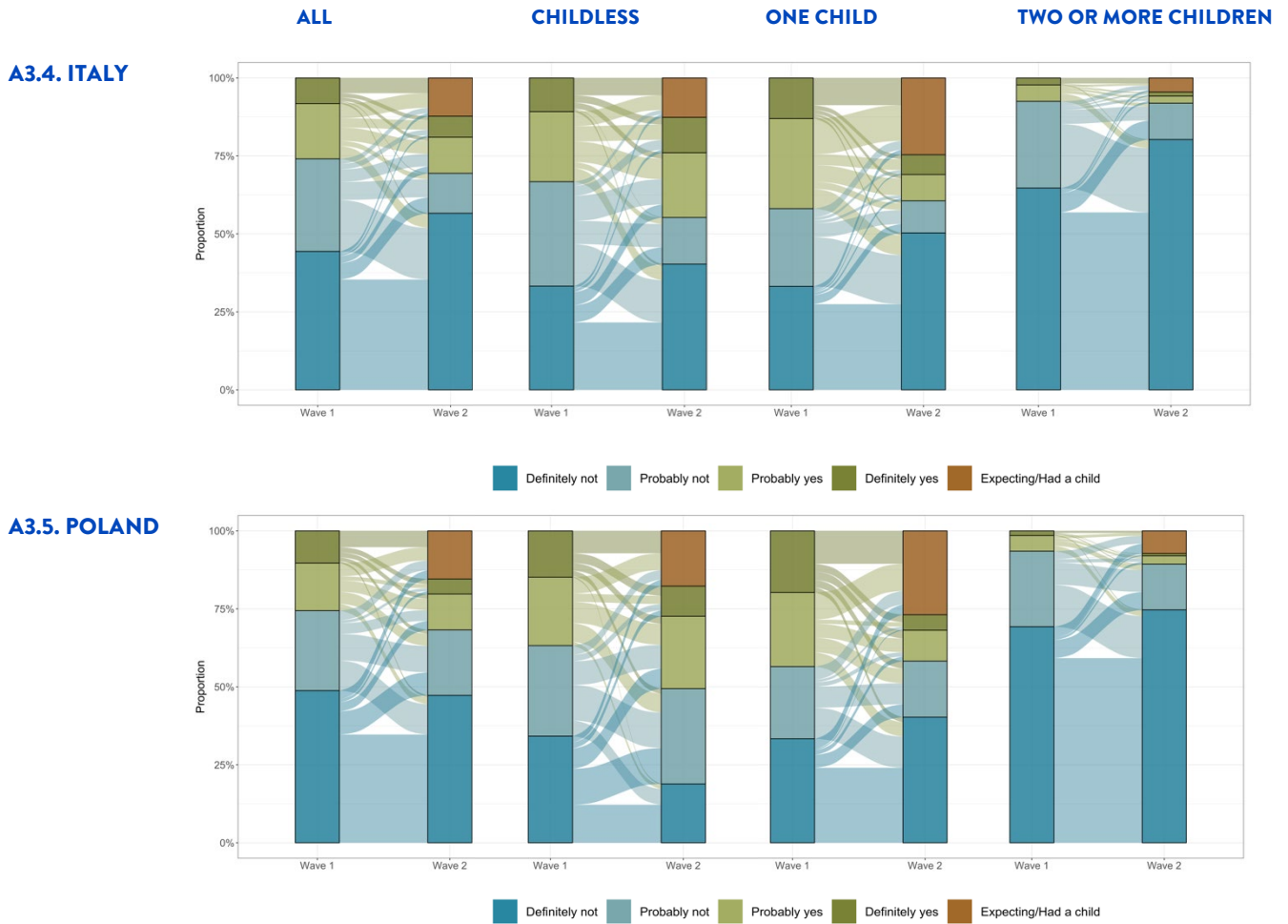


Source: GGS, 15,369 individuals aged 18-45 years at wave 1, Austria, France, Hungary, Italy, Poland. Weighted data.

**FIGURE A3: COMPARISON OF INDIVIDUAL'S SHORT-TERM FERTILITY INTENTIONS BETWEEN WAVE 1 AND WAVE 2, BY COUNTRY**

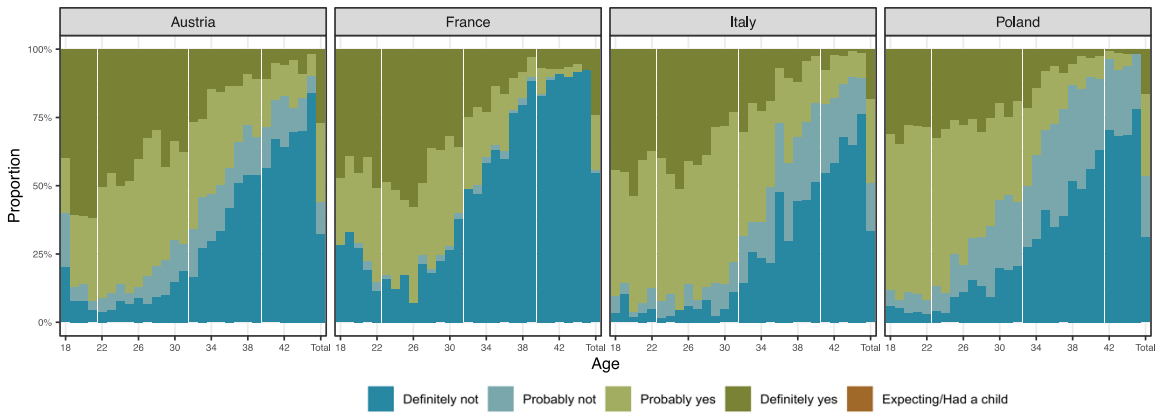


**FIGURE A3 (CONT.): COMPARISON OF INDIVIDUAL'S SHORT-TERM FERTILITY INTENTIONS BETWEEN WAVE 1 AND WAVE 2, BY COUNTRY**



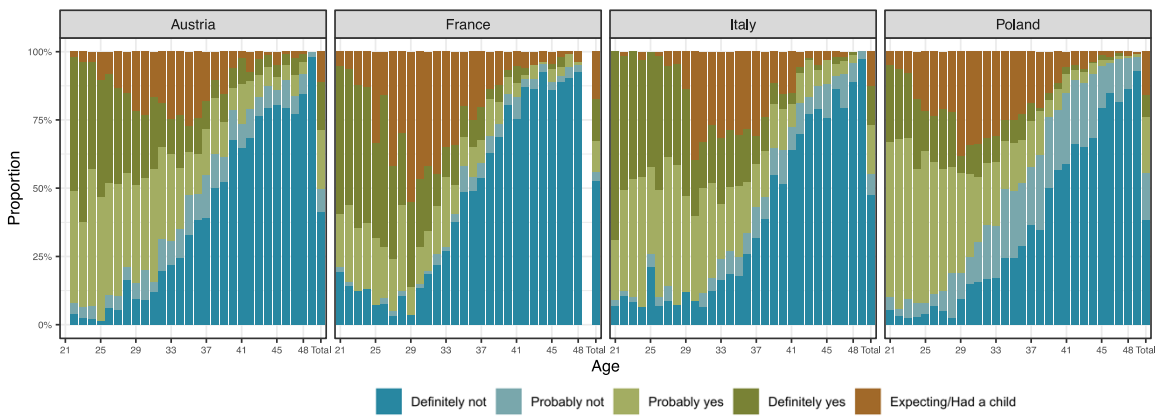
**Source:** GGS, 15,369 individuals aged 18-45 years at wave 1, of which 6,067 were childless, 3,154 had one child, and 6,148 had two or more children at wave 1. Austria, France, Hungary, Italy, Poland. Weighted data.

**FIGURE A4: COMPARISON OF OVERALL FERTILITY INTENTIONS AT WAVE 1, BY COUNTRY**



Source: GGS, 10,357 individuals aged 18-45 years at wave 1, Austria, Italy, Poland. Weighted.

**FIGURE A5: COMPARISON OF OVERALL FERTILITY INTENTIONS AT WAVE 2, BY COUNTRY**

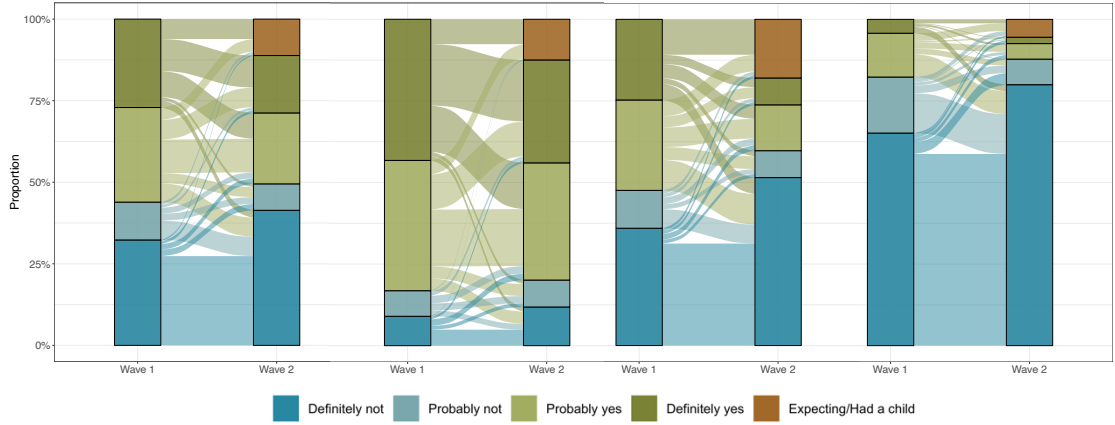


Source: GGS, 10,357 individuals aged 18-45 years at wave 1, Austria, Italy, Poland. Weighted.

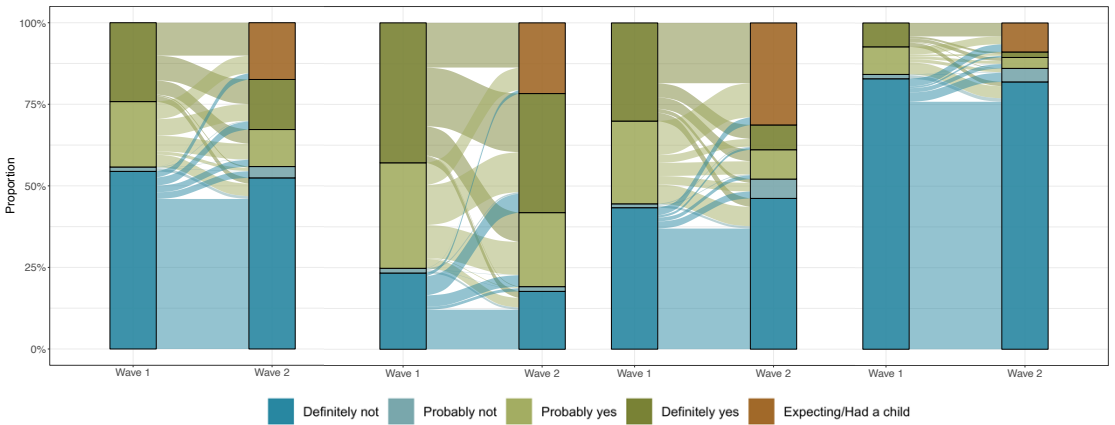
**FIGURE A6: COMPARISON OF INDIVIDUAL'S LONG-TERM FERTILITY INTENTIONS BETWEEN WAVE 1 AND WAVE 2, BY COUNTRY**

**ALL CHILDLESS ONE CHILD TWO OR MORE CHILDREN**

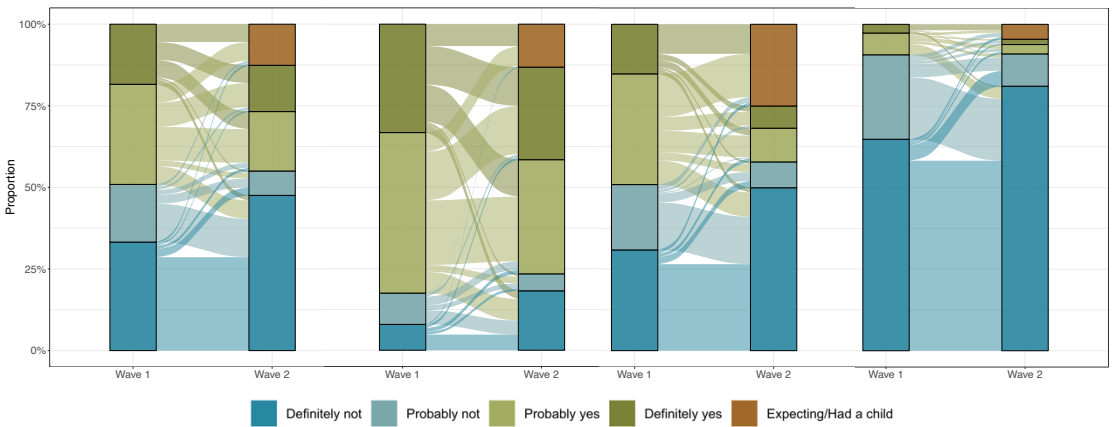
**A6.1. AUSTRIA**



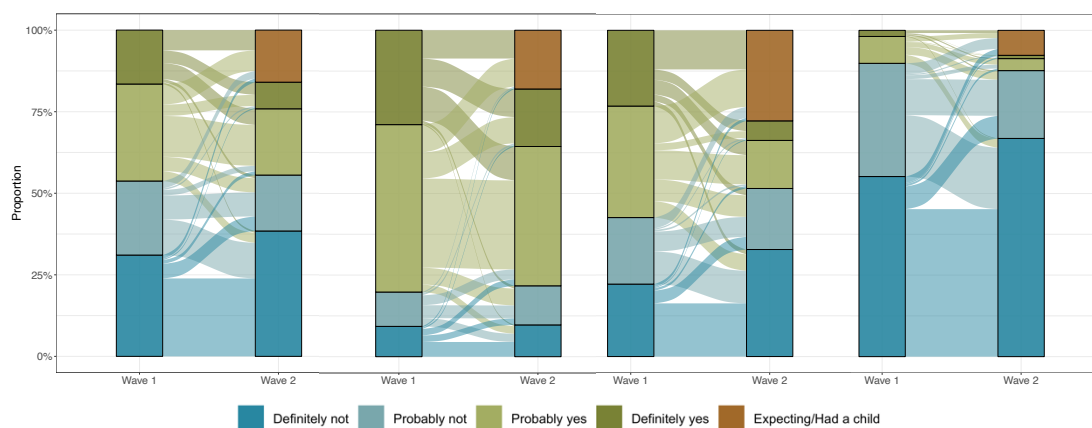
**A6.2. FRANCE**



**A6.3. ITALY**



## A6.4. POLAND



Source: GGS, 10,357 individuals aged 18-45 years at wave 1, of which 4,372 were childless, 2,214 had one child, and 3,944 had two or more children at wave 1. Austria, Italy, Poland. Weighted data.

**TABLE A1: ATTRITION, IN PERCENTAGES**

Attrition	
Short-term intention at wave 1	
Definitely no	33%
Probably no	35%
Probably yes	39%
Definitely yes	33%
Country	
Austria	23%
France	35%
Hungary	24%
Italy	34%
Poland	45%
Total	34%
N	24,551

Source: GGS, 24,551 individuals aged 18-45 years at wave 1, physically able to have a child and with information on short-term fertility intention at wave 1. Austria, France, Hungary, Italy, Poland. Unweighted data.

**TABLE A2: SAMPLE DESCRIPTION, IN PERCENTAGES**

	Sample on short-term intentions	Sample on overall intentions
<b>Age (wave 1)</b>		
Mean (SD)	33.3 (7.4)	33.0 (7.7)
<b>Sex</b>		
Male	42.0%	41.7%
Female	58.0%	58.3%
<b>Parity (wave 1)</b>		
Childless	39.5%	40.9%
1 child	20.5%	20.2%
2 or more children	40.0%	39.0%
<b>Partnership status at wave 1 and wave 2</b>		
Cohabiting – cohabiting	58.5%	58.8%
LAT – LAT	2.7%	2.7%
No partner – no partner	19.2%	18.9%
Partner – no partner	6.3%	6.3%
No partner – cohabiting	9.0%	9.1%
No partner – LAT	3.5%	3.5%
Cohabiting – LAT	0.8%	0.8%
<b>Country</b>		
Austria	19.7%	23.8%
France	16.4%	19.5%
Hungary	17.0%	0%
Italy	19.5%	23.3%
Poland	27.4%	33.3%
<b>Total</b>	<b>100%</b>	<b>100%</b>
<b>N</b>	<b>15,369</b>	<b>12,530</b>
<b>Subsample excluding Italy</b>	<b>Sample on short-term intentions</b>	<b>Sample on overall intentions</b>
<b>Employment</b>		
Employed - employed	63.6%	63.3
Unemployed - unemployed	3.5%	3.4
Student - student	3.0%	3.8
Unemployed - employed	13.9%	14.5
Employed - unemployed	4.6%	4.0
Leave/homemaker – leave/homemaker	4.0%	4.1
Employed – leave/homemaker	2.9%	2.6
Other	4.5%	4.3
<b>Total</b>	<b>100%</b>	<b>100%</b>
<b>N</b>	<b>12,369</b>	<b>9,609</b>

**Source:** GGS, 15,369 individuals aged 18-45 years at wave 1, physically able to have a child and with information on short-term fertility intention at wave 1 and at wave 2. Austria, France, Hungary, Italy, Poland. Unweighted data.

**TABLE A3: ESTIMATED COEFFICIENTS FOR TRANSITIONS IN SHORT-TERM FERTILITY INTENTIONS BETWEEN WAVE 1 AND 2, AVERAGE MARGINAL EFFECTS. PERSONS WITH ONE CHILD AT WAVE 1**

	Model 1	Model 2			Model 3			Model 4
Wave 1	Definitely no	Probably no			Probably yes			Definitely yes
Wave 2	Probably no	Definitely no	Probably no	Probably yes	Probably no	Probably yes	Definitely yes	Had or expected a child
Age (wave 1) (ref.=30-34)								
18-29	0.12+	-0.09	0.00	0.09	0.15**	-0.08	-0.07	0.03
30-34								
35-39	-0.06+	0.14**	-0.02	-0.11***	0.12	0.04	-0.16**	0.07
40-45	-0.13***	0.28***	-0.14**	-0.14***	0.15	0.10	-0.25***	-0.22
Partnership status at wave 1 and wave 2 (ref.=cohabiting - cohabiting)								
LAT - LAT	0.12+	0.20	-0.20*	0.00	-0.17	0.03	0.14	omitted
No partner - no partner	0.05*	0.14**	-0.10*	-0.04	0.13	0.07	-0.21***	omitted
(Cohabiting) partner - no partner	-0.01	-0.06	0.03	0.03	0.03	0.06	-0.09	-0.09
No (cohabiting) partner - cohabiting	0.01	-0.09	-0.02	0.12	-0.14	-0.02	0.17	-0.11
No partner - LAT	0.12**	-0.08	0.06	0.03	-0.05	0.07	-0.02	-0.28
Cohabiting - LAT	-0.05	0.05	-0.04	-0.01	-0.22	0.20	0.01	omitted
Country (ref.=Austria)								
France	-0.08*	0.11	-0.13	0.02	0.02	-0.14	0.11	-0.04
Hungary	-0.01	0.08	-0.04	-0.04	0.11	-0.14*	0.03	-0.02
Italy	0.05+	0.12*	-0.08	-0.04	-0.18*	0.03	0.15*	0.00
Poland	0.05*	0.01	0.03	-0.04	0.06	0.03	-0.09	-0.04
Sex (ref.=female)								
Male	0.08***	-0.03	0.02	0.01	-0.03	-0.02	0.06	-0.03
Observations	1,042	554	554	554	316	316	316	440

Note: \*\*\* p < 0.001; \*\* p < 0.01; \* p < 0.05.

Source: GGS, individuals aged 18-45 years at wave 1, Austria, France and Poland.



**TABLE A4: ESTIMATED COEFFICIENTS FOR TRANSITIONS IN SHORT-TERM FERTILITY INTENTIONS BETWEEN WAVE 1 AND 2, AVERAGE MARGINAL EFFECTS. PERSONS WITH TWO OR MORE CHILDREN AT WAVE 1**

	Model 1	Model 2			Model 3			Model 4
Wave 1	Definitely no	Probably no			Probably yes			Definitely yes
Wave 2	Probably no	Definitely no	Probably no	Probably yes	Probably no	Probably yes	Definitely yes	Had or expected a child
Age (wave 1) (ref.=30-34)								
18-29	0.05+	-0.08	-0.04	0.12***	-0.10	0.24*	-0.14	-
35-39	-0.04*	0.12***	-0.13***	0.01	0.09	0.01	-0.10	-0.18*
40-45	-0.09***	0.23***	-0.20***	-0.03**	0.20	0.01	-0.20**	-0.15
Partnership status at wave 1 and wave 2 (ref.=cohabiting - cohabiting)								
LAT - LAT	0.06	-0.04	0.09	-0.05***	-	-	-	-
No partner - no partner	-0.01	-0.09	0.11	-0.02	-0.48***	0.67**	-0.19***	-
(Cohabiting) partner - no partner	0.05*	0.10	-0.05	-0.05***	0.52***	-0.33***	-0.19***	-
No (cohabiting) partner - cohabiting	0.05	-0.10	0.00	0.10	-0.23	0.27	-0.03	-0.09
No partner - LAT	0.04	-0.35**	0.40**	-0.05***	-	-	-	-
Cohabiting - LAT	0.09**	-0.13	0.07	0.06	-0.48***	0.67***	-0.19***	-
Country (ref.=Austria)								
France	-0.06**	0.10	-0.11*	0.00	-0.21	0.04	0.16	-0.03
Hungary	0.02	0.03	-0.01	-0.02	-0.02	0.16	-0.14	-0.03
Italy	0.04**	0.04	-0.02	-0.02	-0.19	-0.01	0.10	-
Poland	0.02+	-0.09**	0.09**	-0.00	0.18	-0.07	-0.10	-0.01
Sex (ref.=female)								
Male	0.04***	-0.10***	0.08***	0.01	-0.09	-0.02	0.11	0.05
Observations	4,345	1,086	1,086	1,086	124	124	124	67

Note: \*\*\* p < 0.001; \*\* p < 0.01; \* p < 0.05.

Source: GGS, individuals aged 18-45 years at wave 1, Austria, France and Poland.

**TABLE A5: ESTIMATED COEFFICIENTS FOR TRANSITIONS IN SHORT-TERM FERTILITY INTENTIONS BETWEEN WAVE 1 AND 2, AVERAGE MARGINAL EFFECTS. PERSONS CHILDLESS AT WAVE 1, INCLUDING CHANGES IN EMPLOYMENT**

	Model 1	Model 2			Model 3			Model 4
Wave 1	Definitely no	Probably no			Probably yes			Definitely yes
Wave 2	Probably no	Definitely no	Probably no	Probably yes	Probably no	Probably yes	Definitely yes	Had or expected a child
Age (wave 1) (ref.=30-34)								
18-29	0.01	-0.15***	0.07	0.08*	-0.03	-0.02	0.05	-0.01
35-39	-0.23**	0.10	-0.02	-0.09	0.04	-0.05	0.02	-0.07
40-45	-0.31***	0.27***	-0.01	-0.26***	0.13	0.06	-0.19***	-0.16
Partnership status at wave 1 and wave 2 (ref.=cohabiting - cohabiting)								
LAT - LAT	0.12	-0.03	0.03	-0.00	0.04	0.10	-0.13	-0.33**
No partner - no partner	0.15*	-0.03	0.19***	-0.15***	0.21***	0.10*	-0.31***	-0.38***
(Cohabiting) partner - no partner	0.23**	0.02	0.19**	-0.21***	0.14*	0.08	-0.23***	-0.11
No (cohabiting) partner - cohabiting	0.30***	-0.10*	0.01	0.09	-0.04	-0.01	0.05	-0.04
No partner - LAT	0.21**	-0.01	0.04	-0.03	0.13*	0.15*	-0.28***	-0.32
Cohabiting - LAT	0.09	0.25*	0.04	-0.29***	0.11	0.24	-0.35***	-0.43*
Employment status at wave 1 and wave 2 (ref.=employed - employed)								
Unemployed - unemployed	-0.07	-0.02	0.02	-0.01	0.22*	-0.13	-0.09	0.00
Student - student	-0.12**	0.23***	-0.02	-0.21***	0.13	-0.11	-0.01	0.13
Unemployed - employed	-0.03	0.08*	-0.02	-0.06	0.03	-0.01	-0.02	-0.08
Employed - unemployed	-0.05	0.11*	-0.06	-0.05	0.18**	-0.19**	0.01	-0.05
Leave/homemaker - leave/homemaker	-0.29	omitted	omitted	omitted	0.76***	-0.44***	-0.32***	0.13
Employed - leave/homemaker	omitted	0.12	-0.04	-0.08	0.11	-0.02	-0.09	0.41***
Other	-0.05	0.29***	-0.21***	-0.08	-0.07	0.09	-0.02	0.35**
Country (ref.=Austria)								
France	-0.24***	0.16***	-0.10*	-0.05	-0.10*	-0.06	0.17***	0.24***
Hungary	-0.06	0.07*	-0.14***	0.07	-0.08*	-0.08	0.16***	0.03
Poland	0.04	0.01	-0.04	0.03	0.06	0.00	-0.07*	0.15**
Sex (ref.=female)								
Male	0.04	-0.01	0.05	-0.05	0.03	0.05	-0.08**	0.18***
Pseudo R <sup>2</sup>	0.1362		0.1014			0.1242		0.1728
Observations	1,090		1,018			767		625

Note: \*\*\* p < 0.001; \*\* p < 0.01; \* p < 0.05.

Remark: See Section 4 on detailed information on various changes in the employment status.

Source: GGS, individuals aged 18-45 years at wave 1. Austria, France, Hungary and Poland.

**TABLE A6: ESTIMATED COEFFICIENTS FOR TRANSITIONS IN OVERALL FERTILITY INTENTIONS BETWEEN WAVE 1 AND 2, AVERAGE MARGINAL EFFECTS, INCLUDING CHANGES IN EMPLOYMENT**

	Model 1	Model 2			Model 3			Model 4
Wave 1	Definitely no	Probably no			Probably yes			Definitely yes
Wave 2	Probably no	Definitely no	Probably no	Probably yes	Probably no	Probably yes	Definitely yes	Had or expected a child
Age (wave 1) (ref.=30-34)								
18-29	-0.01	-0.10*	-0.05	0.14***	-0.07***	0.06	0.01	-0.06*
35-39	-0.07***	0.17***	-0.11***	-0.06**	0.08**	0.03	-0.05	-0.06
40-45	-0.12***	0.28***	-0.18***	-0.10***	0.26***	-0.16*	-0.10***	-0.05
Parity (ref.=childless)								
1 child	-0.02	0.24***	-0.16***	-0.08**	0.16***	-0.01	-0.15***	0.12***
2+ children	-0.03+	0.27***	-0.17***	-0.11***	0.25***	-0.06	-0.19***	0.20**
Partnership status at wave 1 and wave 2 (ref.=cohabiting – cohabiting)								
LAT – LAT	0.07*	0.06	-0.09	0.03	-0.09***	0.19***	-0.11**	-0.40***
No partner - no partner	0.04*	-0.06	0.02	0.04	0.05*	0.12***	-0.17***	-0.56***
(Cohabiting) partner - no partner	0.04	-0.04	0.01	0.03	0.04	0.13**	-0.17***	-0.31***
No (cohabiting) partner - cohabiting	-0.03	-0.25***	0.01	0.24***	-0.07***	-0.01	0.06	-0.09**
No partner – LAT	-0.01	-0.33***	-0.11	0.44***	-0.05	0.16***	-0.11**	-0.38***
Cohabiting – LAT	0.02	-0.11	0.10	0.01	-0.05	0.22**	-0.17*	omitted
Employment status at wave 1 and wave 2 (ref.=employed – employed)								
Unemployed – unemployed	-0.01	0.04	0.04	-0.09***	0.02	-0.03	0.01	0.11
Student - student	-0.02	0.31***	-0.26***	-0.05	-0.04	-0.09	0.13**	-0.19**
Unemployed - employed	0.00	0.02	-0.02	-0.00	0.01	-0.01	0.00	-0.04*
Employed - unemployed	0.00	0.06	-0.08	0.01	-0.05	-0.07	0.13**	-0.10
Leave/homemaker – leave/homemaker	-0.03	0.02	-0.03	0.00	0.10	0.10	-0.20***	-0.07
Employed - leave/homemaker	Omitted	0.16	-0.03	-0.13***	0.04	-0.03	-0.01	0.18***
Other	0.00	0.06	-0.02	-0.05	-0.00	0.06	-0.06	0.13*
Country (ref.=Austria)								
France	-0.06***	0.20***	-0.10	-0.11***	-0.08***	-0.10**	0.17***	0.09**
Poland	0.06***	-0.12***	0.16***	-0.04**	0.04*	0.06**	-0.10***	0.10***
Sex (ref.=female)								
Male	0.05***	-0.06***	0.02	0.08***	-0.01	0.03	-0.02	0.05+
Pseudo R <sup>2</sup>	0.1366		0.2022			0.1438		0.3322
Observations	3,211		1,154			1,693		1,321

Note: \*\*\* p < 0.001; \*\* p < 0.01; \* p < 0.05.

Source: GGS, individuals aged 18-45 years at wave 1, Austria, France and Poland.



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