Bedroom Politics
How family policies affect women’s fertility and union formation decisions
Andrej Kokkonen
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Writing a thesis is often an uneventful undertaking. You read, you think, you do some statistical analyses and, if you are lucky, you write a little bit at the end. More often than not the work also spills over on your private life so that it too becomes rather predictable. However, sometimes the unexpected happens. One day I took work home in a more literal sense than usual. Agnes has stayed in my life ever since. She has also made me realize that work and pleasure can be combined in ways I could not imagine before meeting her. For that I will always be grateful. And still we have so much left to explore.
Can family policies affect fertility?

Fertility rates are plunging and have reached unprecedentedly low levels in almost the entire developed world (Frejka & Sardon 2004; Frejka & Sobotka 2008). During the first six years of the new millennium the period total fertility rate (PTFR) in Europe averaged 1.4 children (Eurostat 2010).\(^1\) This figure is well below the rate of 2.1 children per woman that is required if a population is to survive in the long run in the absence of immigration.\(^2\) The consequences of such low fertility rates will be dire in the long run. First, populations will grow older as the number of newborns dwindles. Then, populations will begin to shrink drastically as the elderly begin to die off. If fertility rates remain at their current levels until 2100, the populations of Italy, Spain, and Germany, for example, in the absence of immigration, will drop to only 14, 15, and 17 percent respectively, of what they are today (McDonald 2000a). Although immigration can seem to be an obvious way out of the problem (e.g., see Malmberg 2006), it is not a viable solution in the long term. Immigrants also grow old and die; therefore, immigration can only postpone population aging and decline temporarily (United Nations Population Division 2000; McDonald & Kippen 2001; Coleman 2006). In short, unless people have more children, it will be impossible to stop the pending aging and decline of the population.

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\(^1\) The period total fertility rate (PTFR or TFR) is an estimation of the number of children that a hypothetical average woman in a population can be expected to have during her lifetime, based on the number of children women in different age groups in the population have during a year.

\(^2\) 2.1 is the average number of children each woman needs to have in order to keep the population stable in a low-mortality setting. In high-mortality settings, the average number of children needed is higher.
It is therefore not surprising that politicians are asking whether changes in family policies can increase fertility rates. This is also the overall question of this study. The research community has yet to come to a consensus on whether policy changes can bring about the desired changes to fertility rates. (For overviews of, and opinions on, the research on policies’ effect on fertility, see Sleebos 2003; Neyer 2003 Demeny 2005; McDonald 2006; Gauthier 2007; Björklund 2007.) Many scholars see fertility decline as an inevitable consequence of cultural change, about which policies can do little. These scholars argue that modern people’s desire for self-realization and their reluctance to enter into lifelong commitments simply make them unwilling to make the sacrifices that having children involves (van de Kaa 1987; 2001, 2002; Lesthaeghe 1995; Lesthaeghe & Moors 2000). Accordingly, it does not matter what politicians do; people will not have children regardless.

Other, more economically oriented, scholars argue that people’s unwillingness to have children is a rational response to the increasing costs of reproduction that have followed in the wake of the increase in opportunities for women in the labor market (Becker 1991). As the costs of reproduction can be reduced by generous family policies, these scholars are mostly optimistic about policies’ ability to raise fertility (McDonald 2006; Björklund 2007). In other words, it matters what politicians do; if they implement policies that recompense families for the increasing costs of reproduction, people will go on having children.

This study firmly sides with those who argue that generous family policies can raise fertility. Thus, it agrees that the ultimate source of low fertility is the increased costs of reproduction that have followed in the wake of expanded opportunities for women in the labor market, and it agrees that policies can raise fertility by reducing these costs. However, the study’s main message is that those scholars who are optimistic about policies’ ability to raise fertility have not recognized their full potential to do so, because they have failed to acknowledge the individualized nature of many fertility decisions.

For a long time the literature on the effect of policies on fertility has been dominated by Gary Becker’s new home economics (see Gauthier 2007). Central to Becker’s theory (Becker 1991) is the assumption that fertility deci-

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3 It is an open question whether politicians’ concern with falling fertility rates is warranted from a normative perspective. Normative arguments can be made in favor of both reducing and increasing population size (e.g., see Parfit 1984, Chapters 17–19; Tännsjö & Ryberg (Eds.) 2004; Neyer 2011; Oláh 2011). The question of whether politicians’ concern with falling fertility rates is normatively warranted is not the topic of this study, however. I am just interested in answering the empirical question of whether, by implementing generous family policies, politicians can encourage women to have more children.
sions are primarily taken within unions, by partners who altruistically share the burdens and benefits of reproductive investments with each other. In line with this assumption, researchers have primarily focused on studying how family policies that reduce altruistic spouses’ costs of reproduction affect within-union fertility. Although such a focus undoubtedly has its merits and is often warranted, this study argues that it misses a fundamental fact about fertility decisions: namely, that fertility decisions are closely interrelated with decisions about union formation and union dissolution. Many fertility decisions are taken by individuals long before they form unions and can be certain that their partners will share the burdens of raising potential children with them. In addition, in a time of high union dissolution rates, far from all fertility decisions within unions are taken by partners who are altruistically inclined toward each other. In short, fertility decisions are often taken in situations in which Becker’s assumption of family altruism is unlikely to hold, and where individuals’ incentives to have children do not necessarily coincide with altruistic partners’ incentives to have children. In such situations, individuals are likely to be more sensitive to how policies would affect their costs of reproduction in the event that they end up on their own than they are to how policies would affect altruistic spouses’ costs of reproduction. Consequently, the previous research’s focus, on how policies that reduce altruistic spouses’ costs of reproduction affect within-union fertility, is too narrow to capture the entire effect that policies have on fertility.

More specifically, this study argues that policies can increase fertility in two ways that the previous research has failed to notice; namely, 1) by increasing women’s incentives to form unions, and 2) by increasing women’s incentives to have children in unstable unions. The purpose of this study is to show that policies’ effect on fertility will appear much clearer with individual-level fertility data if these two ways in which policies can affect fertility are given due attention, and the focus is shifted from families’ to individuals’ (or more correctly, individual women’s) incentives to have children. Thus,

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4 At least to the extent that they have been interested in individual-level fertility patterns.

5 In the empirical and in much of the theoretical parts of my study, I focus mainly on women and their union formation and fertility decisions. Men and their characteristics are included in the analyses only to the extent that they are hypothesized to influence women’s decisions; otherwise they are not studied. There are both theoretical and pragmatic reasons for this focus. First, my argument mainly concerns women as it is an empirical fact that it is mainly women who bear the brunt of the costs of reproduction – and thus it is women who take the greatest individual risks when having children. Second, women today have de facto and in most countries also de jure veto power in fertility decisions. In most countries women can terminate unwanted pregnancies if they choose to. Men cannot do so in any country in the world. Women, thus, have more power than men over fertility decisions – at least in the developed world. Third, for practical reasons it is easier to study women’s fertility as biological age confines their fecundity to a fairly short part of their lives. Men, in contrast, can procreate until the end of their lives, and therefore it takes longer to establish with certainty how
the optimistic message conveyed by the study is that if only the causal paths in which policies can affect fertility are understood better, it will become obvious that generous family policies can raise Europe’s low fertility rates; the policies need only to aim to reduce individuals’ costs of reproduction. In other words, this study disentangles the causal mechanisms through which policies affect women’s fertility decisions and shows how a more detailed understanding of such effects can help us understand policies’ full potential as means of raising fertility.

The argument

My argument, that fertility decisions are often more individualized than the previous research has acknowledged, can be subdivided into two more specific arguments.

The first of these arguments is that the previous research has failed to recognize that family policies can affect fertility by mediating the negative effect of union instability on fertility. The new home economics idea of family altruism assumes families to be run by an altruist head (usually male), whose utility is dependent on the other family members’ utility. Because he is so inclined, the altruist will distribute the family’s resources for the good of all in the family. Knowing this, other family members are assumed to pool their resources and adjust their behavior to maximize the altruist’s utility. If they are harmed by their individual contributions, they will be “compensated by changes in contributions from the altruist that make [them] better off” (Becker 1981, p. 6). In short, family members are assumed to be indifferent to how the costs of reproduction are distributed within the family – and how family policies affect that distribution. What matters is how reproductive investments and family policies affect the family’s total utility.

In recent years Becker’s idea of family altruism has come under criticism for not giving a realistic picture of how families function, and several scholars have suggested replacing it with various game-theoretic bargaining models of family life (e.g., see Manser & Brown 1980; McElroy & Horney 1981; Lundberg & Pollak 1993, 1994, 1996; Folbre 1994; Braunstein & Folbre...
2001; Iversen & Rosebluth 2006). These models presuppose spouses to primarily act in their own interests, and so it is unrealistic to assume that family members will pool their resources and adjust their behavior to maximize the family head’s utility. Instead, they assume spouses to use the resources under their individual control (for example, their labor market incomes) to bargain with each other over which investments to make and how to distribute their payoffs. The spouses’ bargaining power is ultimately decided by their options outside the union – that is, the payoff they would receive if they decided to leave their partner. Under such circumstances it is not wise to make investments that weaken one’s bargaining position by worsening one’s outside options.

From a game-theoretic bargaining perspective, women who live in unstable unions therefore have an incentive to self-insure against a separation by not having children and continuing to work in the labor market (Peters 1986). While they must usually bear the full cost of the human capital investments necessary for having children, women receive only a part of the value of these investments if their union ends in a separation. In contrast to the assumptions of the new home economics theory of fertility, women are, hence, likely to be very sensitive to the distribution of the costs of reproduction within the family – and how it is affected by family policies. For example, it can be assumed that family policies that reduce the primary caretaker’s cost of reproduction directly would be more effective in increasing women’s willingness to have children than would family policies that reduce the family’s costs of reproduction by compensating the family’s primary earner with a reduced tax rate. This is true even if both kinds of policies offer equal amounts of compensation to the family as a unit.

Family policies that allow parents to combine work and children (henceforth, “dual-earner policies”), such as subsidized child care and wage-related parental leave benefits, reduce the primary caretaker’s costs of reproduction in a direct way. They do so by reducing the time the primary caretaker (assumed here to be the mother) must spend caring for the family’s children, and by compensating her individually for the time she still wants to spend caring for them. Dual-earner policies also make it easier for lone parents to pursue careers without neglecting their children’s need for care. Because of these characteristics, dual-earner family policies can be expected to be more effective at raising fertility than family policies that presuppose a more traditional division of household labor, such as joint taxation and long, low-paid maternity leaves. This could explain why several studies based on aggregated fertility data have found dual-earner family policies to be more effective than other family policies at raising fertility.
If the above argument is correct, generous dual-earner policies should, in addition to having a direct positive effect on fertility, also have an indirect positive effect on fertility by reducing the negative effect of union instability on fertility. Other generous family policies should, in contrast, have only a direct positive effect on fertility. Previous studies, however, have focused only on the direct effects of the generosity of family policies on fertility, without considering that the effects could be dependent on the stability of the unions in which women live (see Figure 1.1).

Comment: The arrow indicates a positive effect.

Previous studies, therefore, have likely missed the positive effect that generous dual-earner policies have on fertility by mediating the negative effect of union instability on fertility. The practical implication of my first argument, thus, is that studies on the effect of policies on fertility should consider that dual-earner policies affect fertility by mediating the negative effect of union instability on fertility (see Figure 1.2).
The second argument put forward in this study is that the previous research has failed to recognize that family policies can affect fertility by affecting the likelihood of women living in unions. The desire for children has historically been, and continues to be, a major motivation for union formation (Becker 1973; Buss 2007). People who want to have children, for example, are largely restricted to finding a partner and establishing a union with that partner before they can have children. Because of this, the costs of reproduction can be assumed to weigh heavily in union formation decisions. All else being equal, low costs of reproduction should increase, and high costs of reproduction should reduce, the incentives for potential spouses to form a union. If the potential spouses would not benefit from having children after entering a union, the likelihood that they would not benefit from forming the union at all – and thus will abstain from forming it – increases significantly. This must mean that high costs of reproduction do not necessarily manifest themselves in low fertility among women in unions; they may also manifest themselves in a lower likelihood of women forming unions. Similarly, family policies that affect the costs of reproduction are not only likely to affect the fertility decisions of people who are living in unions, but also the union formation decisions of people who are living as singles. It is therefore improbable that all policy-related effects on fertility can be captured by directly estimating policies’ effects on the fertility of people who live in unions. Instead, parts of the effect on fertility should be sought by examining the effect policies have
on union formation decisions. Even though very few children are born outside unions in Europe today (Kiernan 1999a, 1999b, 2004; Heuveline et al. 2003; Sobotka & Toulemon 2008), previous studies have not made an attempt to make this connection. To the extent that previous studies have concentrated on individual-level fertility patterns, their focus has instead primarily been on how family policies affect within-union fertility. This focus has likely led them to underestimate the positive effect of generous family policies on fertility. Thus, the practical implication of my second argument is that studies should consider that the effect of family policies on fertility could manifest as an effect on the likelihood of people forming unions (see Figure 1.3).

On its own, the second argument implies that previous studies have underestimated the effect of generous family policies on fertility in general. However, in combination with the first argument, it implies that the underestimation has been particularly grave in the case of dual-earner policies. Since much of the positive effect of dual-earner policies on fertility is dependent on such policies reducing the negative effect of union instability on fertility, parts of their positive effect on fertility are likely to manifest as a higher likelihood of people forming unstable unions. Union instability, therefore, is likely to be higher in countries with generous dual-earner policies. Studies focusing on within-union fertility that fail to account for this are likely to miss much of the positive effect that generous dual-earner policies have on fertility. This is because the part of the positive effect such policies exert on fertility – by
reducing the negative effect of union instability on fertility – is likely to be masked by the negative effect of union instability on fertility upon which it is dependent. At best, the two effects will cancel each other out (as the positive effect of policies on fertility, for natural reasons, cannot exceed the negative effect of union instability on fertility upon which it is dependent). But if generous dual-earner policies do not compensate fully for the negative effect union instability has on fertility, generous dual-earner policies could even appear to have a negative effect on within-union fertility. Hence, the total positive effect of generous dual-earner policies on within-union fertility can only be captured by controlling for the negative effect of union instability on fertility, and for the role that the generosity of dual-earner policies plays in mediating that effect. Previous individual-level studies have not done so. Therefore, they have not only missed the positive effect of generous dual-earner policies on union formation, but also much of such policies’ positive effect on within-union fertility. Together, the two arguments, thus, imply that studies on the effect of family policies on fertility should consider that dual-earner policies are likely to affect both union instability and the effect that union instability has on fertility (see Figure 1.4).

Figure 1.4. Final model suggested by the arguments

![Figure 1.4](image_url)

Comments: Thick arrows indicate positive effects. Lined arrows indicate negative effects. Arrows on arrows indicate interaction effects.
To sum up, fertility decisions seem to be much more individualized affairs than the new home economics and the previous research on the effect of policies on fertility have assumed. Failing to see this, previous individual-level fertility studies have been blind to policies’ ability to affect fertility by reducing the negative effect of union instability on fertility and by increasing women’s incentives to form unions. This has likely led earlier researchers to underestimate the positive effect of generous family policies on fertility in general and the effect of generous dual-earner policies on fertility in particular.

Studies using aggregated fertility data, however, have likely not underestimated these effects to the same extent as studies using individual-level fertility data. By nature, the former studies incorporate the fertility of all women, regardless of their union status. Although they might not intend to do so, such studies therefore also incorporate the indirect effect of family policies on fertility that goes via the effect family policies have on union formation. They also include all policy effects on the fertility of women who live in unions – including those who live in unstable unions. This can likely explain why it has been difficult to find a positive effect of generous dual-earner policies on fertility using individual-level fertility data, whereas studies based on aggregate-level fertility data have found such policies to be much more effective at raising fertility than other family policies.

In other words, the study’s critique mainly targets individual-level studies, which have had difficulty finding an effect of generous family policies on fertility. The aggregate-level studies, which have found a strong positive effect of generous family policies on fertility, are not affected by the critique. Thus, the study clearly shifts the evidence in favor of the conclusion that generous family policies can have a positive effect on fertility.

The study

I test my arguments by conducting multilevel statistical analyses of fertility and union formation patterns and how they vary in relation to the different family policy contexts of 22 European countries. Although they are not alone in struggling with low fertility rates, European countries offer more opportunities than non-European countries for testing my arguments. The main reason for this is the European Social Survey (ESS) that is used throughout this study. The ESS provides high-quality, up to date, standardized, individual-level fertility and union history data for most European countries. Unfortunately, there is a lack of similar-quality data sources for countries outside Europe. Although the choice of confining the study to Europe is guided pri-
Can family policies affect fertility?

Maritaly by data availability concerns, Europe also provides ample opportunities for testing the arguments. Despite obvious cultural similarities, family policies, fertility rates, union instability, and union formation patterns vary considerably throughout the continent. Moreover, Europe has struggled with low fertility rates for longer than any other continent. It is in Europe that the problem has its origins, and it is in Europe that politicians are most eager to solve the problem.

The study starts, in Chapter 2, with a presentation of the major contending theories of why fertility has fallen in the developed world during the twentieth century, and of the empirical evidence for and against their validity. The conclusion of the chapter is that the two major contending theories can explain fertility decline up to the mid-1980s, but that they cannot explain why fertility patterns since then have been reversed.

Chapter 3 presents the new home economics analysis of the relationship between family policies and fertility. The upshot of the chapter is that there are theoretical reasons to assume, and plenty of empirical evidence that proves, that generous family policies increase fertility. This means that family policies can potentially explain the reversal in fertility patterns that has occurred since the 1980s. However, it is also concluded that the positive evidence is largely restricted to studies that use aggregated fertility measures. In particular, it has been difficult to prove the effectiveness of generous dual-earner policies with individual-level fertility data, even though studies based on aggregate-level fertility data show dual-earner policies to be more effective than other family policies at raising fertility.

Chapter 4 presents my arguments and contends that they can explain the inconsistencies in the previous research findings as well as shed light on two hitherto unnoticed causal paths in which policies can affect fertility.

Chapter 5 presents the design of the study. It also defines and describes “the generosity of family policies” and other key concepts of the study.

Chapter 6 empirically tests my first argument, by asking whether family policies that reduce the costs of reproduction affect the likelihood of women forming unions.

Chapter 7 empirically tests whether family policies that reduce the negative consequences of union disruptions on parents’ economic well-being increase the likelihood of women forming unstable unions (i.e., it tests the implications that follow from the first and second arguments combined).

Chapters 8 and 9 empirically test my first argument, by asking how union instability and the generosity of dual-earner policies affect women’s achieved and planned fertility.

Chapter 10 sums up the findings and discusses their broader implications.
BEDROOM POLITICS
Theories of fertility decline

In this chapter I describe the shift toward low and below-replacement fertility that occurred in the late twentieth century and the main contending explanations for why it occurred. The chapter starts with a brief description of the history and most important characteristics of fertility decline. I then present the new home economics explanation for the decline in fertility and the empirical evidence for it. Thereafter, I present the prevailing cultural explanations of fertility decline and the empirical evidence supporting them. The chapter concludes that the prevailing explanations of fertility decline alone cannot explain fertility trends in recent years and therefore need to be complemented.

The history of fertility decline

The shift toward low and below-replacement fertility, now commonly labeled the “Second Demographic Transition” (SDT), started in the industrialized world in the 1960s when women began to postpone childbirth and drastically reduce the number of children they had (Frejka & Sobotka 2008). Since then, fertility rates have been falling constantly in almost all industrialized countries, with period total fertility rates dropping below the reproduction level for the EU27 as a whole for the first time in the late 1970s (Eurostat 2010). The downward trend has continued in most countries and shows little

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6 This is to distinguish it from the First Demographic Transition (FDT). The FDT refers to the historical declines in mortality and fertility that occurred from the eighteenth century onward in several European populations. It is commonly assumed to have ended in a balance between births and deaths (Notestein 1945; Caldwell 1976).
tendency to stabilize (Frejka and Sardon 2004). In 2007, Iceland was the only country in Europe with a replacement fertility rate (Eurostat 2001).

To fully understand the changes that have been taking place, it is useful to distinguish between the quantum and timing (or tempo) of fertility. The quantum of fertility refers to the number of children people have, while the timing of fertility refers to when they have their children. What has happened regarding the quantum of fertility is, above all, that women no longer have many children. Third- and higher-order births are increasingly uncommon, and families with more than four children are on the brink of disappearing (Frejka & Sardon 2004; Frejka & Sardon 2007; Frejka 2008; Frejka & Sobotka 2008). Childlessness is also on the rise. However, the rise is modest compared to the decrease in higher-order births (Kohler et al. 2002; Hakim 2003; Sobotka 2004; Frejka and Sardon 2004, Frejka & Sardon 2007; Sobotka 2008). In many countries, and especially in countries with the lowest low fertility in Eastern and Southern Europe, there has also been a marked decrease in second-order births (Kohler et al. 2002; Frejka and Sardon 2004, Frejka & Sobotka 2007; Sobotka 2008).

In tandem with the changes in the quantum of fertility there has also, since the 1980s, been a radical trend toward later childbearing in Western Europe, and this trend shows little sign of stopping (Frejka and Sardon 2004; Billari et al. 2007; Frejka & Sobotka 2008). In particular, first births have been delayed. The mean age at first birth for women in Spain, for instance, rose by 4.1 years from 25 years in 1980 to 29.1 years in 2000 (Kohler et al. 2006). In 2003, the mean age at first birth was more than 30 years in several European countries, among them Denmark, Sweden, the Netherlands, Ireland, and Switzerland (Frejka & Sobotka 2008). Postponement decreases the chances of further births, as fecundity (i.e., the biological ability to become pregnant) decreases with age (Billari et al. 2007). Births cannot be postponed indefinitely due to biological limitations.

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1 Based on a study of cohort fertility rates, Frejka and Sardon (2004) conclude that fertility decline has come to a halt only in the U.S. and possibly the Netherlands.

2 This increase in the mean age at first birth means that populations decrease and age as fewer generations live and work together when the spacing between generations increases. In other words, the postponement of births itself aggravates population aging and the shrinking and aging of the labor force (see Lutz & Skirbekk 2005). In contrast to the problems generated by below-replacement fertility, however, these problems will stabilize when postponement stops, and they will no longer be aggravated. The postponement of first births has contributed to the low period total fertility rates that countries have experienced during the last decades. The hypothetical measurement of periodic total fertility rates is sensitive to changes in the timing of fertility (Sobotka 2004). Consequently, demographers have expected period total fertility rates to recuperate somewhat, when the postponement stabilizes at a higher age (ibid).
Thus, it could be suspected that postponement is one of the factors driving fertility decline.

However, seen from a historical perspective, the mean ages at first birth in Europe today are not unusually high. Late marriage and childbearing is actually a marked characteristic of the European marriage pattern that has dominated in Western Europe from at least the fifteenth century, and it has coexisted with high, or even natural, fertility regimes during most of this time (Hajnal 1965, 1983; Chesnais 1992; Therborn 2004). Rather, it is the low mean ages at first birth in the mid-twentieth century that are the historical exception. So, even if fecundity falls with age, the postponement of first births alone does not explain why completed fertility has fallen.

What is unique with the present situation is that the high mean ages at first birth are combined with an unprecedented level of reproductive control, and that women (and men) have chosen to use this ability to control in order to reduce fertility.

The onset of the Second Demographic Transition coincides with the introduction of modern contraceptives, and especially the pill (Hakim 2000; 2003). Together with other contraceptive novelties and liberalized abortion laws, the pill created an environment in which women for the first time in history came to have total control of their reproduction (Westhoff & Ryder 1977; Goldin & Katz 2002; Hakim 2000, 2003).

Contraceptives had been available even before the onset of the Second Demographic Transition, however, and fertility control was widespread and, of course, a necessary precondition for the First Demographic Transition to happen (Chesnais 1992). Consequently, the modest increase in the choice of contraceptive means, and the possible decline in unwanted fertility that followed, has not been argued to explain more than a minor part of the decline in fertility that has taken place since that time. Instead, explanations of fertility decline have tended to emphasize broader structural economic and cultural factors.

These contending theoretical perspectives on fertility decline are presented below.

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9 "Natural fertility" refers to the fertility of a population that is not practicing any form of birth control (Henry 1961).
The new home economics theory of fertility decline

The new home economics theory of fertility, which has dominated the discussion in economics in recent decades, assumes families to be run by an altruist head, whose utility is dependent on the other family members’ utility. It is assumed that the other family members will pool their resources and adjust their behavior to maximize the altruist’s utility. In other words, families are assumed to function as homogeneous units. Such families’ fertility decisions are treated similarly to a consumer’s choice of whether to buy a normal consumption good (like a car or a house). To cite Gary Becker, “For most parents, children are a source of psychic income or satisfaction, and, in the economist’s terminology, children would be considered a consumption good” (Becker 1960). The basic assumption of the new home economics analysis of fertility, then, is that families choose to have a certain number of children if they perceive that that specific number of children will maximize the family’s utility.

To complicate matters, a family must not only decide on how many children it should have, but also on the quantity of resources it wants to spend on each child – for example, on housing, education, and clothing. Children come in different price classes. Given a specified budget, a family could either opt for a small number of costly children (quality) or a large number of inexpensive children (quantity). Families must therefore consider what kind of tradeoff they want to make between the quantity and quality of children before opting to have a certain number of children (Becker 1960).

Thus, a family’s fertility decisions depend on three factors: i) its preference regarding the tradeoff between the quality and quantity of children and the relative cost of investing in quantity vs. quality (the more quality matters, the fewer children the family can afford, and the more it costs to invest in quantity in relation to quality, the fewer children the family can afford to have), ii) the family’s budget constraints (i.e., how large a budget, in terms of income and wealth, the family has to spend on children and other goods), and iii) the price of children relative to other consumer goods the family desires. If families choose to have fewer children than they used to have, they thus do so either i) because their preference regarding the tradeoff between quality and quantity has changed (either because the relative price of quality vs. quantity has changed or their preference itself has changed), or ii) that their budgets have become smaller, or iii) because children have become relatively more costly in relation to other desired goods. Explanations of why fertility has fallen during the second half of the twentieth century tend to focus on the
third factor – and to some extent on this factor’s influence on families’ preferences regarding the quality-quantity tradeoff.

To understand the dominant economic explanation of fertility decline it is necessary to understand what happens to consumer demand when real income rises. Rising incomes have two effects on consumer demand. First, a rise in income has an “income effect” that causes consumers to buy more of all normal goods. Second, a rise in income has a “price effect” that increases the price of time-consuming activities relative to other goods. Any activity requiring our time comes with an “opportunity cost” that reflects what we could have done with our time instead of spending it on the activity. The normal way to estimate this opportunity cost is to measure it by the wage rate; that is, by how much a person would have earned in wages if he/she had worked instead of carrying out the activity in question.

If children are a normal good, and families’ preferences for, and the relative price of, the quantity-quality tradeoff remain unchanged, the income effect should cause families to have more children when their incomes increase, as consumers usually respond by increasing their consumption when their incomes increase. However, children are more time-intensive than most other goods, as children need care and attention; that is, the opportunity cost constitutes a higher proportion of the cost of children than it does of the costs of most other goods. As a consequence, the cost of children increases relative to the costs of less time-consuming goods when the income of a family increases (Mincer 1963; Becker 1991). This price effect might outweigh the income effect in some situations, even if other goods are poor substitutes for children. In other words, families might find themselves in a situation in which they see their incomes increase, and as a result deem that they would be better off working and earning money that they can spend on consumer goods rather than having and caring for another child (Becker 1991).

Rising wages also increase parents’ incentives to invest in the quality of children, because rates of return on investments in education and other human capital increase. A raise in the wage rate, however, does not cause a corresponding increase in the incentives to invest in the quantity of children. Thus, overall, rising wages increase the relative attractiveness of investments in quality in the quality-quantity tradeoff as the price of quality is lowered.

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10 It is theoretically possible, and even likely, that the preference for “high-quality” children goes up as wages rise, in the same way that people tend to buy more expensive cars instead of buying greater quantities of lower-quality cars when they experience an increase in income. In a similar way, it is possible to explain the fact that rich people do not have more children than poor people, even though they could afford to (see Becker 1960).
relative to that of quantity (Becker & Lewis 1973; Becker & Tomes 1986; Becker 1991). Families might, in other words, be tempted to adjust their fertility downwards in order to secure a good education – that is, good future earning prospects – for the children they have.

According to the new home economics analysis of fertility, these two intertwined mechanisms can help explain why fertility has fallen so drastically during the late twentieth century. More specifically, it attributes the decline in fertility to women’s increased earning opportunities and increasing payoffs from education (Becker 1991; Robinson 1997).

Today, women’s earning opportunities are greater than they were half a century ago, both in absolute terms and relative to men’s earning opportunities (Becker 1991). It has been argued that this increase in women’s earning opportunities is the result of the equal opportunities revolution and the growth of the service sector and other parts of the labor market that provide white-collar occupations suited for women (Galor & Weil 1996; Hakim 2003). For most of history, child care and household tasks were considered the responsibility of women, while paid labor was the responsibility of men. During this period women had few opportunities to find well-paid jobs outside the home. As a result, women were “free” to care for children at a very low opportunity cost, while men were free to earn an income without having to care for children (Becker 1991). This gendered division of labor resulted in a situation in which families had no incentives, in the form of price effects, to abstain from having children. In other words, the income effect dominated the price effect.

The equal opportunities revolution and the growth of the service sector changed the situation. Legal and informal barriers to women’s entry into higher education and the labor market were abolished. The simultaneous growth of the service sector and other parts of the labor market that provide white-collar jobs suited for women meant that women could also find jobs and thereby take advantage of their newly won rights (Galor & Weil 1996; Hakim 2003). In short, women’s earning prospects increased radically.

According to the new home economics, families responded to this new situation by reducing fertility and increasing wives’ educational attainment and labor market supply. In other words, “the growth in the earning power of women during the last hundred years in developed countries is a major cause of both the large increase in labor force participation of married women and the large decline in fertility” (Becker 1991, p. 140).

During the time period in which female earning prospects increased, economic development was helping to increase the return on investments in education because of increases in the demand for human capital (Galor &
Weil 2000). Thus, incentives to invest in the quality of children also increased. In short, this development made the relative cost of investing in the quality of children fall in relation to cost of investing in the quantity of children. This change in the relative price of quality and quantity is assumed to have further aggravated the negative effect of women’s increased earning opportunities on fertility (Becker 1991). It can also explain why investments in the quality of children have increased as fertility rates have dropped, at least, judging from the increase in educational attainment in cohorts born during the period.

The inverse relationship between women’s income prospects and fertility can also explain why highly educated women today have fewer children than women with lower levels of education. Jobs that require high qualifications tend to be better paid than ordinary jobs. Because of this, highly educated women face higher opportunity costs for child-care tasks, in terms of forgone earnings and lost career opportunities, than women with low educational attainment. Investments in the quality of children relative to investments in the quantity of children also pay off better for families with high educational attainment (Becker & Tomes 1976).

It is difficult to measure women’s earning opportunities directly. Economic analyses of empirical fertility patterns have therefore tended to use female educational attainment and female labor force participation as indicators of female earning potentials and the resulting opportunity costs of having children. The overall opportunity structure is assumed to be captured by the macro patterns of both variables, while the individual opportunity structure is assumed to be captured by educational attainment at the micro (individual) level. Given these operationalizations and the hypotheses presented above, the new home economics analysis expects that there should exist a negative association between female earning prospects and fertility at both the micro and macro levels, which should manifest itself in

- a negative correlation between female labor force participation and fertility at both the micro and macro levels, and

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11 Whether it is really necessary to assume that the price of quality decreased relative to the price of quantity to explain why fertility fell so drastically during this period is a question open to debate. The answer depends, in part, on whether children are perceived as goods with or without close substitutes. If, contrary to Becker, one assumes that the demand for children can be replaced by the satisfaction of demands for other goods, it seems unnecessary to assume that the price of quality has fallen in relation to the price of quantity. The rise in women’s earning opportunities could then explain the decrease in fertility by itself, as the increase in earning opportunities makes children costlier in relation to other goods. Even if one assumes that the satisfaction of demands for other goods constitutes an inferior substitute for the satisfaction of the demand for children, a rise in female wages still seems able to explain why fertility has fallen (e.g., see Robinson 1997) – although not why investments in the quality of children have increased. I will, consequently, focus on the price-of-time explanation in my further discussion.
• a negative correlation between female educational attainment and fertility at both the micro and macro levels.

Female labor force participation and fertility
The assumption that fertility rates should correlate negatively with female labor force participation rates is consistent with macro-level time-series data since the 1960s, but not with recent cross-country data (Kögel 2006). The inconsistency between the cross-country data and the expected negative correlation between the female labor force participation rate and the total fertility rate, however, is new. Up to the mid-1980s the cross-country correlation coefficient between the two indicators was negative (Ahn & Mira 2002; Rindfuss et al. 2003). But sometime after 1985 the sign of the coefficient turned positive and has remained so ever since (Esping-Andersen 1999; Brewster & Rindfuss 2000; Ahn & Mira 2002; Rindfuss et al. 2003; Del Boca et al. 2003, Castles 2003).

This unexpected change in the cross-country correlation challenges the expectation of an inverse relationship between the female labor force participation rate and the fertility rate. Kögel (2004; 2006), however, shows that the female labor force participation rate has a negative and significant effect on fertility if country dummies that allow for cross-country heterogeneity in the magnitude of the association as well as country-specific effects on fertility are introduced in pooled series and cross-country data regressions (for similar findings, see Engelhardt et al. 2004). More specifically, Kögel finds that the effect varies among three groups of countries. The negative effect is largest in Mediterranean countries and smallest in Scandinavia, while it is intermediate in scope in all other OECD countries. Although Kögel’s findings confirm the existence of a negative association between the female labor force participation rate and the total fertility rate, his study points to a weakening of the association over time. Kögel concludes that this heterogeneity in the effect of the female labor force participation rate on fertility together with country-specific effects on fertility can very likely explain why the cross-country association changed its sign in the mid-1980s. Female labor force participation rates have always been relatively low in Mediterranean countries, while they have been relatively high in Scandinavian countries. When female labor force participation increased in both regions during the 1970s and 1980s, the impact of the larger effect of female labor force participation on fertility in Mediterranean countries caused the total fertility rate to drop more rapidly in those countries, until it dropped below the total fertility rates of Scandinavian countries. As a result, the cross-country correlation between the female labor force participation rate and the total fertility rate changed its sign. In sum, the
findings on the association between the female labor force participation rate and the total fertility rate on the macro level thus indicate that the negative association varies both over time and across countries.

Studies focusing on the effect of female labor market participation on fertility at the micro level generally suggest a negative correlation between the two variables, but there are exceptions to this rule (Matysiak & Vignoli 2008). Several individual studies report insignificant, or even positive, effects of labor force participation on the progression to births of different parities for specific countries (e.g., see Santow & Bracher 2001; Vikat 2004). In an attempt to reconcile and evaluate the contradictory findings, Matysiak & Vignoli (2008) carry out a meta-analysis of 30 articles on the effect of labor force participation on fertility, and 29 articles on the effect of fertility on labor force participation. Their findings suggest that there is a high variation in the analyzed effects across Esping-Andersen’s typology of welfare regimes, which distinguishes between social democratic, liberal, conservative, and familialistic welfare regimes (Esping-Andersen 1990, 1999). More specifically, their study suggests that the effect of women’s labor force participation strongly prolongs the progression to births of different parities in familialistic, liberal, and conservative welfare regimes, while the effect is not as accentuated in social democratic welfare regimes (Matysiak & Vignoli 2008). Moreover, their multivariate findings regarding the effect of childbearing on labor force participation suggest that children have the strongest negative effect on maternal employment in conservative welfare regimes. The weakest effect is found in social democratic regimes, while the effect is of moderate strength in liberal welfare regimes.\(^\text{12}\) The effect of labor force participation on fertility and the effect of motherhood on labor force participation, thus, mirror each other. These micro-level findings reinforce the impression of Kögel’s macro-level findings; for some reason, the association between labor force participation and fertility among OECD countries is most negative in the familialistic Mediterranean welfare regimes and least negative in the social democratic countries in Scandinavia, while other countries and welfare regimes are found somewhere in between these two extremes.

**Education and fertility**

Several studies focusing on the European context have found that women with tertiary educations have the same (Van Peer 2002), or even higher, ideal family sizes as women with lower educational attainment (Testa & Grilli

\(^\text{12}\) This part of their study does not cover other types of welfare regimes, due to the lack of studies on such regimes.
2006; Testa & Toulemon 2006; Heiland et al. 2005). Despite this, the assumption of a negative correlation between women’s educational attainment and fertility is generally supported by micro-level studies on OECD countries. Women with tertiary educations have fewer children than women with low educational attainment in Western Europe (Lutz & Goujon 2001). Studies on the effect of women’s educational attainment on completed fertility for cohorts born between approximately 1930 and 1950 reveal that this pattern is stable over time and across such diverse countries as Sweden, Norway, West Germany, Belgium, France, the Netherlands, and Denmark (Björklund 2006; Kravdal 2004).

Educational attainment has also been shown to delay the transition to both the first birth (Gustafsson et al. 2002; Kravdal 2004; Billari & Philippov 2004) and higher-order births (Kohler et al. 2002; Kreyenfeld 2002). However, educational attainment has also been shown to shorten the spacing between births of higher parities in Norway (Kravdal 2004; see also Kravdal & Rindfuss 2008). In sum, the new home economics analysis of fertility seems to fit well with the empirical evidence on the association between educational attainment and fertility.\(^{13}\)

\(^{13}\) Many studies, however, emphasize that educational enrollment (i.e., being a student) matters more than educational attainment for fertility outcomes and fertility timing. That is, the time women spend enrolled in education programs is more important than the diploma women receive (and the skills they will have acquired) after completing their training (Blossfeld & Huinink 1991; Billari & Philippov 2004; Skirbekk et al. 2004). The overwhelming majority of women wait until they have finished their educations before they have their first child (Hobson & Karmel 1995; Billari & Philippov 2004; Björklund 2006). Many of the findings relating to the effect of educational enrollment on fertility come from sociological research and expectations (Billari & Philippov 2004). The finding that educational enrollment matters for fertility outcomes, however, does not in itself contradict economic theory. Seen as human capital accumulation, an education is more effective if it is completed uninterrupted. By making educational investments early in life, individuals ensure that the return will be received for as many years as possible. This logic predicts that the likelihood of individuals opting for additional educational investments decreases as they age (Light 1995). Students who interrupt their educations to have children could thus be expected to decrease their investment in both human capital and wage labor. Evidence that an interrupted education is actually costly both in terms of human capital accumulation and future wages in this way is provided by Blackburn et al. (1993). Moreover, the value of an education tends to deteriorate over time, because educations become outdated. The return on educational investments is therefore greater for uninterrupted educations. In other words, it often makes economic sense to complete one’s education before having children. The finding that educational enrollment has a negative effect on fertility is thus compatible with economic predictions. In addition to the findings reported above, there is a growing literature on the effect of different educational fields on fertility (Hoem 1994; Kalmijn 1996; Lappegård & Rønseth 2005; Hoem et al. 2006a, 2006b). The main finding of these studies is that the effect of educational attainment on fertility varies significantly between educational fields. However, without more detailed analyses of the conditions experienced by various educational groups, it is hard to link these findings directly to economic assumptions regarding the association between fertility and education. Differences could reflect different earning prospects and sensitivity to career interruptions (i.e., economic incentives) as well as sociological factors.
Billari and Philipov (2004), however, show that the strength of the association between educational attainment and the time of a first birth varies between countries in Western Europe. In the Nordic social democratic welfare regimes of Finland, Norway, and Sweden, between 30 and 40 percent of women conceive before the end of their education, while the corresponding figures in other countries are well below half of those in the Nordic states.

The female and male wages and fertility

Studies that use the female and male wages for testing the economic analysis of fertility show that the female wage has a negative effect and the male wage a positive, or no, effect on fertility (e.g., see Butz & Ward 1979; Heckman & Walker 1990; Macunovich 1996; Merrigan & St. Pierre 1998). In most studies, the negative effect of women’s wages is found to be greater than the positive effect of men’s wages (Butz & Ward 1979; Heckman & Walker 1990; Macunovich 1996; Merrigan & St. Pierre 1998). Consequently, an increase in the female wage rate is not compensated for by a corresponding increase in the male wage rate. Some recent studies, however, have reported a positive effect of female earnings on fertility in Sweden (Andersson 2000), and other studies report a declining negative effect of the female wage on fertility over time in the U.S. (Macunovich 1996). However, it is not apparent from the abovementioned studies whether the effect of the female wage on fertility varies across time and countries in a systematic pattern.

14 Fertility has also been shown to exert a negative effect on the female wage in cross-country studies (Polacheck & Xiang 2009).

15 What can be said, however, is that the relative female wage – defined as the ratio of employed women’s wages to employed men’s wages – cannot explain fertility differentials and differences in female labor force participation across Europe. Although the gender wage gap is lowest in Nordic countries, it does not vary much between Mediterranean countries and Central and Western European countries. Thus, the female wage gap does not correlate well with fertility patterns. Moreover, the gender wage gap does not correlate as expected with the FLFP (Kögel 2006). Most striking is that the gender wage gap is not unusually large in the Mediterranean countries, even though they have the lowest FLFP. This counterintuitive result is most likely due to non-random selection into paid labor, as the gender wage gap is negatively correlated with gender employment gaps (Olivetti & Petrongolo 2008). That is, women who choose to work in countries with low female labor force participation overwhelmingly tend to be highly educated and have high earning potentials, while the spectrum of women who choose to work in countries with high labor force participation rates is greater (ibid.). Whether these findings should be taken as evidence that the relative female wage is not a good measurement of female earning opportunities, or that economic theories have the relationship between the female wage and fertility and female labor force participation wrong, is an open question.
Cultural explanations of fertility decline

There are various cultural explanations of fertility decline. A survey that covers all of them, and their different aspects, is beyond the scope of this study. In the following chapter I will describe the most important features of the main cultural explanations of fertility decline. More specifically, my focus will be on the theory of the Second Demographic Transition (henceforth, SDT) and theories on how religious decline has decreased fertility. I will start with a brief description of what it is that separates cultural explanations of fertility decline from the new home economics analysis of fertility decline.

The two basic tenets of cultural theories of fertility behavior are that i) explanations of fertility behavior must include explicit references to tastes, preferences, values, and/or norms and their content, and that ii) individuals vary in respect to which tastes, preferences, values, and norms they endorse. Whether the heterogeneity also results in a corresponding heterogeneity in fertility patterns depends on the opportunity structure. A change in fertility behavior does not need to be driven by value change, but could as well reflect “an effort to maintain existing values under changing conditions” (Casterline 1999, p. 362). The SDT explanation of fertility decline even sees changes in the opportunity structure as necessary for cultural value change to be possible.  

Thus, cultural explanations of fertility decline do not necessarily contradict or refute the economic explanation, but are to some extent compatible with it. What really separates the former explanations from the latter is the assumption that the new incentives that were created by the equal opportunities revolution on their own cannot explain the demographic changes that have followed in its wake. Without an underlying willingness to exploit the new incentives, everything would have gone on as before. Often this argument is augmented by pointing out that the willingness to adopt the new

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This stance is summed up in the “Ready, Willing, and Able” (RWA) model of innovation and diffusion founded by A. J. Cole. According to proponents of SDT, for a demographic transition (to a new pattern of behavior) to occur, three conditions have to be fulfilled. First, the benefits of the new behavior must outweigh its costs, that is, there must be an economic readiness to adopt the behavior in question. Second, the new behavior must be culturally and ethically acceptable; people must be willing to embrace it. Third, people must be technologically and legally able to implement the new behavior. Birth control and abortion, for example, presuppose the existence of reliable contraceptive means and liberal abortion laws. Despite this broad approach, the SDT theory has mainly distinguished itself by emphasizing ideational change as the most interesting aspect of the SDT, while taking economic and technological change as less interesting givens.
THEORIES OF FERTILITY DECLINE

demographic behavior varies among groups with different ideational characteristics.

How value change affects agents’ fertility behavior, and how values interact with changes in opportunity structures in shaping fertility outcomes, of course depends on the content of the tastes, preferences, values, and norms in question. If we disregard norms, we can roughly divide the preferences and values discussed in the literature into three main categories: i) preferences and values relating to family size and fertility control, ii) preferences and values affecting the demand for children relative to other consumption goods, and iii) preferences and values affecting union stability.\(^\text{17}\)

The first focus has been on preferences for family size and how they vary, and have varied, among groups with different ideational characteristics. The assumption is that individuals with certain ideational characteristics have a stronger preference for large families – that is, a stronger demand for a greater quantity of children – than individuals who lack the characteristics in question. The focus on family size preferences has traditionally been a hallmark of studies concerned with religion and fertility (e.g., see Lehrer 1996; Adserà 2006a, Adserà 2006b; Hayford & Morgan 2008), as religious teachings often request the faithful to “go forth and multiply.” In line with this, several researchers and others have argued that a major reason for fertility decline in the developed world has been the drop in both the number of people who practice religion and the decline in the religious fervor among those remaining (Buchanan 2002; Longman 2004; Norris & Inglehart 2004; Carlson 2005; Adserà 2006b; Westhoff & Frejka 2007, 2008). Religious adherence, the fervor of religiousness, and religious conservativeness have also been shown to be positively associated with achieved, as well as intended and ideal, fertility (Marcum 1981, 1988; Mosher & Hendershot 1984; Roof & McKinney 1987; Williams & Zimmer 1990; Mosher et al. 1992; Lehrer 1996; Hout et al. 2001; Westhoff & Frejka 2007, 2008; Heineck 2005; Newman & Hugo 2006; Goujon et al. 2007; Pearce & Davis 2006; Adserà 2006a, 2006b; Hayford & Morgan 2008). The decline in religiousness that has taken place in the developed world during the twentieth century is also closely associated with the drop in the fertility rate (Norris & Inglehart 2004). The decline-of-religiousness argument is often augmented by emphasizing that religious teachings also raise the costs of fertility control (i.e., abortion and contraceptive use).\(^\text{18}\) Research also shows that members of denominations that take a conservative stance on abortion and contraceptives tend to have more chil-

\(^{17}\) This description of the literature is my own.

\(^{18}\) The relationship between religiousness and fertility has also been argued to involve other aspects, for example, preferences relating to relationship stability.

Although studies on the link between religiousness and fertility have also concerned themselves with how value change has affected union stability and the demand for children relative to other consumer goods, most of the research in this area has been carried out within the framework of SDT theory. The theory of the Second Demographic Transition (van de Kaa 1987, 1994, 2001, 2002, 2004; Lesthaeghe 1995; Lesthaeghe & Moors 2000, 2002; Lesthaeghe & Neels 2002; Lesthaeghe & Surkyn 2002; Surkyn & Lesthaeghe 2004; Lesthaeghe & Neidert 2006) sees fertility decline as one of the results of an “overwhelming preoccupation with self-fulfillment, personal freedom of choice, personal development and lifestyle, and emancipation, as reflected in family formation, attitudes towards fertility regulation and the motivation of parenthood” (van de Kaa 1996, p. 425). More specifically, it is argued that this value shift has resulted in three trends in household formation:

- A fall in the proportion of the population that is married
- A rise in cohabitation
- A rise in divorce

These trends are followed by three fundamental changes in fertility behavior:

- A decline in fertility, primarily caused by postponement and an increasing mean age at first birth
- A rise in definitive childlessness in unions
- A rise in extra-marital fertility corresponding to both an increase in the likelihood of parenthood within cohabitation and an increase in the level of cohabitation

Together, these trends are assumed to have resulted in a shift toward below-replacement fertility (van de Kaa 2002; Lesthaeghe & Neidert 2006).

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19 The theory was launched in 1986 by Ron Lesthaeghe and Dirk J. van de Kaa, who give Phillipe Ariès (1980) credit for the inspiration to their theory.

20 Although the main causal flow is assumed to go from value orientations to household and fertility characteristics, it should be pointed out that SDT theory assumes that the relationship is reciprocal; that is, household and fertility characteristics are also assumed to affect value orientations. This reciprocal relationship between value orientations and household and fertility characteristics is explained through selection and adaptation processes. People with post-materialist, secular, and emancipatory value orientations are assumed to select themselves into unconventional types of households, while persons living in unconventional households are assumed to adopt post-materialist, secular, and emancipatory value orientations that rationalize their living conditions. In other words, the SDT process includes feedback mechanisms that enforce small initial differences in value orientations to become large in the end.
In my view, it is possible to interpret the changes in value orientations and household formation that constitute the SDT in (at least) two ways that make them intelligible from an economic perspective. First, it is possible to interpret the growing occupation with self-fulfillment and personal freedom, and the resulting decline in fertility, as an indication that children have become more substitutable by other goods, or have even come to be regarded as inferior goods (at least for some women). According to SDT theorists, “having children is no longer considered a precondition to achieving happiness,” and childbearing today is more “a result of a carefully planned decision of a couple, who may consider various potential positive and negative effects of parenthood on their relationship, lifestyle and economic wellbeing” (Sobotka 2008). In short, proponents of the SDT seem to suggest that children have become more substitutable with other goods, with lower fertility as the result.

Second, it is also possible to interpret the drop in fertility that characterizes the SDT as a rational response to the decrease in union stability that has followed in its wake. As described above, the SDT is characterized by a drop in the proportion of the population that is married, a rise in the proportion cohabiting, and a rise in divorce among those few who still marry (i.e., a decrease in union stability). With decreasing union stability, individuals are likely to be uncertain about whether they will spend their futures with their families or on their own. Under such circumstances, it is unrealistic to assume, as the economic analysis of fertility does, that people will continue to equate their own well-being with that of their families. It is more realistic to assume that individuals adapt to this new situation by changing their behavior from acting altruistically toward their spouses to focusing more on their own well-being.

Such a reorientation toward individualized household decisions is likely to lead to a decrease in joint investments in family projects – such as children. This follows from the simple assumption that would-be parents are interested in full returns on their investments – such as children. If they deem that they risk losing a part of the payoff from their investments (i.e., the time they can spend with their children) to their spouse, because there is a significant risk that their union will end in a divorce, they will be less willing to invest in children. Decreasing union stability also increases the costs of reproduction as investments in household production are costlier from an individual perspective than from a family perspective. From a family perspective, the loss of future earning prospects that results from a parent staying at home to care for the family’s children can, to some extent be compensated for by the fact that the spouse who is not at home increases his/her labor market input. However, such compensation strategies are only effective as long as
the working spouse altruistically shares his/her income with the non-working spouse. Individuals will therefore be less willing to invest time in rearing and caring for potential children if they know that there is a significant risk that their spouses will default on their marriage contract and stop sharing their earnings with them. Thus, decreasing union stability both raises the expected monetary costs and lowers the expected emotional benefits of children, with low fertility as the result. (For a more detailed discussion of union instability’s negative effect on fertility, see Chapter 4.)

It has not been possible to test the SDT theory directly due to a scarcity of longitudinal data. However, ample research has been carried out on European cross-sectional data using a “footprints” model. This model is supposed to identify footprints in cross-sectional data of the selection and adaptation processes assumed to be associated with the SDT. In practice, researchers have investigated whether individuals who have chosen unconventional living arrangements are more post-materialist and postmodern in their value orientations than individuals who have chosen more conventional living arrangements.

The upshot of the findings (Lesthaeghe & Moors 2000, 2002; Lesthaeghe & Surkyn 2002; Surkyn & Lesthaeghe 2004) is that individuals whose living arrangements are unconventional clearly express more post-materialist and postmodern value orientations than individuals whose living arrangements are more conventional. Individuals who are single or who cohabit with a partner (especially those without children) constitute the most post-materialist and postmodern groups in most countries. Individuals who cohabit and have children tend to be somewhat more traditional, but less so than men and women who are married and have no children. The most conservative group in all countries is composed of those who have children and who are married and who have not cohabited with a partner prior to their marriage. Married men and women who have children and who have cohabited prior to their marriage are somewhat less traditional – with value levels on par with those of childless married men and women. In most states, people who have divorced also hold less traditional values than married men and women.

Hence, childlessness seems to be a phenomenon that is universally associated with a more unconventional outlook on the world. Also, post-materialist and postmodern-oriented women have fewer children, and later in life, than their more conservative sisters in most countries in Europe (van de Kaa 2001). However, post-materialist and postmodern women do not seem to want to have fewer children than their more conservative counterparts do (ibid.).
In addition to the broader studies referred to above there are also numerous studies on how more specific values, which can be related to the value orientations that the SDT theory concerns itself with, affect fertility. These studies largely confirm the assumption of a negative association between modern value orientations, such as a focus on career, consumption, and gender equality, and intended and achieved fertility – especially where women are concerned (Thornton et al. 1983; Morgan & Waite 1987; Goldscheider & Waite 1991; Kaufman 2005; Cunningham et al. 2005; Barber & Axinn 2005; Pearce & Davis 2006; Frejka & Westhoff 2008; however, see Thomson 2002; Torr & Short 2004; and Jansen & Liebrouer 2006 for divergent conclusions). Overall, the SDT theory, thus, gains support at the micro level.

Findings at the macro level give an impression similar to those for economic theories. In the late 1970s and early 1980s, the cross-country correlation between selected behavioral indicators of the SDT, such as the total divorce rate, the proportion of extramarital births and the first-marriage rate, and the period total fertility rate was negative (Castles 2003; Billari & Kohler 2004). However, the cross-country correlation turned positive for Western Europe at least as early as 1990, and has continued to be so ever since (ibid.; Sobotka 2008). Research on the correlation between value orientations and fertility reveals that the cross-country correlation between post-materialist value orientations and fertility is also positive today. Thus, the world of the SDT was also turned upside down in the 1980s and 1990s.

Reversed correlations: Proof that fertility decline is not inevitable?

The economic and the cultural explanations of fertility decline seem to give the impression that fertility decline and below-replacement fertility are the inevitable consequences of economic and cultural modernization. This view was largely given support by the empirical evidence well into the 1980s.

21 It should be pointed out that many of the divergent conclusions mentioned, which might seem of considerable importance, tend to include in their studies controls for the perceived costs and benefits of parenthood, fertility intentions, and attitudes toward parenthood. That is, they include factors that might be influenced by gender-egalitarian attitudes and attitudes toward career and consumption goods. Thus, they do not necessarily contradict those studies that find a direct negative influence of the latter factors on fertility.

22 This turn of events can to some extent be explained by the fact that women in countries that were forerunners of the SDT who postponed having children started to recuperate some of their births in the 1990s, at the same time as women in SDT-lagging countries started to postpone having children as they entered the first stages of the SDT. But even if such postponement effects are taken into account, the correlation between SDT indicators and the total fertility rate today remains positive (Sobotka 2008).
However, in the late 1980s and the early 1990s the developed world was turned upside down. According to cross-country data, from then on, the fertility rate has been positively associated with the female labor force participation rate, the divorce rate, the cohabitation rate, and the prevalence of postmodern and post-materialist value orientations (Castles 2003 – see also Myrskylä, Kohler & Billari 2009).

Moreover, surveys in countries with below-replacement fertility show that fertility intentions have not fallen as dramatically as fertility rates, but continue to linger above the replacement rate in the overwhelming majority of countries (van de Kaa 2001). Thus, fertility rates do not seem to have dropped because young people want to have fewer children than they used to want, but because they do not realize their fertility intentions to the same degree as in the past (ibid.). Moreover, people have fewer children than intended only in some countries. In Norway, Sweden, Iceland, and France, women actually achieve, or come close to achieving, their fertility intentions. Fertility outcomes, thus, vary considerably more than fertility intentions (van Peer 2002). In short, the negative effect on fertility of economic and cultural changes seems to vary considerably between countries.

This fact has been taken as evidence that fertility decline is not inevitable, but that the negative effects of cultural and, especially, economic modernization on fertility can be cushioned by institutions that reduce the incompatibility between having children and leading a modern life. Most of these attempts to explain the reversal of the correlation between the aspects of modernity and the fertility rate have focused on the role of family policies. More specifically, they argue that generous family policies can reduce the opportunity costs of having children and thereby reduce the negative effect of women’s increasing earning opportunities on fertility. As long as only some countries implement such generous family policies and the countries that do so are the ones in which women’s earning opportunities are greatest, it is possible to end up with a situation in which the female labor force participation rate becomes positively associated with the fertility rate. Many researchers argue that this is what has happened in the developed world in recent decades. In the next chapter I present this argument in more detail and discuss whether it really can explain the empirical findings on the association between the generosity of family policies and fertility.
In this chapter I present the new home economics analysis of the relationship between policies and fertility and scrutinize the empirical research on the effect of family policies on fertility. The upshot of the chapter is that there are both theoretical and empirical reasons for assuming generous family policies to have a positive effect on fertility. However, in its present form, the new home economics analysis of the relationship between policies and fertility cannot satisfactorily explain the relative effectiveness of family policies at raising fertility. Neither can it explain why it has been more difficult to prove the relative effectiveness of dual-earner family policies at raising fertility using individual-level fertility data, whereas it has been easier to do so using aggregated fertility data.

**Theoretical assumptions**

The new home economics analysis of fertility, which “is at the core of the assumed relationship between policies and demographic behavior” (Gauthier 2007), is generally positive about family and labor market policies’ ability to raise fertility. This optimism has led to a fast-expanding empirical literature on the topic. In recent years, much of this research has come to focus on policies that reduce the negative effect that women’s increasing earning opportunities have supposedly had on fertility.

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23 Here, I only focus on the literature on how policies can be thought to (and how they can actually) affect fertility among adults in the developed world. This means that I both neglect the vast literature on how policies affect teenage fertility in the U.S. and U.K. and the huge literature on how effective policies have been at lowering fertility in the developed world.
The new home economics analysis of the relationship between policies and fertility builds on an extension of the more general economic analysis of fertility. Families are assumed to be made up of internally altruistic consumers who strive to maximize their expected utility when making fertility decisions. From the fact that children are perceived as being comparable to normal consumer goods, it follows that any reduction in the cost of having children and any increase in family income that is not related to the value of parents’ time (i.e., women’s earning opportunities) is expected to increase the demand for children (Becker 1991; Cigno 1991). Policies that reduce the costs of having children, or increase family income, thus, could be expected to increase the demand for children.

An increase in the demand for children, however, does not necessarily translate into an increase in fertility – that is, an increase in investments in the quantity (number) of children. With the exception of the decision on whether or not to have a first child, it could as well translate into an increase in spending on existing children – that is, investments in the quality of children (Becker & Lewis 1973). Thus, policies that reduce the costs of children, or that raise family income, cannot automatically be assumed to increase fertility.

However, there are several reasons for assuming such policies to have a positive impact on the quantum of fertility. First, parents can only invest in the quality of existing children. Policies that reduce the costs of children can therefore be assumed to have a positive impact at least on the demand for a first child. Second, by introducing free public schooling, most developed countries have made investments in children’s education virtually costless for families. Giving their children a good education is likely the most important investment that parents can make toward raising the quality of their children. The introduction of free public schooling, therefore, is likely to have satisfied parents’ demand for investing in the quality of children. Because of this, policies that further reduce the costs of children are likely to have a mainly positive effect on the demand for the quantum of fertility.

Although, as pointed out above, policies could theoretically raise fertility both by increasing families’ incomes and by reducing the costs of reproduction, research on how specific policies affect fertility has focused mainly on the latter kind of policies. The main reason for this focus is the increase in women’s earning opportunities, which are assumed to explain why fertility has dropped so drastically in recent years. For natural reasons, this explana-

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24 This is especially true if we follow Becker’s (1991) suggestion that parents tend to invest in their children’s educations because they have an interest in their children’s utility and they expect educational investments to earn high interest rates for their children.
tion highlights the importance of the costs of reproduction, as it ascribes the drop in fertility to the rise in the costs of reproduction that has followed from the rise in women’s earning opportunities.

So how can policies reduce the costs associated with having children? Economists tend to separate the costs of children into three components, of which two are related to the female wage (Walker 1995; Björklund 2006). The first component, which is not directly related to the female wage, is the direct costs associated with raising children, such as costs for clothing, food, education, and so on. These direct costs can either be reduced by state subsidies for the commodities in question (e.g., as publicly financed education and food stamps), or by more general policies that increase the budgets of families with children, such as child benefits and tax cuts. As noted above, such policies reduce the cost and the need to invest in the quality of children. However, they do not reduce the rising opportunity cost of women’s time, which is assumed to have caused the fertility decline in the developed world.

The first of the two cost components that are directly related to the female wage is the forgone earnings of the parent who must withdraw from the labor market to care for the family’s children. The second is the loss of human capital accumulation, and the resulting loss of future earning potential, that the caring parent experiences when he/she interrupts her career to care for the family’s children. Even if these costs are intimately related to each other, it is useful to separate them in order to understand how they can be reduced by means of policies.

The loss of forgone earnings can be reduced by parental leave benefits, joint taxation, and subsidized child care. Parental leave benefits directly replace (all or parts of) the wages parents lose when they leave the labor market to care for their children, while joint taxation indirectly lowers the cost of

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25 This is perhaps best illustrated by the fact that publicly financed education systems considerably lower the amount of money parents need to invest in order to assure their children a good education and, thus, virtually make educational investments in children a non-issue for parents. In publicly financed education systems, all children compete on equal terms.

26 This is a truth that needs modification. Although these policies are intended only to meet the direct costs of having children, they can also indirectly work to reduce the negative impact of women’s earning opportunities on fertility in those cases in which they increase a family’s budget and they overcompensate for the actual direct costs of having a child. In such a situation the overcompensation would, in effect, work as a recompense for the loss of forgone earnings caused by the increase in women’s earning opportunities. The effect of policies aimed at covering the direct costs of having children is not, however, dependent on women’s earning opportunities, but is assumed to work to raise fertility even in contexts in which women do not have good earning opportunities. But even this is a truth that needs modification as, for example, subsidies for public schooling mean not only that parents do not need to spend money on their children’s education, but also that their children are looked after by the state, with no cost to the parents.
parental care by reducing the tax rate of the working spouse. Although they are differently structured, these policies make it affordable for families to let one parent stay at home and care for the family’s children. As a consequence, they reduce both the cost of investments in the quantity and quality of children, as parental care is a prime example of an activity that raises the quality of children (Becker & Lewis 1973; Gornick & Meyers 2003, 2008).

Subsidized child care indirectly reduces the loss of forgone earnings resulting from parental care, by reducing the time parents need to spend caring for their children. It does so by paying professional care workers to take care of the family’s children, so that the parents are free to work. Although the rationale is the total opposite of the one that motivates the provision of paid parental leaves and joint taxation, it does not necessarily aim, or work, to reduce the quality of the family’s children. Well-educated professional childcare workers can provide high-quality child care, even if such care is not a perfect substitute for parental care during a child’s infancy (Gornick & Meyers 2003, 2008).

The availability of part-time jobs has also been argued to reduce the costs of forgone earnings resulting from parental care (Castles 2003; Adserà 2004, 2005; d’Addio & d’Ercole 2005a, 200b). Part-time jobs offer parents the opportunity to take time away from their jobs to care for their children, without entirely giving up their careers. Part-time jobs, however, do not compensate parents for the time they take away from their jobs to care for their children.

The loss of human capital accumulation and the consequent loss of future earning opportunities that such a loss incurs cannot be met by joint taxation and paid parental leaves. Job-related skills and job experience are time-sensitive investments, in that they deteriorate over time. The only way to prevent their value from decreasing is to keep them up to date by working and studying. Consequently, subsidized child care and the provision of part-time jobs are the only child-related policies that are effective at reducing the losses of human capital accumulation resulting from parental care. This is because they are the only policies that reduce the time that parents need to spend caring for their children. Of these policies, only subsidized child care can reduce the entire amount of time parents need to spend caring for their children. Subsequently, only subsidized child care can be expected to be truly effective in helping parents minimize the loss of human capital accumulation resulting from parental care.

The new home economics analysis of the relationship between policies and fertility does not distinguish between, or concern itself with, how policies affect the distribution of individual costs within the family. Spouses are as-
sumed to act altruistically toward each other and are not assumed to care about who within the family receives the compensation. It is, accordingly, fully in line with the economic analysis to expect that paid parental leaves and joint taxation, so long as they are of equal compensation, will have similar effects on fertility, even though the former policy distributes the compensation for forgone earnings more evenly between the spouses. In parallel, the new home economics analysis assumes that families will respond to policy incentives by dividing responsibilities for work and child care between family members in the way that most benefits the family as a whole. For example, it is assumed that a family will respond to parental leave incentives by letting the parent with the lower wage use the parental leave option, while the higher-earning spouse continues to work. The reason is that such a division of labor minimizes the family’s loss of human capital accumulation, and thus, the family’s future income. The fact that such a division of labor compels the lower-earning spouse to bear the brunt of the costs of the family’s children, and that a more equitable division of labor would have resulted in a more equitable distribution of the loss of human capital accumulation, is not assumed to affect how the family and its individual members respond to the different policies.

To sum up, the new home economics analysis of the relationship between policies and fertility assumes that policies that increase family income and lower the cost of having children will increase the demand for children. With the exception of the first birth, in theory it is not obvious whether this increased demand for children will result in an increase in the demand for the quantity (number) or the quality of children. However, in practice, many countries have implemented policies that render unnecessary the most important investments in the quality of children, above those provided for by the state. In such countries it is reasonable to expect family policies that increase families’ budgets and reduce the opportunity costs of having children to have a positive impact on fertility.

Is there also reason to assume that some policies are more effective than others at raising fertility? If we avoid the question of how cost-effective policies are, and instead focus on which components of the costs of having children weigh heaviest in parents’ fertility decisions, the question in essence boils down to how parents value time with their children against the loss of human capital that spending such time incurs. That is, the question boils down to whether parents prefer to get paid to stay at home with their children.

27 The reasoning behind this expectation is that the loss of human capital accumulation, other things being equal, is more costly to the family if it is the higher-earning spouse, rather than the lower-earning spouse, who loses human capital.
(paid parental leaves and/or joint taxation) or if they prefer that the state pay professional child-care workers to take care of their children so that they can be free to pursue their careers. The answer is likely to depend on whether the care that the state provides is a good substitute for parental care. If it is, subsidized day care can be expected to be a more effective policy than paid parental leaves and joint taxation, as it is the only policy that reduces the loss of human capital accumulation. If the care that the state provides is not a good substitute for parental care, it is likely that paid parental leaves and joint taxation will be more effective than subsidized child care. A plausible assumption is that the substitutability between state-provided care and parental care essentially depends on two factors: the quality of care workers and the age of the child. It can be expected that the substitutability would rise as the number and qualifications of professional care workers the state hires is increased. On the other hand, the younger a child is, the less substitutable these sources of care can be expected to be (Gornick & Meyers 2003; 2008). Thus, paid parental leaves and joint taxation are likely to be the more effective policies during a child’s first months of life, whereas subsidized high-quality child care is likely to become the more effective policy as the child grows older.

In addition to explaining why some countries have higher fertility rates than others, subsidized child care can potentially also explain the positive association between the female labor force participation rate and the fertility rate that has prevailed in recent years. The argument is that subsidized child care, in addition to reducing the negative effect of women’s earning opportunities on fertility, also increases mothers’ labor force participation. Subsidized child care, in other words, can be expected to be positively associated both with women’s fertility and labor force participation. Thus, it is not strange that the fertility rate correlates positively with the female labor force participation rate in cross-country comparisons. This conclusion is consistent with the observation that female labor force participation rates are negatively associated with fertility rates within countries over time, as long as subsidized child care does not fully meet the opportunity costs that result from the rise in female earning opportunities.

The reason why the female labor force participation rate and the fertility rate have not always been positively correlated is that women have only fairly recently gained access to the labor market and higher education in many countries. The strength of the effect of subsidized child care on fertility

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28 At least that is the case if the positive effect on the labor market participation of mothers outweighs the negative effect on women’s labor force participation that subsidized child care causes by increasing women’s fertility.

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is dependent on women’s earning opportunities. As long as women did not have the opportunity to enter higher education and participate in the labor market to the same extent as today, the lack of subsidized child care did not result in low fertility. Only after women gained entry to these institutions has the unequal implementation of subsidized child care made an impact on fertility rates. This is more the case in countries that do not implement generous child-care subsidies than in countries that do. Thus, the unequal implementation of subsidized child care can, together with the growth of women’s earning opportunities, in theory explain the change in the association between the female labor force participation rate and the total fertility rate that occurred during the 1980s.

Although this description indicates that policies, in theory, should have not only a direct, but also an indirect, positive effect on fertility that is dependent on women’s earning opportunities, most studies on the topic (with some notable exceptions) tend to test only policies’ direct positive effect on fertility. Women’s earning opportunities (i.e., their labor market attachment and educational attainment) mostly function as control variables. Seldom are the two variables interacted.

**Empirical evidence**

Are policies effective at raising fertility in the way that the new home economics analysis assume them to be? To answer this question, below I investigate the evidence on the relationship between those policies that most directly influence the costs of reproduction – that is, family policies – and fertility.

Policies can have an impact on both the timing and the level of fertility; that is, they can have an impact on when parents choose to have their children and an impact on how many children they choose to have. A policy that affects the timing of fertility could influence the level of fertility, but it does not have to. Further, a policy that affects the absolute level of fertility can affect the timing of births, although it does not need to do so. In practice, it is hard to distinguish between timing and level effects; however, I discuss them separately below.

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29 It is likely, however, that a policy that affects the timing of fertility also affects the level of fertility indirectly to some extent. Fecundity falls when women get older, and therefore women will not always be able to recuperate the births they have forgone early in life, even if they want to. Thus policies that encourage women to have their children earlier in life increase the likelihood that women will realize their ideal and intended fertility, and are consequently likely to increase the level of fertility.
BEDROOM POLITICS

The empirical evidence firmly suggests that policies can have an effect on the timing of having children (Björklund 2006; 2007). Studies focusing on policies that raise economic incentives to space children more closely together in time (i.e., speed-premium policies), for example, show that the introduction of such policies decreased the time between having a second, a third, and a fourth child in Sweden, and the time between having a second and third child in Austria (Hoem 1993; Hoem et al. 2001; Andersson et al. 2006; Björklund 2006). The evidence strongly favors the conclusion that policies can have a considerable effect on the timing of fertility.

Taken together, the evidence strongly favors the conclusion that policies can have a considerable effect on the timing of fertility. The evidence on whether policies can have an impact on the level of fertility is more mixed, and there is no consensus on what conclusions can be drawn from it (for reviews of the research, see Sleebos 2003; Neyer 2003, 2006; Neyer & Andersson 2008; Grant et al. 2004; Demeny 2003; McDonald 2006; van de Kaa 2006; Björklund 2007; Gauthier 2007).

Studies on how fertility patterns differ between welfare regimes (Esping-Andersen 1999; Korpi 2000) observe that social democratic (Nordic) and liberal (Anglo-Saxon) welfare regimes have had relatively high period total fertility rates from the 1990s and onward, whereas conservative (Central European) welfare regimes have had low period total fertility rates, and familialistic (Mediterranean) welfare regimes have had very low period total fertility rates during the same period (Chesnais 1996; Esping-Andersen 1999; Esping-Andersen et al. 2002; Castles 2003; Neyer 2003, 2006). Female labor force participation rates follow a similar pattern (ibid.). The effect of labor force participation on fertility, and the effect of fertility on labor force participation, are also weaker at the micro level in social democratic and liberal welfare regimes than in conservative and familialistic welfare regimes (see Chapter 2). Researchers tend to explain these patterns by observing that the former regimes, in contrast to the latter, implement “dual-earner” policies that make it easier for women to combine career and children (e.g., see Hobson & Olah 2006). Social democratic regimes do so in the form of state-subsidized high-quality child care and generous wage-related parental leaves, whereas liberal welfare regimes do so in the form of affordable market-provided child care, flexible working hours, and part-time jobs.

At first sight this analysis seems to support the new home economics analysis of the relationship between policies and fertility. Fertility should be higher in countries that implement policies that lower the opportunity costs of having children than in countries that do not implement such policies. There is, however, a caveat. Fertility rates in conservative welfare regimes, which

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90 Also, educational policies can have a considerable influence on when women have their children, depending on whether the policies encourage short or lengthy periods of study (Lutz & Skirbekk 2005).
implement more traditionally oriented “breadwinner” family policies, are low or extremely low. The compensation for the costs of reproduction that these breadwinner policies offer families are in some cases equal to or larger than the compensation that dual-earner policies offer families in social democratic and liberal welfare regimes (e.g., see Bradshaw, Finch, & Soo 2005). Further, they tackle both the opportunity costs of having children, through joint taxation, and the direct costs of having children, via child and family benefits. The assumption that the generosity of dual-earner policies is responsible for the observed differences in fertility and female labor force participation rates between welfare regimes is also problematic, as it is not backed up by direct evidence on how individual policies are associated with fertility outcomes.

The extensive literature on the direct impact of policies on fertility (for overviews see Sleebos 2003; Grant et al. 2004; Björklund 2007; Gauthier 2007) includes relatively few cross-sectional studies (see Table 3.1). Even fewer econometric studies combine time-series and cross-sectional approaches, and of these, almost all use aggregate fertility measures for the dependent variable (i.e., the period total fertility rate or the cohort total fertility rate). Hitherto, only four comparative studies have directly studied policy effects at the individual level (Adkins 2003; Hilgeman & Butts 2004; Del Boca et al. 2003; Adserà 2011). In contrast, research on policy effects in specific countries includes numerous studies using individual data as well as aggregate fertility measures.

31 It is obvious from more meticulous studies on how policies affect the cost of having children that the ranking obtained in terms of generosity “bear little relationship” to Esping-Andersen’s welfare regime types (Bradshaw & Finch 2002). Although it is true that social-democratic welfare state regimes are among the most generous in compensating parents for the cost of having children, several other states, for example, Austria, Germany, and Luxembourg, are at least as generous, or even more generous, in compensating parents for the costs of having children in terms of forgone earnings and direct spending (child benefits, tax cuts, housing benefits, school costs, health costs – but not parental leaves and child-care costs). Despite this, countries such as Austria, Germany, and Luxembourg have lower fertility rates than their social-democratic counterparts.
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Abbreviations: CEB: Children Ever Born; CS: Cross-Section; EVA: Event History Analysis; MLP: Multilevel Poisson; TSCS: Time Series Cross-Section; PIFFR: Period Total Fertility Rate; Sig: Significant
Cash benefits, tax exemptions, joint taxation, and fertility

Family cash benefits and tax exemptions (including joint taxation) have been found to have a positive effect on fertility in several studies, although the estimated magnitude of the effect varies between the studies. In a cross-sectional time-series study on 11 Western European countries for the years 1969–1983, Blanchet and Ekert-Jaffe (1994) find that a 25 percent increase in spending on family benefits would raise fertility by 0.04 children per woman in the long run. In a similar study of OECD countries for the years 1970–1990, Gauthier and Hatzius (1997) find that a 25 percent increase in family cash benefits on average would raise fertility by 0.07 children. In a more recent pooled cross-sectional time-series study on 16 OECD countries for the period 1980–1999, d’Addio and d’Ercole (2005b) find that such an increase in family cash benefits would raise fertility by 0.05 children. While Gauthier and Hatzius – who find the largest effect – argue that the positive effect is weak, it could be argued that it is in fact rather substantial (Björklund 2007). d’Addio and d’Ercole’s results, for example, indicate that a 100 percent increase in the monthly payment of child benefits, from 1050 SEK (ca. 100 EUR) to 2100 SEK (ca. 200 EUR), would increase the fertility rate in Sweden by 0.2 children.32

The positive effect of child cash benefits on fertility has been confirmed by findings on how cash benefits affect the TFR and by individual fertility in studies done in the U.S., the U.K., Canada, France, and Israel (Hyatt & Milne 1991; Milligan 2002, 2005; Zhang et al. 1994; Barmby & Cigno 1990; Cigno & Ermisch 1989; Ermisch 1988; Buttner & Lutz 1990; Duclos et al. 2001; Laroque & Salanie 2005a, 2005b; McNown & Ridao-Cano 2004; Milligan 2005; Cohen, Dehejia & Romanov 2007; Schellekens 2009).

Studies on how tax exemptions for families with children affect fertility show significant positive effects on completed fertility, as well as period total fertility rates, in the U.S., Canada, and France (Whittington et al. 1990; Georgellis & Wall 1992; Zhang et al. 1994; McNown & Ridao-Cano 2004; Laroque & Salanie 2005a, 2005b). Cross-sectional time-series studies incorporating the real value of tax exemptions with child cash benefits also find a significant and positive effect on period total fertility rates (Bradshaw, Finch & Soo 2005; Ferrarini 2006).

32 The level of the Swedish child benefit is on par with the average level in the sample.
Overall, the empirical evidence on the effect of child benefits, tax exemptions, and joint taxation on fertility is rather compelling. The overwhelming majority of studies clearly speak in favor of generous policies of such types having an undisputed positive effect on fertility.

Parental and maternity leave and fertility
Cross-country studies on how parental and maternity leaves affect fertility usually separate the effect of the length of leaves and the effect of the economic compensations that leaves offer (d’Addio & d’Ercole 2005b). The effect of the length of leaves has been found to be everything from positive (Winegarden & Bracy 1995; Adserà 2004) to insignificant (Gauthier & Hatzius 1997) to negative (Nizalova 2000; d’Addio & d’Ercole 2005b). Studies on the effect of the level of compensation of leaves have found both insignificant (Gauthier & Hatzius 1997) and positive (d’Addio & d’Ercole 2005b) effects on fertility. Generally, studies that combine the length and the compensation level to measure the generosity of leaves report positive results on the total fertility rate, and especially on age-specific total fertility rates of older women (Adserà 2004; Ferrarini 2006). Ferrarini (2006), for example, reports that the level of fertility is 0.26 children higher in countries with the most generous parental leaves compared to countries with leaves of medium generosity. Castles (2003) and Hilgemann and Butts (2004), however, do not find any significant association between the provision of parental leave and fertility, either at the country level or at the individual level.

Country-specific studies generally report a positive relationship between generous parental and maternity leave programs and the time to births of various parities as well as completed fertility (Buttnier & Lutz 1990; Hoem 1993; Lalive & Zweimöller 2005; Hoem, Prskawetz & Neyer 2001; Olah 1998, 2003; Averett & Whittington 2001). However, some studies also report insignificant findings (e.g., see Hardoy & Schone 2004).

The contradictory evidence on the effect of paid parental leave on fertility can likely be explained in part by the fact that the methods for measuring the generosity of paid parental leaves vary considerably from one study to another. Even so, the evidence is not nearly as uniform as that on the effect of child benefits, tax exemptions, and joint taxation on fertility.

Subsidized child care and fertility
Due to a lack of comparative data, relatively few studies have examined how the provision of subsidized child care affects fertility at the country level, and none of the few studies that do so use time-series data. However, those cross-country studies that exist find a strong positive association between child-
care enrollment for children below the age of three and fertility (Castles 2003; Sleebos 2003; Hilgeman & Butts 2004; Kögel 2006), and in a macro-level study Kögel (2006) reports that purchased child care, together with female labor force participation rates and female long-term unemployment rates, can account for a high R2 of 0.87 of the cross-country variation in average fertility rates in Western Europe during the period 1995–2000.\textsuperscript{33}

Hilgeman and Butts (2004), who did the only comparative study that uses individual-level data, find that fertility can be expected to increase by 2 percent for each percentage-point increase in the provision of child care for children below age three. This means, for example, that Italy could raise fertility by 0.27 children by increasing the provision of child care for young children from its current level of 6 percent to 30 percent. Further, if the government increases the level of child-care enrollment to a level equal to that in Denmark (64 percent), the fertility rate in Italy would rise by an impressive 0.97 children. However, Hilgeman and Butts also find that the effect of purchased child care does not compensate fully for the negative effect of female labor force participation. While a one percentage-point increase in child-care enrollment increases fertility by 2 percent, a one percentage-point increase in the female labor force participation rate decreases fertility by approximately 4 percent. As women have been found to respond to the availability of subsidized child care by increasing their labor force participation (Blau 2000; Gornick & Meyers 2003; Jaumotte 2003), the extreme effects reported by Hilgeman and Butts (2004) should therefore not be taken at face value. The net effect on fertility of an increase in the provision of child care would to some extent be offset by the increase in the female labor force participation rate that it, in all likelihood, would cause. Moreover, the positive effect of the provision of child care that Hilgeman and Butts (2004) find is only significant at the 10-percent level, which makes their results questionable.

Studies on individual countries often contradict the positive results of the cross-country studies. Hank and Kreyenfeld (2003), Kravdal (1996), and Andersson et al. (2004) find only weak or insignificant effects of the price, quality, and availability of child care in similar studies on the time to different parities across German, Swedish, and Norwegian municipalities. Lehrer and Kawasaki (1985), Del Boca (2002), Blau and Robins (1989), Olah (1998), and Bonoli (2008), however, find significant positive effects of public child-care availability on fertility across Italian regions, U.S. states, Swiss cantons and, over time, in Sweden and Hungary.

\textsuperscript{33} Kögel uses a measure of the TFR adjusted for the postponement of births based on Sobotka (2004) in order to account for the effects of timing of fertility. It could be argued that this adjustment makes his findings more credible as evidence on the effect of child care on the level of fertility.
One explanation for the insignificant results could be that the within-country variation in child-care coverage in most of the studies is small. It is simply a fact that the variation in child-care coverage tends to be greater across countries than within countries. The lack of significant results in studies using individual-level fertility data is, nonetheless, surprising given the strong positive correlation between the availability of subsidized child care and fertility found in studies using aggregated measures of fertility. Because of these results there is reason to doubt whether the policy of providing subsidized child care is actually as effective at raising fertility as is often suggested.

**Part-time and flex-time jobs and fertility**
Studies on how the availability of part-time and flex-time jobs affect fertility generally find positive effects on fertility. Castles (2003), for example, reports a positive cross-country association between the percentage of employees working flex-time and the total fertility rate across OECD countries. Other cross-country studies working with time series report a positive association between the percentage of part-time jobs in the labor market and fertility (Adserà 2004, 2005; d’Addio & d’Ercole 2005b).

**Overall impression of the impact of family policies on fertility**
The evidence on policies’ effect on the level of fertility is not entirely consistent, but nonetheless rather compelling at first sight. Generous child benefits, tax rebates, joint taxation, and the provision of part-time jobs all seem to have a positive impact on the level of fertility. If the effect is weak, as van de Kaa (2006) and Gauthier (2007) argue, or rather substantial, as McDonald (2006) and Björklund (2007) argue, is a question of interpretation.

Only paid parental leaves and subsidized child care can reasonably be doubted to have a positive effect on fertility. For some reason it has been difficult to prove that such dual-earner policies raise fertility. It has been especially hard to do so with individual-level fertility data.

The fact that it has been so hard to prove generous dual-earner policies’ ability to increase fertility is rather surprising. If anything, such policies could be expected to be more effective than other family policies at raising fertility. At least this is true for the provision of subsidized child care, which in a more direct way than most other policies reduces the indirect opportunity

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34 At least it is obvious that policies have an impact on the timing of fertility. Child benefits, tax rebates, parental leave provisions, and other transfers seem to shorten the time to births of various parties. Diverse labor market institutions, such as the provision of flex- and part-time jobs, seem to have a similar effect.

35 This is especially true with respect to subsidized child care.
costs of having children that have been argued to be the main reason for the decline in fertility in the developed world in recent decades. The few, mostly aggregate-level, studies that find a positive effect of generous dual-earner policies on fertility, moreover, seem to indicate that the effect is of a greater magnitude than that of other family policies.

D’Addio and d’Ercole’s (2005b) finding, that a 25 percent increase in child benefits and tax transfers would increase fertility by 0.05 children, for instance, implies that the Swedish state could raise fertility by 0.2 children per woman by increasing the monthly child benefit from 1050 SEK (ca. 100 EUR) to 2100 SEK (ca. 200 EUR); that is, from 201,600 SEK (ca. 20,000 EUR) to 403,200 SEK (ca. 40,000 EUR) for the total time the child is eligible for the benefit. To increase fertility by 1 child, the child benefit would need to be raised to 6300 SEK (ca. 600 EUR) per month, that is, to 1,209,600 SEK (ca. 120,000 EUR) for the time the child is eligible for the benefit. Such increases would in fact be tremendously expensive for governments to implement as they would not only need to spend more money on each existing child, but also pay child benefits for all new children who are born due to the raise in benefits. Sweden’s total spending on child benefits amounted to 0.7 percent of the country’s GDP in 2005 (OECD family database). Thus, to raise the fertility rate by 0.2 children by increasing the generosity of child benefits would cost the country approximately an additional 0.8 percent of its GDP. To raise fertility by 1 child would cost the country an additional 5.3 percent of its GDP.36

It is somewhat harder to estimate how cost-effective parental leaves are at raising fertility, but the positive findings suggest that the effect is substantial. Adserà’s (2004) findings, for example, suggest that 10 extra weeks of parental leave that fully compensate the recipient for the loss of earnings would raise fertility by around 0.1 children. This means that the Swedish state could raise fertility by 0.2 children by giving parents 20 weeks of fully paid parental leave per child in addition to the 40 weeks of fully paid parental leave for which parents are eligible today. In 2005, the total cost of Sweden’s parental leave system amounted to 0.8 percent of the country’s GDP. Thus, Sweden would have to increase its expenditure on parental leaves by almost 0.5 percent of its GDP in order to raise its fertility rate by 0.2 children.

The provision of affordable, high-quality child care seems to be the most cost-effective policy option for governments that want to increase fertility. The observed effect of the provision of child care is very great according both to Kögel (2006) and Hilgeman and Butts (2004). If Hilgeman and Butts

36 This figure does not include the negative effect on the country’s economy resulting from women withdrawing from the labor market to care for the newborn children.
are correct in assuming that Italy could increase its fertility rate by almost one child if it increased the availability of child care to the same level as Denmark’s, it would be less expensive for the Italian government to raise its fertility rate by increasing child-care enrollment than by raising the level of child benefits or increasing the length and pay rate of parental leaves. In 1998, Denmark spent 2.2 percent of its GDP on child care and other services to families, while Italy spent only 0.3 percent of its GDP on such subsidies. If spending on subsidies translates into enrollment rates, this means that Italy could achieve replacement fertility by increasing its spending on child-care subsidies by a value of 1.9 percent of its GDP.

The estimates of the relative effectiveness of policies presented above should be taken with caution. Nonetheless, it is reasonable to conclude that the provision of subsidized child care seems to be the most effective policy by which to combat low fertility, followed by the provision of parental leaves with high replacement rates, and, in third place, child benefits, joint taxation, and other similar policies. More indirect policies, such as the provision of flex-time and part-time jobs, also seem to be effective at increasing fertility, but the cost-effectiveness of such policies is harder to measure.

To sum up, the evidence on the relationship between the generosity of family policies and fertility is somewhat contradictory. It has been relatively easy to prove that generous family benefits, tax cuts, and joint taxation for families with children can increase fertility. In contrast, it has been relatively hard to prove that generous dual-earner policies can increase fertility – especially with individual-level fertility data. However, the few macro-level studies that have found a positive effect of generous dual-earner policies on fertility seem to indicate that such policies can increase fertility in a more cost-effective way than other family policies. Hence, those family policies that seem most effective at raising fertility are those whose effectiveness at raising fertility seem hardest to prove – at least with individual-level fertility data. The question is whether the new home economics analysis of the relationship between family policies and fertility can explain the relative cost-effectiveness of policies at raising fertility. It is also an open question whether the analysis can explain why it has been so difficult to prove the effect of the most cost-effective policies with individual-level fertility data.

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37 As was noted, it is likely that the positive effect on fertility would be set off somewhat due to the increase in female labor force participation that almost certainly would follow such an increase in the provision of child care.

38 It is likely that the GDP would increase as a result of the increase in female labor force participation rates that would follow in the wake of such an expansion of the child-care sector. The reform would, thus, finance itself to some degree.
Two puzzles

The relative cost-effectiveness of subsidized child care in battling low fertility can partially be explained by pointing out that it is the only family policy that can reduce the entire loss of human capital accumulation resulting from parental care for children. Another likely explanation for the relative cost-effectiveness of the provision of subsidized child care is that it benefits from the advantage of large-scale production. It is simply more cost-efficient to have one care worker care for ten children than it is to have the parents care for their children individually. However, neither of these explanations can explain why it has been more difficult to prove the positive effect of subsidized child care on fertility with individual-level fertility data than with aggregate-level fertility data.

If the relative cost-effectiveness of subsidized child care is easy to explain, it is more difficult to explain why paid parental leave is a more cost-effective policy than family benefits, tax cuts, and joint taxation for families with children. All the latter policies, and especially the last two, reduce the loss of forgone earnings that having children brings about, in a similar way to how paid parental leave reduces parents’ loss of forgone earnings. According to the new home economics analysis of fertility, both types of policies should therefore have an equally positive effect on fertility. The fact that they, despite this, appear to have different effects on fertility is hard to reconcile with the theory. The new home economics analysis of fertility is also unable to explain why it has been relatively difficult to prove the positive effect of paid parental leave on fertility, whereas it has been relatively easy to do so with the other policies.

The new home economics analysis of fertility can, thus, neither fully explain why dual-earner policies seem to raise fertility more effectively than other family policies nor why it has been so difficult to prove the effectiveness of such policies with individual-level fertility data. In the next chapter I argue that it cannot explain these puzzles because it has overlooked the intimate relationship between fertility decisions and decisions about union for-
mation and union dissolution. This intimate relationship means that fertility decisions are much more individualized affairs than previous studies have acknowledged. By overlooking this fact, the previous research has missed two important ways in which family policies can affect fertility; namely, by affecting incentives for women to form unions, and by affecting incentives for women to have children within unstable unions. This oversight can explain why previous studies have had difficulty proving the effectiveness of dual-earner policies at raising fertility using individual-level fertility data. The individualized nature of fertility decisions can also explain why dual-earner policies are more effective than other family policies at raising fertility.
The argument

Previous studies on policies’ effect on fertility have largely overlooked the fact that fertility decisions are closely intertwined with decisions about union formation and union dissolution. I argue in this chapter that, because of this, researchers have missed two important ways in which policies can affect fertility. First, they have failed to notice that policies can increase fertility by reducing the negative effect of union instability on fertility. Missing this point has made them blind to the fact that dual-earner policies can be more effective than other family policies at raising fertility, because such policies are more effective than others at reducing the individual disincentives to have children that come with union instability.

Previous studies have also failed to notice that family policies can affect fertility by affecting union formation. Because of this, they have focused mainly on the effect of family policies on within-union fertility. To the extent that they have concentrated on individual-level fertility patterns, these studies have therefore missed a large part of family policies’ effect on fertility. However, studies using aggregated fertility measures include the fertility of all women, disregarding their union status. Such studies have therefore not missed the part of the effect of policies on fertility that goes via the effect policies have on union formation. This can explain why it has been more difficult to prove family policies’ effectiveness at raising fertility when using individual-level fertility data than it has been using aggregate-level data.

The fact that it has been especially difficult to prove the effectiveness of generous dual-earner policies using individual-level fertility data can be explained by pointing out that much of the positive effect such policies have on fertility is likely to manifest itself in a high likelihood of women forming unstable unions. To the extent that previous studies have not controlled for the negative effect union instability has on fertility, much of the positive effect generous dual-earner policies have on fertility is therefore likely to
have been masked by the positive effect of such policies on union instability. Overall, my arguments make it likely that previous studies, at least to the extent that they have used individual-level fertility data, have underestimated generous family policies’ positive effect on fertility.

Critique of the new home economics analysis of the family

In recent years many economists have started to question the validity of Becker’s assumption of family altruism; that is, the assumption that the head of a family may be regarded as an altruist who cares about the utility of all family members, and that all other family members, knowing this, will pool their resources and adjust their behavior to maximize the family head’s utility, as this will ensure that their own utility is maximized (see Becker 1974, 1981). These critics (e.g., see Manser & Brown 1980; McElroy & Horney 1981; Folbre 1994; Lundberg & Pollak 1993, 1994, 1996; Ott 1995; Braunstein & Folbre 2001) have suggested substituting Becker’s altruist model with various game-theoretic bargaining models. Such models presuppose spouses to act primarily in their own interests and not in the interest of all of the family’s members, and therefore they deem it as unrealistic to assume spouses to pool their resources and adjust their behavior to maximize the family head’s utility. Instead, bargaining models assume spouses to use the resources that are under their individual control, for example, their labor market incomes, to bargain with each other over which investments to make and how to distribute their payoffs.

As family members in Becker’s altruist model pool their resources with the aim of maximizing the family’s utility, bargaining power is irrelevant. The allocation of resources within the family is independent of the share of the family’s resources that the spouses control separately. Because of this, investment decisions, such as the decision to invest in a child, have no strategic implications for the future allocation of resources within the family, but only affect the family’s total output of goods. However, in bargaining models, the allocation of resources within the family is dependent on the relative bargaining power of the spouses, which is dependent on the extent of the resources they control separately. Therefore, investment decisions can have major implications for the future distribution of resources within the family. This is illustrated by pointing out that the allocation of goods is decided by

40 Similar criticisms have been put forward in sociology as well (e.g., see Brines 1993, 1994; Coltrane 2000) and political science (e.g., Iversen & Rosenbluth 2006).
negotiation after the spouses have made their investments. Investments that affect the relative bargaining positions of the spouses, by changing the extent of the resources they control, can therefore result in one spouse being worse off than he/she would have been if the investments had not been made. This can be true even in cases where the investments increase the spouses’ combined output of goods. In the absence of a binding, costlessly enforceable, contract regulating the distribution of produced goods, the spouse whose bargaining position is made stronger by the investments could demand a larger share of the couples’ produced goods than he/she could have done if the investments had not been made. Because of this, Pareto-efficient outcomes in game-theoretic bargaining models presuppose that spouses can make credible binding, costlessly enforceable commitments on the future allocation of resources before they invest in joint production (Ott 1995). Without such credible commitments the incentives to engage in joint production would be low for the spouse who is most likely to engage in household labor.

The reason for this is that the relative bargaining power of the spouses is dependent on the utility they would receive if they were to choose not to cooperate. Non-cooperation is often (although not always) interpreted as divorce. The prospects facing spouses in the event they end up divorced (i.e., the point at which they can credibly threaten not to cooperate) are, thus, important for the distribution of resources they end up agreeing on. In the absence of a credible commitment to a previously agreed-upon distribution of goods, spouses will therefore avoid making investments that will worsen their prospects following a divorce (e.g., investments that would reduce their labor market incomes). Below I will show how this rationality is likely to make women reluctant to have children in the face of increasing union instability.

Union instability and fertility

Spouses make investments that affect both the future value of their marriage and the alternatives they face in the event of a divorce. Becker et al. (1977) note that some of these investments, such as houses, cars, and career skills, would be equally valuable if the marriage were to end in a divorce. Other investments, however, would be much less valuable outside marriage, because they cannot be capitalized on in the market to the same extent as cars and career skills. Children and child-related skills are prime examples of such “marital specific investments.”
One reason that children are “less valuable” outside marriage is that parents typically must share, or be denied, custody of their children in the event of a divorce (ibid; Lillard & Waite 1993). In other words, a divorce reduces the time parents can spend with their children. This loss of contact with children has been shown to lead to increased parental role strain and distress (Umberson & Williams 1993; Rogers & White 1998; Amato 2000).

A second reason why investments in children are “less valuable” outside marriage is that investments in the nonmarket skills that are necessary for giving children a bright future (i.e., for producing “high-quality” children), such as child care, lose value when the marriage ends. A spouse who has invested in marital-specific human capital, such as child care, cannot expect to capitalize on these investments outside the marriage (Becker et al. 1977). The only way to capitalize on such investments is to find a new partner (e.g., see Sweeney 1997; Morrison & Ritualo 2000; Ozawa & Yoon 2002; De Graaf & Kalmijn 2003; Jansen et al. 2009). If a woman’s union ends in a divorce and she is unable to find a new partner, she risks losing all returns on her spouse’s accumulated human capital, while she still must pay the full price, in forgone earnings and loss of human capital accumulation, for the child care she has provided (Peters 1986). In contrast, the (presumably male) spouse who has invested in labor market human capital can expect to capitalize on his investments in the market. Studies also show that mothers tend to suffer more than fathers economically from a divorce (Joshi 1998; Poortman 2000; McManus & DiPrete 2001; Uunk 2004; Andreß et al. 2006).

A third reason that children are “less valuable” outside marriage is that it is more costly for divorced women who have custody of their children to enter the labor market than it is for divorced women who do not have children (Peters 1986; Gornick et al. 1998; Drobnic 2000; Poortman 2000; Uunk 2004; Raeymaekers et al. 2008). For example, a lone mother must find and pay someone to care for her children during her working hours. Alternatively, she must demand flex- and/or part-time working hours of her employer so that she can find the time she needs to care for her children. Of course, the cost of entering the labor market is also high for parents who live together. However, the cost is not as great as it is for lone parents, as parents who live together can share child-care responsibilities with each other (Drobnic 2000; Mandel & Semyonov 2005; Jansen et al. 2009).

To the extent that parents include their children’s utility as part of their own utility functions, a fourth reason why children are “less valuable” outside marriage is that children who grow up in the context of an emotionally and economically stressful divorce tend to fare worse than children who grow up in stable unions (Amato & Keith 1991; Meyer 1997; Amato 2000). Chil-
Children with divorced parents, for example, have been shown to score lower than children with married parents on measures of psychological adjustment (Forehand et al. 1994; Kurdek et al. 1994) and long-term health (Tucker et al. 1997). Many, but not all, of these problems can be explained by pointing out that children whose parents have divorced tend to fare worse economically than children whose parents remain married (e.g., see McLanahan & Sandefur 1994; Morrison & Cherlin 1995; Aseltine 1996). Lone parenthood, whether it is a consequence of divorce or not, has also been shown to be one of the most important determinants of child poverty (Bradbury & Jäntti 1999, 2001; Misra et al. 2007; OECD 2007; Gornick & Jäntti 2009).

The fact that children are “less valuable” outside marriage has few consequences for women’s incentives to have children if their unions are stable and spouses can make credible commitments to the future distribution of goods within the family. However, if there are no guarantees against union dissolution (e.g., legal obstacles to divorce, or social norms that punish husbands who choose to divorce their wives), women who are living in unstable unions have strong incentives not to have children (for a discussion on the relative importance of laws and norms in preventing marital break-up, see Posner 2000). It is only rational for the wife to specialize in child care if she can expect to capitalize on the short- and long-term returns of her husband’s efforts in the labor market. If her husband divorces her, she cannot do so, but must bear the full costs of her investments in the family’s children, while she is likely to receive only a part of their value. Knowing this and that their future bargaining position in the union will be affected negatively by having children, women in unstable unions are likely to engage in strategic behavior by limiting the number of children they have and investing more in labor market work in order to insure themselves against a potential divorce (Peters 1986).

To the extent that this strategic behavior can be anticipated, it would be theoretically possible to reduce women’s perceived need to self-insure against the possibility of divorce by compensating them for their marital-specific investments in the event of a divorce (ibid.). For example, before they marry, a couple can agree upon a settlement payment to be made should divorce occur. However, unilateral divorce laws make it difficult to enforce such settlements if they have not been put on paper. It can also be very hard to agree on the value of the efforts that each spouse puts into the marriage—

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41 In contrast, children raised within high-conflict marriages have been shown to be better off if their parents divorce rather than stay married (Amato & Booth 1997). However, only a minority of divorces are preceded by a high level of marital conflict, which is why the average divorce is likely to make children worse off psychologically (ibid.).
both in advance and in retrospect (Peters 1986; Folbre 2001, pp. 22–54). Therefore, contrary to what many assume (e.g., see Parkman 1992; Ellman 1989), alimony payments are not likely to reduce all disincentives to have children that follow from union instability (Singer 1994). It should also be pointed out that most states implement laws that strictly limit the scope of the legally enforceable agreements spouses can make to reduce women’s incentives to adopt the strategy of limiting their fertility (Posner 2000). Moreover, few states will enforce agreements that regulate the distribution of labor and goods within ongoing unions (ibid; Lundberg & Pollak 2007). To cite Shelley Lundberg and Robert Pollak (2007, p. 13), “Enforceable agreements concerning the future division of labor and allocation within the family may not be feasible for modern couples”. Therefore, women’s incentives to invest in children and child-related activities are inversely related to their divorce risks. Hence,

**H1. Union instability should reduce fertility.**

Several studies confirm this expectation (e.g., see Becker, Landes & Michael 1977; Thornton 1977, 1978; Lillard & Waite 1993; Lehrer 1996; Myers 1997; Vuri 2001; Rijken & Liebrop 2009). There is also a vast literature confirming that the risk of divorce is positively associated with women’s labor force participation (Johnson & Skinner 1986; Peters 1986; Gray 1995; Montalto & Gerner 1998; Austen 2004; Papps 2006). Below I argue that this literature can help explain why generous dual-earner policies seem more effective than other generous family policies at raising fertility.

**Dual-earner policies, union instability, and fertility**

The interrelationship between union instability and women’s incentives to have children and work has gained little attention in the literature on how family policies affect fertility.42 This is rather surprising, as economists such

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42 An important exception is the extensive literature on how divorce laws affect incentives to invest in marital-specific capital, such as children, vis-à-vis incentives to invest in labor market participation (e.g., see Peters 1986; Parkman 1992). The emphasis in this literature, however, has mostly been on women’s labor force participation. Another important exception is the literature on single motherhood in the U.S., which argues that welfare programs targeted at single mothers can make it attractive for women with poor incomes and poor marriage market prospects to choose single motherhood (e.g., see Neal 2004). The findings from this literature, however, have not been discussed in relation to the effect of broader family policies on the fertility of other socioeconomic groups in the U.S. or in other countries.

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as Lundberg and Pollak have for some time pointed out that increasing union
instability likely means that “an efficient level of fertility […] may require a
mechanism for insuring mothers against future losses due […] to the ‘family
gap’ between the wages of mothers and the wages of women without chil-
dren” (Lundberg & Pollak 2007, p. 14; see also Lundberg & Pollak 1996). As
I will argue below, dual-earner policies provide such insurance. Dual-earner
policies also reduce most other individual disincentives to have children that
follow from union instability. Other family policies do not cushion the nega-
tive effects of union instability on women’s incentives to have children to the
same extent. I argue that this can explain why generous dual-earner policies
have been found to be more effective at raising fertility than other generous
family policies have.

Family policies can do little about the fact that union instability reduces
the time parents can expect to spend with their children. It is simply not pos-
sible to share the custody of a child with a former spouse without losing time
with the child. However, dual-earner policies can do something about the
three other individual disincentives to have children that follow from union
instability.

Subsidized child care reduces the amount of time during which parents’
need to provide care for their children. As a consequence, both parents are
free to earn an income for themselves even when their children are small (for
reviews of the positive effect of subsidies for child care on mothers’ labor
force participation, see Anderson & Levine 1999; Gornick & Meyers 2003;
Jaumotte 2003; Morgan & Zippel 2003; Immervoll & Barber 2006; Uunk et
al. 2005; OECD 2007). This feature of subsidized child care not only reduces
parents’ loss of forgone earnings and career opportunities during the time
they stay together, it also assures the parents that they do not need to give up
their jobs if they end up divorced and must raise their children on their own.
No other policy offers parents an equally generous income guarantee in the
event of a divorce. Research from the U.S., Canada, and Western Europe also
shows that child-care subsidies increase the labor supply of single mothers
(Anderson & Levine 1999; Michalopoulos & Robins 2000; Gornick & Mey-
ers 2003; Uunk et al. 2005; Raeymaeckers et al. 2008) and, as a consequence,
reduce their welfare dependency (Poortman 2000; Connelly & Kimmel 2003;
Gornick & Meyers 2003; Uunk 2004; Dewilde 2006; Del Boca & Vuri 2007;
Whiteford & Adema 2007; Raeymaeckers et al. 2008; Jansen et al. 2009). To
sum up, subsidized day care i) reduces the need for high-risk marriage-
specific investments in child care during marriage, and ii) reduces the cost
lone mothers must pay for entering and remaining in the labor market after a
divorce. By doing so, subsidized child care reduces two of the disincentives
to have children that follow from union instability. In addition, the availability of professional child care has been shown to help divorced mothers adjust to the role demands they meet as mothers and workers (Goldberg et al. 1992).

Paid parental leaves offer parents the opportunity to be paid individually for providing care for their children. This not only reduces the caring parent’s loss of forgone earnings during the time the parents’ union lasts (e.g., see Waldfogel 1998a), it also guarantees both parents that they can afford to provide care for their children if they end up divorced. In short, paid parental leaves reduce the negative effect of union instability on fertility by reducing the cost of high-risk marriage-specific investments in child care both for the duration and after the disruption of a union. Other policies that aim at making it affordable for parents to care for their children, for example, joint taxation and tax rebates for families, do not do this. Instead, they presuppose one spouse to earn the family’s income while the other spouse stays at home and cares for the family’s children. Joint taxation and tax rebates for families with children, consequently, do not offer individual spouses the same guarantee that they can afford to provide care for their children should they end up divorced.

Parental leaves of short and medium length (up to a year in length) have also consistently been shown to increase labor force participation among mothers in the years before and after the leave period (see Winegarden & Bracy 1995; Ruhm 1998; OECD 2001, Gornick & Meyers 2003 and Jau-motte 2003 for reviews of the findings), and thus strengthen the position of mothers in the labor market rather than weaken it (see also Waldfogel 1998a, 1998b). The reason is that mothers do not need to quit their jobs in order to find the time to care for their children. Thus, paid parental leaves i) reduce the cost of marriage-specific capital investments in child care during marriage, and ii) reduce the cost of providing such care after a divorce.

Subsidized day care and paid parental leaves also reduce the non-egoistically oriented disincentives to have children that follow from union instability. They do so by contributing to the well-being of children whose parents have divorced. In part, this has to do with the fact that they increase mothers’ labor force participation (read: their income) and, as a consequence, reduce child poverty (Bradbury & Jäntti 1999, 2001; Connelly & Kimmel 2001; Vleminckx, K. & T. Smeeding 2001; Gornick & Meyers 2003; Jau-

\footnote{Longer unpaid leaves, however, tend to decrease women’s labor force participation (Gornick & Meyers 2003). The reason why shorter leaves, rather counterintuitively, work to increase mothers’ labor force participation is that mothers who do not have legal parental leave options tend to quit their jobs when they have children in order to be able to stay at home with them. Wage-related parental leaves, moreover, increase the incentives to work before having children.}
motte 2003; Kamerman et al. 2003; Uunk 2004; Dewilde 2006; Whiteford & Adema 2007; Raeymaeckers et al. 2008; Gornick & Jäntii 2009; Jansen et al. 2009; cf. Immervoll & Barber 2006 for a more nuanced view on the effects of single mothers’ labor force participation on their incomes). It also has to do with the fact that paid parental leaves make it affordable for divorced parents to provide care for their children. Research shows that paid parental leaves contribute to children’s well-being by reducing infant and early childhood mortality (Winegarden & Bracy 1995; Ruhm 2000; Gornick & Meyers 2003; Tanaka 2005). More indirect evidence shows that maternal full-time employment during the first year after birth (the time period that moderate parental leaves cover) is harmful to children’s health (Hill et al. 2001; Gornick & Meyers 2003; Berger et al. 2005; Gregg et al. 2005; Tanaka 2005), and associated with lower cognitive test scores (Waldfogel et al. 2002; Ruhm 2004; Gregg et al. 2005; Waldfogel 2006), and higher levels of problem behaviors, among children below school age (Baker et al. 2008 – though see Burchinal & Clarke-Stewart 2007).44 In short, subsidized child care and paid parental leaves reduce the negative effects of a divorce on children’s well-being.45 Thus, they reduce the weight individuals must give, in their deliberations, to the risk that their potential children will grow up in the context of an emotionally and economically stressful divorce.

To sum up, generous child-care subsidies and paid parental leaves reduce women’s incentives to lower their fertility in order to self-insure against the consequences of a divorce. In countries that implement such policies, women do not need to bear the full cost of the human capital investments associated with having children. Women who foresee the possibility of a union disruption can, for example, work more without having fewer children than they would otherwise. At the same time, they do not need to be as anxious about the time after a divorce as would women living in countries that do not implement such policies. This also means that investments in children do not alter the relative bargaining positions of spouses in countries that implement generous dual-earner policies to the same extent as they do in countries that lack such policies. Hence,

**H2. Generous dual-earner policies should reduce the negative effect of union instability on fertility.**

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44 In contrast, mothers’ employment away from home is not detrimental to older children if it is combined with high-quality child care, but can in fact contribute to their development (Kamerman et al. 2003).

45 In addition, the combined generosity of dual-earner policies has been found to reduce infant mortality and child poverty (Engster & Olofsdotter Stensöta 2011). Others researchers have also noted that family poverty rates are lower in dual-earner regimes (Kangas & Palme 2000; Korpi 2000).
Other family policies do not reduce the individual disincentives to have children that follow from union instability to the same extent as dual-earner policies. Breadwinner family policies, such as joint taxation, only make it less costly for families to have children if the wife stays at home to care for the family’s children. The direct compensation that such policies offer for the wife’s forgone earnings, moreover, primarily goes to the husband. Joint taxation, for example, mean that the husband gets a lower tax rate on his wage during the time that his wife opts out of the labor market to care for the family’s children. The only compensation the wife receives for her invested time is the part of the husband’s wage he is willing to share with her. Breadwinner family policies, thus, encourage and presuppose women to make marital-specific investments that are individually costly in terms of forgone earnings and lost career opportunities. This feature of breadwinner family policies makes it likely that their uptake will worsen both women’s prospects in the event of a divorce and their relative bargaining position within marriage. Research shows, for example, that both joint taxation (Gustafsson & Jacobsson 1985; Gustafsson 1992; Jaumotte 2003) and long low-paid and unpaid maternity leaves reduce women’s labor force participation (OECD 2001; Morgan & Zippel 2003; Gornick & Meyers 2003; Jaumotte 2003). Hence, such policies will probably not make women less likely to reduce fertility to self-insure against a divorce.

Breadwinner policies, moreover, mainly reduce the costs of reproduction during marriage. They do not offer divorced (lone) parents the same degree of compensation as they offer married parents. A woman who foresees a divorce cannot expect to benefit at all from a joint taxation scheme if she does not remarry. Neither can she afford to be at home with her children for any longer time period with the limited compensation traditional maternity leaves offer (as such leaves presuppose that a woman has a husband who earns a full-time wage).

Because breadwinner policies actually increase women’s dependency on their husbands during marriage and offer little compensation in the event of a divorce, it is likely that such policies will not alleviate the economic stress facing lone parents. Thus, breadwinner policies do not do much to reduce would-be parents’ fears that their potential children will grow up in an economically stressful environment in the event of a divorce.

To sum up, breadwinner policies i) do not reduce the need for high-risk marital-specific investments during marriage, ii) do not offer individual compensation, or else they offer only miniscule individual compensation, for high-risk marital-specific investments during marriage, iii) do not reduce the difficulties individuals with children face after a divorce when trying to enter,
or maintain contact with, the labor market, iv) do not reduce the cost of providing care for children after a divorce, and v) as a consequence of i), ii), iii), and iv), do not reduce the economic and psychological stress experienced by children of lone parents. This can explain why generous dual-earner policies have been found to be more effective than generous breadwinner policies at raising fertility.

Also, other, more gender-neutral, traditional family policies, such as child benefits, do little to reduce the individual disincentives to have children that come with union instability. Although such policies have been shown to reduce families’ economic difficulties (Immervoll et al. 2001; Misra et al. 2007), they have not the same potential to reduce lone mothers’ economic difficulties as have dual-earner policies. In addition, child benefits i) neither reduce the need for, nor the cost of, marital-specific investments in children, ii) do not help lone mothers enter, or maintain contact with, the labor market, and iii) do not reduce the cost of providing care for their children after a divorce. Thus, at a maximum, child benefits can only somewhat reduce the economic difficulties lone mothers and their children face after a divorce. The effects family policies have on the individual costs of having children in unstable unions are summed up in Table 4.1.

Although only dual-earner policies reduce the negative effect of union instability on fertility, all family policies can be expected to have a direct positive effect on fertility, as they reduce the costs of reproduction for individuals in stable unions. Hence,

\[ H3. \text{Generous family policies should increase fertility.} \]

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\* This conclusion is limited to ordinary child benefits. It should be noted, however, that benefits targeted to lone mothers with economic difficulties, that is, those on social welfare, can help them out of outright poverty. Such targeted benefits can, in the short term, be very important for the economic well-being of women in precarious economic situations (e.g., see Uunk 2004; Whiteford & Adema 2007). However, social welfare also reduces divorced women’s incentives to be economically active in the short term, and therefore may prolong their welfare dependency and increase their poverty in the long run (Duncan et al. 1988). Thus, the long-term income effects of such targeted benefits are dubious.
Table 4.1. The effects of family policies on the individual costs of having children in unstable unions

<table>
<thead>
<tr>
<th></th>
<th>Dual-earner policies</th>
<th>Breadwinner policies/Child benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lost time with children</td>
<td>No effect</td>
<td>No effect</td>
</tr>
<tr>
<td>Need for marital-specific investments in children during marriage</td>
<td>Reduce</td>
<td>Do not reduce</td>
</tr>
<tr>
<td>Individual cost of marital-specific investments in children during marriage</td>
<td>Reduce</td>
<td>Do not reduce</td>
</tr>
<tr>
<td>Cost of entering and maintaining contact with the labor market after a divorce</td>
<td>Reduce</td>
<td>Do not reduce</td>
</tr>
<tr>
<td>Cost of providing care for children after a divorce</td>
<td>Reduce</td>
<td>Do not reduce</td>
</tr>
<tr>
<td>Negative divorce effect on children’s economic and psychological well-being</td>
<td>Reduce</td>
<td>Do not reduce/Reduce somewhat</td>
</tr>
</tbody>
</table>

As long as union instability is high in most countries, the argument presented above can explain why generous dual-earner policies seem more effective than other, more traditional, generous family policies at raising fertility, taking a cross-national perspective. I argue below that it can also help explain why it has been so hard to prove the effectiveness of dual-earner policies with individual-level data, whereas it has been easier to do so with aggregate-level fertility data. My argument is that the positive effect of generous family policies on fertility must not necessarily manifest as a positive effect on the fertility of women living in unions. Because the desire for children is an important motivation for union formation, it could also manifest itself as a positive effect on union formation. Both effects are likely to increase fertility, but by focusing on the former effect, previous individual-level studies are likely to have missed much of the effect of policies on fertility. Studies based on aggregate fertility data do not suffer from this oversight. This can likely explain why the latter studies have found it easier than the former studies to find that generous dual-earner policies have a positive effect on fertility.
Family policies and women’s incentives to form unions

If asked, most modern people would almost certainly say that union formation decisions are primarily driven by a demand for love, sex, and intimacy. The generosity of family policies would hardly be seen as an important reason why people choose to live together. However, the desires for love, sex, and intimacy are not the only reasons people form unions. The desire for children has historically been, and continues to be, a major motivation for union formation (Becker 1973; Buss 2007). Although it has probably decreased somewhat in importance over time, it is also likely to remain a major motivation for union formation for the foreseeable future (Burch & Matthews 1987; Edlund 2006; Stevenson & Wolfers 2007). An individual who wants to have children, for example, is largely restricted to finding a partner and establishing a union with that partner before he/she can have children.47

The fact that very few people have children without living with a partner (see below) creates a bond between the desire for children and union formation that is stronger than that between the desire for love, sex, and intimacy and union formation. While it is difficult to have children without living with a partner, partners can have loving relationships, sex, and intimacy without living together. To see union formation as a transition from singleness to cohabitation or marriage is to downplay an important fact about relationships – that the choice to live together, in the overwhelming majority of cases, is taken within an already existing relationship.48 In the majority of cases in which two individuals choose to cohabit and/or marry, what happens is not that a new relationship is formed between two individuals; rather, two partners’ existing relationship is taken to a qualitatively new level. Thus, the desire for love, sex, and intimacy often leads to a relationship long before the partners decide to live together. This desire might have been the primary motivation for the relationship to begin with, but it is not necessarily the primary motivation for the couple’s decision to move in together and start a

47 Even those seeking alternatives such as adoption and artificial insemination are mostly presumed to have partners. For example, in most countries it is more difficult for singles than couples to adopt children, if singles are allowed to adopt at all. Moreover, most people who adopt children have tried to have biological children before turning to adoption, which might be an indication that biological children are more highly valued than adopted children (Fisher 2003).

48 The only real exception to this picture is also the one that has received the most attention in the previous research – the “shotgun marriage” (e.g., see Alesina & Giuliano 2006). It has been an established truth in the field that pregnancies resulting from occasional sexual encounters in the past have led those involved to enter into a so-called “shotgun marriage” in order to save the woman from the shame of living as an unmarried mother. With currently available contraceptive techniques, however, shotgun marriages are an outdated phenomenon as the couple can choose to terminate the pregnancy (Sobotka & Toulemon 2008).
household. In the latter decision, the desire for children is likely to be at least as important as the desire for greater intimacy.

Traits and characteristics that are positive for bearing and raising children have long been considered to be decisive for partner selection (Simpson & Gangestad 1992; Buss 2007). Evolutionary theorists in particular have emphasized the urge to reproduce as an important feature of human nature and behavior, of which mating is perhaps the most important. Studies also show that individuals rank parental qualities and preferences for children highly when they evaluate prospective partners (Simpson & Gangestad 1992; Regan & Berscheid 1997; Goodwin & Tinker 2002; Buss 2007). In short, there are both strong theoretical reasons and ample empirical evidence supporting the idea that the “demand” for children is one of the most important motivations for union formation.

The demand for children is also at the centre of what is perhaps the most influential theory on union formation in the social sciences – the new home economics analysis of marriage. Although it focuses primarily on marriages, the new home economics theory of marriage can reasonably be generalized to apply to union formation at large. In its classic version it perceives marriage decisions as cost-benefit analyses, in which potential spouses weigh the costs and benefits of marriage against the costs and benefits of living alone (Becker 1973; 1991). This choice basically boils down to how valuable the goods and services that can be produced in a potential marriage are in relation to the goods and services that potential spouses can produce on their own if they do not marry. If the former outweigh the latter, and there are no alternative marriage prospects from which the potential spouses would benefit more, they choose to marry.

The new home economics analysis of marriage acknowledges that love, sex, and intimacy can motivate decisions to marry. The main motivation for marrying, however, is assumed to be that spouses in a marriage can use their comparative advantages in production to maximize their joint production of market and nonmarket goods. As specialization is assumed to increase productivity, most marriages are hypothesized to build on a traditional division of labor in which the spouses specialize in the productive spheres in which they have a comparative advantage over each other. One spouse (typically the man) is assumed to specialize in the production of market goods, whereas the other spouse (typically the woman) is assumed to specialize in

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49 Actually, this is in line with the original intentions of the theories that underpin the marriage market literature. In his 1973 classic essay on the topic, Becker already defined a household as any family constellation in which partners live together (his definition, in other words, includes cohabiting partners). However, in the empirical literature, households have overwhelmingly become associated with married partners.
the production of nonmarket goods. Characteristic examples of nonmarket goods and services are cleaning, laundry, homemade meals, and—above all—children.

The productive advantage of specialization stems from the fact that most individuals who live alone must support themselves by working in the labor market. Consequently, they cannot specialize as efficiently as spouses can in the production of nonmarket goods. Thus, an advantage of marriage is that it allows one spouse to specialize in, and increase the production of, nonmarket goods while being supported by the spouse who specializes in the production of market goods. As all individuals need a limited amount of nonmarket goods, the division of labor that occurs within a marriage also means that the spouse who specializes in the production of market goods (i.e., the husband) can do so more effectively than individuals who live alone, as he receives the nonmarket goods he needs from his wife. Thus, married spouses have an advantage over unmarried individuals within their respective spheres of production. As the head of the family is assumed to act altruistically toward the other family members, what matters is the family’s total production of market and nonmarket goods.

For it to be rational for two people to marry, the total production of goods within their potential marriage must outweigh the value of the goods that they could produce on their own if they chose not to marry. The most important goods individuals can produce on their own are their market incomes (i.e., wages). If the incomes of two potential spouses are high enough, one or both could benefit more from continuing to work and instead buy the “nonmarket” goods and services they need in the market. All else being equal, increases in income opportunities therefore reduce the relative attractiveness of marriage and increase the relative attractiveness of living alone. The lower-earning spouse’s wage is especially likely to have a negative effect on the incentives to marry as specialization pays off better the more specialized the potential spouses are to begin with.

Given this, it is not surprising that the dominant explanation for the observed decline in marriage rates in recent decades is the same as the explanation for fertility decline—namely, the expansion of women’s earning opportunities. When women’s earning opportunities opened up during the 1950s and 1960s, the relative value of marriage declined, and women responded to the new incentives by participating in the labor force to a higher degree than in the past, and by postponing or forgoing marriage (Becker 1973; 1991; Oppenheimer 1988; Kalmijn 2007). Accordingly, the literature assumes a negative correlation between women’s earning opportunities (labor force participation) and marriage rates. Several researchers (e.g., see Wilson &
Neckerman 1986; Oppenheimer 1994; McLanahan & Casper 1995) have argued that this negative marriage trend has been aggravated by the fact that men’s wages have simultaneously dropped – both in real terms and relative to women’s wages – with the result that there are fewer “marriageable” men available today than has been the case historically. That is, today there are fewer men who earn the wages that would make it beneficial for women to marry and specialize in housework.

The relative attractiveness of union formation is also affected by the value of investments in nonmarket goods. This value is, in turn, dependent on a number of factors, such as the cost of substitutes for nonmarket goods, such as bought meals, in the market (e.g., see Greenwood & Guner 2004; Goldin 2006). However, by far the most important factor determining the value of investments in nonmarket goods is the opportunity cost of the production of the goods in question, and that opportunity cost is largely decided by women’s wages. The value of investments in nonmarket goods is thus likely to closely track women’s earning opportunities, and therefore there is every reason to assume women’s wages to be negatively related to their incentives to marry.50

There are other types of unions besides marriage. However, all else being equal, a relatively low marriage rate should imply that relatively few women are living in unions. If we remain true to the original intentions in the new home economics literature and do not discriminate between marriage and cohabitation, there is even more reason to assume that the marriage rate should be positively correlated with the union formation rate. Given the assumed close association between women’s earning opportunities and their incentives to marry, it is therefore reasonable to expect a negative association between women’s earning opportunities and their likelihood of forming unions. Hence,

**H4. Good earning opportunities for women should reduce their likelihood of living in unions.**

As noted above, the desire for children is a major motivation for union formation. However, not only are children one of the most desired nonmarket goods unions can produce, they are also one of the costliest investments spouses can make, especially in terms of opportunity costs. The relative value of investments in children is therefore likely to be highly correlated with the overall relative value of investments in the nonmarket goods unions can pro-

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50 There are possible exceptions to this rule – see, for example, Neal (2004).
The cost of reproduction can, because of this, be assumed to be a factor weighing heavily in people’s union formation decisions. To the extent that unions are necessary for producing children, all else being equal, low costs of reproduction should increase, and high costs of reproduction should reduce, potential spouses’ incentives to form a union. If two potential spouses feel that they will not benefit from having children because the division of labor necessary for such an investment would be too costly, not only are they unlikely to have children, they are also unlikely to form a union since a major reason for forming a union is to make possible a division of labor that can produce children and other nonmarket goods. If the potential spouses would not benefit from having children after they have entered the union, the likelihood that they would not benefit from forming the union at all increases.

This means that the negative effect of women’s increased earning opportunities on fertility must not necessarily manifest itself in lower fertility among women in unions. It could also manifest itself in a lower likelihood of women forming unions. It also means that the effect of family policies that reduce the costs of reproduction must not necessarily manifest as an increased likelihood of women in unions having children, but also could manifest as an increased likelihood of women forming unions. Hence,

**H5. Generous family policies should increase the likelihood of women living in unions.**

Given that the effect of dual-earner policies on women’s incentives to enter unions is largely dependent on such policies reducing the negative effect of women’s earning opportunities on their incentives to have children and enter unions, we should also expect that,

**H6. Generous dual-earner policies should mainly increase the likelihood of women living in unions by increasing the likelihood of women with good earning opportunities living in unions.**

The theoretical assumption of a positive association between union formation and fertility is strongly supported by the empirical evidence.

Less than 10 percent of all first births in Europe take place outside unions (Kiernan 1999a, 1999b, 2004; Heuveline et al. 2003; Sobotka & Toulemon 2008). Second and third births outside unions are even less common (ibid.). The cross-national correlation between the overall fertility rate and the number of women in unions is also positive and fairly strong (R .36), and it be-
comes even stronger (R .67) if the U.K. and Ireland – two extreme outliers – are excluded (see also Sevilla Sanz 2009).

Figure 4.1. The percentage of women aged 18–45 in unions and the total fertility rate

Comments: Pearson’s R .36 (increases to .67 if Ireland and the U.K. are excluded). Data on the total fertility rate represents the average yearly total fertility rates between 2002 and 2006 (source: Eurostat). A woman is counted as living in a union if she is married or if she cohabits with a partner with whom she is intimate. Data on the number of women in unions has been extracted from rounds 2 (2003–2004) and 3 (2005–2006) of the European Social Survey (author’s calculation).

Given these facts, and the fact that young people form and break unions at different ages and rates in European countries, one would expect much of the research on how policies affect fertility to explore how policies affect union formation and union dissolution. However, overall rates of union formation and union dissolution and their interrelationship with policies and fertility are underexplored topics in the demographic literature (although see Baizán et al. 2003, 2004; Blossfeld et al 2005; Sevilla Sanz 2009). First, most studies tend to be of the descriptive type. They seldom test hypotheses on possible causes

51 The U.K. and Ireland are the only countries in the sample in which single motherhood is common and where more than 10 percent of first births take place outside unions (Kiernan 1999a; 1999b; 2004). In these countries, child-bearing follows a different logic from that in most countries in Europe. It is therefore reasonable to exclude them from the sample.
for observed differences between countries (e.g., see Schoenmaeckers & Lodewijckx 1999; Billari et al. 2001; Kiernan 2002; Kiernan 2004; Andersson 2003; Prioux 2006). To the extent that they do so, they focus almost exclusively on comparisons between two or three countries, which does not allow for separating the effects of different variables from each other (e.g., see Mulder et al. 2002 and Baizán et al. 2004).

Second, and more important, the majority of studies do not focus on union formation and union disruption as such, but on the likelihood of particular forms of unions being formed and disrupted. That is, they focus on when and whether individuals cohabit and marry and how likely such unions are to last (e.g., see Kalmijn 2007). Overall rates of union formation and union dissolution and their relationship with fertility have received little attention (although see Baizán et al. 2003, 2004; Blossfeld et al 2005; Sevilla Sanz 2009).

Third, the few existing studies that discuss how policies affect living arrangements have focused almost exclusively on how policies affect the timing of young adults leaving the parental home (Aassve et al. 2002; Billari et al. 2001; Holdsworth 2000; Mulder et al. 2002; Mulder 2006; see also Dalla Zuanna 2001 and Billari & Liebroer 2007 for cultural explanations of home-leaving patterns). The focus in these studies has either been on policies affecting youth unemployment and youth wages and their effects on home leaving, or on policies and factors that affect the availability and cost of housing. The findings of the studies suggest that the age at which young adults leave the parental home is important for determining when they enter into their first unions, but that the effect varies between countries. Thus, there are both theoretical reasons and empirical evidence confirming that the age on leaving the parental home and the factors that affect it influence people’s likelihood of living with partners. Despite this, no study has explored how important the age on leaving the parental home is in relation to other factors – for example, family policies – in explaining contemporary union formation patterns in Europe.

Only one cross-country study on the impact of policies on union formation and fertility patterns exists to my knowledge (Blossfeld et al. 2005). The study, carried out by Hans-Peter Blossfeld and colleagues, concentrates on how welfare regimes shape the impact of labor market activity status on young people’s union formation and entry into parenthood in a number of industrialized countries. The upshot of the findings is that employment uncer-

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52 This is likely to depend in part on the fact that the major economic theories in the field were developed when marriages constituted the overwhelming majority of households and cohabitation was still a marginal phenomenon.
tainty, which has risen in most countries, has a negative effect on men’s and women’s union formation and entry into parenthood in welfare regimes that allow women to combine a career with children. It also finds that unemployment uncertainty has a positive effect on women’s entry into unions and parenthood in conservative and more family-oriented welfare regimes, in which it is impossible to sustain a career while raising children. However, the study does not explore whether welfare regimes have an independent impact on the overall likelihood of young people entering unions and parenthood. Neither does it disentangle the impact of individual policies on young people’s union formation. It does, however, show that young people’s labor market status has a uniform impact on their union formation and entry into parenthood in most of the studied countries. Thus, it seems to confirm that union formation and first births are endogenous processes in most countries (ibid; see also Blossfeld & Mills 2001).

Even though both theory and empirical evidence indicate that union formation decisions and fertility decisions are closely interrelated, previous studies on the relationship between policies and fertility have largely neglected the interrelatedness between the two decisions. By remaining blind to the fact that the positive effect of policies on fertility could manifest itself in high union formation rates as well as high fertility within unions, some of these studies are likely to have underestimated the effect of policies on fertility. The oversight does not constitute a problem for studies using aggregate-level fertility measures, as total fertility rates reflect all women’s fertility decisions regardless of their union status. It does, however, constitute a problem for studies using individual-level fertility data that only include women who live in unions (for examples of such studies, see Olah 1998; Hoem et al. 1999; Andersson et al. 2004). It also constitutes a problem for studies that, although they include women who live as singles, focus on second- and higher-order births (for examples of such studies, see Kravdal 1996; Hoem et al. 1999). As the overwhelming majority of women live in unions at the time they have their first child, such studies miss the fact that the samples of women who can have second- and higher-order births are likely to vary both in size and characteristics from one country to another. Actually, all studies that include singles are likely to underestimate the effect of policies on fertility as long as they control for women’s union status. The reason is that such controls will eat up the part of policies’ positive effect on fertility that is dependent on the policies’ positive effect on union formation. The only ways to avoid underestimating policies’ effect on fertility with individual-level data is to study the direct effect of policies on union formation, or to study the effect of policies
on women’s fertility without controlling for their union status. Previous studies have not done so.

This could partially explain why many studies using individual-level fertility data have failed to find substantial effects of the generosity of family policies on fertility, whereas studies using aggregated fertility data have been more successful in doing so. However, previous individual-level fertility studies’ focus on the fertility of women living in unions cannot explain why such studies have found it much more difficult to prove the effectiveness of dual-earner policies than the effectiveness of other family policies. It only makes it likely that many previous individual-level fertility studies have underestimated the effect of all family policies, including dual-earner policies, on fertility.

To understand why it has been particularly difficult for previous individual-level fertility studies to find a positive effect of generous dual-earner policies on fertility, we need to go back to the argument that dual-earner policies are likely to be more effective than breadwinner policies at raising fertility, because they more effectively reduce the negative effect of union instability on fertility. Together with the discussion above, this argument implies that much of the positive effect of generous dual-earner policies on fertility is likely to manifest itself in a positive effect on the likelihood of women living in unstable unions. All else being equal, union instability should therefore be higher in countries with generous dual-earner policies. This higher level of union instability is likely to hide a part of the positive effect of generous dual-earner policies on fertility in studies concentrating on within-union fertility. The reason that generous dual-earner policies, despite this, are likely to increase fertility is that the unstable unions would never have been realized in countries that lack generous dual-earner policies.

Dual-earner policies and union instability
I have argued that women who foresee the possibility of a union disruption are likely to work more and have fewer children than they would otherwise, as they have an incentive to self-insure against the consequences of lone motherhood. However, to the extent that the likelihood of union disruption can be anticipated, women’s best insurance against the consequences of lone motherhood would be to abstain from entering unstable unions at all. Instead, they would do better to wait and search for a partner with whom they can form a stable union. Investments in unions that are not likely to pay off

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53 This assumes that there are no other expected returns from the union that can compensate for the costs of the expected divorce.
are bad investments. Thus, the factors driving union instability do not necessarily have to manifest themselves in highly unstable unions and low fertility within unstable unions. To the extent that the risk of union instability can be anticipated, they could also manifest themselves in a low likelihood of women entering unstable unions (see Peters 1986 for a similar argument).

This means that generous dual-earner policies can be expected not only to increase the likelihood of women in unstable unions having children, but also to increase the likelihood of women entering unstable unions at all. Knowing that generous dual-earner policies reduce their incentives to self-insure against a divorce, women in countries with generous dual-earner policies will not only be more willing to have children in unstable unions, they will also be more willing to enter such unions, because they can afford to have children in them. Even marital-specific investments in unstable unions can pay off in countries with generous dual-earner policies. In the absence of generous dual-earner policies the only way to self-insure against the risk of divorce is to engage in information gathering about potential partners until one is found with whom a permanent union can be formed. Women in countries that do not implement generous dual-earner policies are therefore likely to form stable unions only after long information gathering processes. This means that the samples of women in unions in countries that do, and do not, implement generous dual-earner policies will differ considerably. In the former countries, relatively many women will live in comparatively unstable unions. In the latter countries, relatively few women will live in comparatively stable unions.

As Ermisch (1986) notes, policies that improve the financial situation of lone mothers also have a negative effect on the stability of existing unions (see also Bishop 1980). This is because such policies reduce women’s financial dependency on their husbands. Together with the fact that women will be reluctant to form unstable unions in countries that lack generous dual-earner policies, this means that union instability, all else being equal, is likely to be higher in countries with generous dual-earner policies.

Generous dual-earner policies are also likely to increase union instability for two other reasons. First, as argued in the section on dual-earner policies and the likelihood of women living in unions, the positive effect of generous dual-earner policies on union formation is likely to manifest itself primarily in a higher likelihood of women with high earning opportunities living in

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54 The search for suitable partners is usually carried out under uncertainty and with imperfect information of the match-quality of potential partners (Becker 1974). As a consequence, potential partners cannot know for certain whether a potential union will be stable or will end in a divorce. The potential partners may or may not complement each other well.
unions. Second, generous dual-earner policies increase the earning opportunities of mothers with young children by increasing their labor force participation. These observations indicate that generous dual-earner policies should be positively associated with the earning potentials of women in unions. As the new home economics analysis of marriage assumes union stability to be inversely related to women’s earning potentials, this also means that generous dual-earner policies, all else being equal, should be positively associated with union instability.

One reason why the new home economics analysis of marriage assumes union stability to be inversely related to women’s earning potentials is that unions in which the woman has a high earning potential are less efficient than unions in which the woman has a low earning potential (Goldin 1990; Becker 1991). It is simply less rewarding for women with high earning potentials to specialize in the production of nonmarket goods, and that being the case, the partners have few economic motives to remain in the union, other than to avoid the costs associated with a divorce.

In most cases, women also risk greater economic losses than men in a divorce, as women tend to have invested more than men in marital-specific human capital (Smock 1993, 1994; 2000; Joshi 1998; Poortman 2000; McKeever & Wolfinger 2001; McManus & DiPrete 2001; Uunk 2004; Andreß et al. 2006). Therefore, on average, women are likely to be more reluctant than men to accept a divorce for economic reasons. However, women who have invested their human capital in the labor market are not as economically dependent on their husbands as are housewives who have invested their human capital in marital-specific skills. Women from the former group are therefore not as likely as women from the latter group to stay with their partners for economic reasons if the quality of their union is poor (Ermisch 1986; Goldin 1990; Becker 1991; Kalmijn 2007). Most empirical studies on the topic also confirm that women’s labor force participation and relative earnings are positively associated with their divorce probabilities (Poortman & Kalmijn 2002; Blossfeld & Mueller 2002; Jalovaara 2003; Kalmijn et al. 2004, 2007; Kalmijn 2007 – though see Oppenheimer 1997). Hence,

H7. Women with relatively high earning opportunities (i.e. women who work and study) should be more likely than women with relatively low earning opportunities (i.e. women outside the labor market) to live in unstable unions.
Given that generous dual-earner policies increase the likelihood of women in unions having high earning opportunities, we therefore have an additional reason, aside from the one presented above, for assuming that,

**H8. Generous dual-earner policies should increase the likelihood of women living in unstable unions.**

The generosity of dual-earner policies is not the only determinant of union instability. Several cultural factors have also been shown to be important for predicting union instability. Religiousness is one. Christianity and most other major religions condemn divorce. Religious individuals therefore have to pay a heavier psychological price for a divorce than their secular sisters. In line with this expectation, church members, frequent church attendees, and individuals who marry within their own denominations have been shown to be less likely to divorce than more secular individuals (Lehrer & Chiswick 1993; Lehrer 2004; Kalmijn et al. 2004; Kalmijn et al. 2005).

Also, liberal values that are not directly related to religiousness, for example, gender-egalitarian and post-materialist values, have been shown to increase the risk of union disruption (Axinn & Thornton 1992; Lillard et al. 1995). They have been shown to do so both directly and indirectly, by increasing the chance of individuals choosing to cohabit instead of marrying. Cohabiting unions are more likely than marriages to end in a separation (ibid.; Hoem & Hoem 1992; Kiernan 2000; Heuveline & Timberlake 2004). There are, for example, more legal obstacles (i.e., costs) associated with dissolving a marriage than with dissolving a union built on cohabitation. However, the most important reason why unions built on cohabitation are more likely than marriages to end in separation is that cohabiters differ from married individuals in their value orientations (Axinn & Thornton 1992; Lillard et al. 1995; Clarkberg et al. 1995). Differences in value orientations can also explain why marriages in which at least one spouse has experienced unmarried cohabitation are more likely to end in divorce than marriages in which neither spouse has lived with a partner without being married (Axinn & Thornton 1992; Hoem & Hoem 1992; Lillard et al. 1995; Kiernan 2002; Liefbroer & Dourleijn 2006).

Although there is no necessary connection between the cultural and economic factors that affect divorce probabilities, both indicators correlate highly with each other. The female labor force participation rate, for example, correlates positively with indicators of secularism and post-materialist value orientations (Inglehart & Norris 2004). Similar patterns can be found at the
micro level. All macro indicators of union instability, moreover, correlate positively with the generosity of dual-earner policies. Thus, there are not only theoretical, but also empirical, reasons for assuming a positive correlation between generous dual-earner policies and union instability.

As the positive effect of generous dual-earner policies on fertility is dependent on the fact that dual-earner policies reduce the negative effect of union instability on fertility, the generosity of dual-earner policies is likely to have a stronger effect on within-union fertility in countries with generous dual-earner policies.

This can likely explain why it has been so difficult to find a positive effect of generous dual-earner policies on fertility using individual-level data. The samples of women in unions simply differ too much systematically between countries for it to be possible to detect the effect without taking the different sample characteristics into account. Women in unions in countries that implement generous dual-earner policies cannot be compared to the smaller and more select group of women who live in unions in countries that do not implement such policies. If they are compared, the negative effect of union instability on fertility will mask the positive effect of generous dual-earner policies on fertility. All else being equal, it is unlikely that there are any countries in the developed world in which union instability is high and the generosity of dual-earner policies is low and thus could help reveal the positive effect of generous dual-earner policies on fertility. Therefore, it is not surprising that so few studies using individual-level data have found a positive effect of dual-earner policies on fertility. To detect the positive effect of generous dual-earner policies on fertility using micro-level data, one must control for the fact that union instability is much higher in countries with generous dual-earner policies.

In a worst-case scenario the sample differences could even cause generous dual-earner policies to be negatively associated with within-union fertility. It suffices that the positive effect of generous dual-earner policies does not

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55 Married women who have never lived with a partner without being married, for example, tend to be more specialized into care work and housework than married women who have cohabited (Batalova & Cohen 2002). This empirical pattern can to some extent be explained by pointing out that women with more liberal, less religious, and more gender-equalitarian value orientations choose to cohabit, whereas women with more traditional value orientations choose to marry directly, and that these values affect their household behavior (i.e. by a selection effect) (Axinn & Thornton 1992; Clarkberg et al. 1995; Batalova & Cohen 2002). It can also be explained by saying that women who take on traditional gender roles (i.e., those who marry) rationalize their behavior by adopting more traditional value orientations.

56 This conclusion is equally valid for studies that explore how variation over time in the generosity of dual-earner policies affects fertility.
reduce all of the negative effect of union instability on fertility for such a scenario to happen.

However, as long as the differences in union stability depend on the fact that generous dual-earner policies increase women’s willingness to form unstable unions instead of remaining single, this is no reason to doubt that generous dual-earner policies have a positive effect on fertility. All things considered, women who are living in unstable unions are more likely to have children than women who are living as singles.

Neither do the systematic differences in union instability that depend on cultural factors unrelated to, but correlated with, the generosity of dual-earner policies threaten the conclusion that generous dual-earner policies should increase fertility. On the contrary, in any country that has implemented generous dual-earner policies, the fertility rate is higher than it would be had they not done so.

However, the negative effect of generous dual-earner policies on the stability of already existing unions is likely to dilute such policies’ positive effect on fertility. This is partly because union instability reduces within-union fertility, and partly because union instability reduces women’s likelihood of living in unions by increasing their likelihood of union disruption. In theory, the latter effect could even outweigh the positive effect that generous dual-earner policies have on women’s likelihood of living in unions, by increasing their likelihood of union formation. Thus, it is an open question whether generous dual-earner policies has a more positive effect on fertility than more traditional family policies. It is even an open question whether generous dual-earner policies have a positive effect on fertility at all. Everything hinges on two empirical questions: 1) How strong is the positive impact of dual-earner policies on women’s likelihood of union formation in relation to their positive impact on women’s likelihood of union dissolution? 2) How effective are generous dual-earner policies at reducing the negative effect of union instability on fertility and to what degree is union instability driven by factors other than the generosity of dual-earner policies?

57 The fact that generous dual-earner policies increase women’s options outside marriage also constitutes reason for doubting their effect on union formation. As Rasul (2003) argues, policies that increase the likelihood of divorce can dilute the value of marriage and discourage people from marrying. However, as Alesina and Giuliano (2006) argue, such policies also lower the costs of entering bad marriages, and so they are equally likely to have a positive effect on people’s willingness to marry.
A summary of the argument

This chapter started with a criticism of Becker’s idea of family altruism. It was proposed that it is more realistic to assume that spouses prioritize their own interests before those of their partners, instead of assuming that they act altruistically toward each other. From this it follows that women in unstable unions have an incentive to self-insure against the possibility of a divorce by working more and having fewer children than they would otherwise. If they do not, they must pay the full price of the marital-specific investments that are necessary for having children, whereas they risk receiving only a part of the value of these investments in the event of a divorce.

This can explain why generous dual-earner policies have been found to be more effective at raising fertility than generous breadwinner policies have been. In contrast to breadwinner policies, dual-earner policies reduce the need for, and cost of, child-related marital-specific investments. Generous dual-earner policies, moreover, also assure parents that they can provide for their children’s needs in the event of a divorce. In short, they reduce women’s incentive to reduce fertility as a means to self-insure against the possibility of a divorce. Given that other family policies do not do so, it is not surprising that previous studies have found dual-earner policies to be more effective than other family policies at raising fertility.

Because fertility and union formation decisions are closely interrelated, generous dual-earner policies are also likely to increase women’s willingness to enter unstable unions. In the absence of generous dual-earner policies, women’s best strategy to self-insure against a divorce is to avoid entering an unstable union and continue searching for a stable union. Therefore, both union formation rates and union instability should be higher in countries with generous dual-earner policies.

The fact that union stability is likely to be higher in countries that have implemented generous dual-earner policies can explain why it has been particularly difficult to prove the effectiveness of such policies at raising fertility using individual-level fertility data. Previous studies using this type of data have mainly focused on how policies affect the fertility of women who are living in unions. They have done so without accounting for the fact that the effect of dual-earner policies is likely to vary with union stability, or that union instability varies between countries. Thus, these studies have likely missed both dual-earner policies’ positive effect on union formation and their relatively strong positive effect on the fertility of women who are living in unstable unions. Studies using aggregated fertility data do not suffer from these weaknesses, as they, by nature, incorporate all direct and indirect policy effects on fertility, disregarding how they manifest themselves at the individ-
ual level. It is therefore unsurprising that the former studies have found it more difficult than the latter to find a positive effect of generous dual-earner policies on fertility. The argument is presented in its entirety in Figure 4.2.

To sum up, the interrelatedness between fertility decisions and decisions about union formation and union dissolution stressed in this chapter can potentially explain both why dual-earner policies seem more effective than other policies at raising fertility and why it has been so difficult to prove the effectiveness of such policies with individual-level fertility data, whereas it has been easier to do so with aggregate-level fertility data. Thus, it can solve the two paradoxes that were observed in the review of the research on the effect of family policies on fertility. The argument presented in this chapter also implies that, overall, previous individual-level fertility studies have underestimated the positive effect of generous family policies on fertility.

As was noted at the end of the chapter, however, it is not certain that the positive effect dual-earner policies have on fertility, by affecting women’s union formation and within-union fertility, outweighs the negative effect such policies have on fertility, by increasing union instability. The argument’s credibility, thus, hinges on the empirical question of how strong the effects on women’s union formation, within-union fertility, and union instability are relative each other. In the next chapter, I develop a strategy to answer this question and test the overall validity of the argument.
This chapter discusses how to test the hypotheses presented in Chapter 4. First, I consider how to define and operationalize the main variables – unions, union instability, and the generosity of dual-earner and other family policies. I then discuss suitable data for testing the hypotheses. Thereafter, I consider the overall design of the study. The chapter concludes with a brief presentation of the layout of the different parts of the empirical study and a discussion of how they relate to each other.

The main dependent and independent variables

Chapter 4 evolved around three issues. First, it was discussed how union instability and the generosity of family policies, and then especially dual-earner policies, shape women's fertility decisions. Second, it was discussed how the generosity of family policies shapes women’s union formation decisions. Third, it was discussed how the generosity of dual-earner policies affects union instability. In order to test the hypotheses that concluded the discussion it is therefore necessary to define and measure “unions,” “union instability” and “the generosity of dual-earner and other family policies.” I start by discussing how to define and measure “unions.”

Unions

As has been pointed out, I define a “union” as an intimate relationship in which the partners live together in a household. A union is not to be equated with a household (e.g., see Ellickson 2008). Neither is it to be equated with an intimate relationship. Two individuals can share a household without living in a union, and they can also have an intimate relationship without
sharing a household. To be counted as living in a union, an individual must both have an intimate relationship and live in a household with the intimate partner.

Even though the legal differences between unions built on cohabitation and unions built on marriage are smaller today than they have been historically, most countries still make a clear legal distinction between the two types of unions. Despite this, I do not distinguish between them when I define unions. The reason is that both kinds of unions represent a willingness to engage in joint household production with an intimate partner. The economic incentives to engage in joint household production might differ between the two kinds of unions, but they still signal a readiness to engage in joint household production – for example having children – at some level (e.g., see Kornhauser 1993). Intimate relationships in which the partners do not share the same household do not signal a similar readiness to have children.

To be able to measure whether an individual lives in a union there is thus a need for data on whether the individual is married or cohabits with a partner without being married.

Union instability
I define “union instability” as the likelihood of a partner in a union choosing to leave his/her partner. As far as marriages are concerned, this likelihood is equivalent to the likelihood of divorce. In cases where unions are built on cohabitation, it is equivalent to the likelihood of the partners breaking up their relationship and moving apart permanently.

It is not possible to measure the likelihood of union disruption directly, so it must be estimated indirectly. Numerous studies have identified factors that affect the likelihood of union disruption and divorce. I have chosen to use some of these factors as proxies for union instability. More specifically, I have chosen to use women’s union histories as indicators of the stability of their current unions. First, I make a distinction between women who cohabit and women who are married. It is an established fact that unions built on cohabitation are less stable than unions built on marriage (Hoem & Hoem 1992; Manting 1994; Teachman et al. 1991; Trussel et al. 1992; Ermisch & Francesconi 2000; Smock 2000; Manning et al. 2004; Liefbroer & Dourleijn 2006). This can partially be explained by observing that unions built on cohabitation are less costly to break up than unions built on marriage (e.g., see Oppenheimer 1988). The legal costs of breaking up unions built on marriage, for example, are higher than those of breaking up unions built on cohabitation. Social norms also tend to condemn divorce more, and thus divorce is also more costly in social terms than are other forms of union disruption. In
addition, people tend to invest less in unions built on cohabitation than in marriages, and therefore the loss of investment when the union is dissolved is often lower in unions built on cohabitation (Rindfuss & Vandenhuevel 1990; Kornhauser 1993, Clarkberg 1999). Because of these characteristics, cohabitation is often viewed as a kind of trial marriage, which does not signal the same degree of commitment as marriage (e.g., see Balakrishnan et al. 1987; Bennett et al. 1988; Oppenheimer 1988; DeMaris & Rao 1992; Klijzing 1992; Lillard et al. 1995; Clarkberg 1999; Ermisch & Francesconi 2000).

The most important explanation for why unions built on cohabitation are less stable than unions built on marriage, however, is not the different characteristics of the two types of unions, but the different characteristics of the people who choose either to cohabit or marry. Because cohabitation represents less commitment than marriage, it is a family form that tends to attract a disproportionate number of individuals who lack strong commitments to their relationships and/or have relatively unconventional views on family obligations. People who have stronger commitments to their relationships and/or who have more traditional views on family obligations tend to be more attracted by marriage. Consequently, cohabiters on average tend to express less commitment to their relationships and in general be more accepting than married people of terminating intimate relationships. These selection effects can explain much of the difference in the likelihood of union disruption between cohabiters and married people (Balakrishnan et al. 1987; Bennett et al. 1988; Teachman et al. 1991; Thomson & Colella 1992; Axinn & Thornton 1992; DeMaris & Rao 1992; DeMaris & MacDonald 1993; Lillard et al. 1995; Berrington & Diamond 1999; Liefbroer & Dourleijn 2006).

In addition to distinguishing between unions built on cohabitation and marriage, I also distinguish between marriages in which the wife has experienced unmarried cohabitation and those in which she has not. Several studies have shown that marriages in which one or both partners have experienced unmarried cohabitation are more likely to end in divorce than those where the partners have not experienced unmarried cohabitation, regardless of whether they had cohabited with the partners to whom they are married, or to other partners (Balakrishnan et al. 1987; Bennett et al. 1988; DeMaris & Rao 1992; Haskey 1992; Hoem & Hoem 1992; Trussell et al. 1992; Bracher et al. 1993; Manting 1994; Hall & Zhao 1995; Lillard et al. 1995; Berrington & Diamond 1999; Teachman 2003; Kamp Dush et al. 2004; Amato 2010 – although see Schoen 1992). This can mainly be explained by the same selection effect that explains why cohabiters are more prone than married people to break up their unions. Married women and men who have experienced unmarried cohabitation tend to be less committed to their relationships and have less traditional
views on divorce than married woman and men who have not experienced unmarried cohabitation (Balakrishnan et al. 1987; Bennett et al. 1988; Teachman et al. 1991; Thomson & Colella 1992; Axinn & Thornton 1992; DeMaris & Rao 1992; DeMaris & MacDonald 1993; Lillard et al. 1995; Berrington & Diamond 1999; Liefbroer & Dourleijn 2006; Stanley et al. 2006; Amato 2010). The experience of cohabitation, in short, functions as a proxy both for partners’ degree of commitment to each other and for their general attitudes toward divorce.

Some researchers argue that the cohabiting experience in itself has an additional positive effect on the likelihood of future divorce, because people who cohabit tend to rationalize their lifestyle and experiences by adapting less traditional values (Booth & Johnson 1988; Thomson & Colella 1992; Axinn & Thornton 1992). Others have instead argued that the cohabiting experience should reduce the likelihood of divorce, by weeding out bad unions before marriage (Brüderl et al. 1997; Brüderl & Kalter 2001). Even if the effect of the experience of cohabitation on the likelihood of divorce is negative, however, it is clearly dominated by the selection effect, as numerous studies show that the experience of cohabitation increases married individuals’ likelihood of divorcing.\textsuperscript{58}

The resulting categorization of union instability distinguishes between three types of unions, with union stability being higher for each category: i) unions built on cohabitation, ii) marriages in which the woman has experienced unmarried cohabitation, and iii) marriages in which the woman has not experienced unmarried cohabitation.

In addition, I also distinguish between unions according to how many children the woman in the union has had. Previous research has shown that unions that result in children tend to be more stable than unions that do not, especially when the children are young (Teachman et al. 1991; Bracher et al. 1993; Hall & Zhao 1995; Lillard et al. 1995; Andersson 1997; Berrington &

\textsuperscript{58} It should be noted that some studies (e.g., see Schoen 1992 and Liefbroer & Dourleijn 2006) argue that this phenomenon is not universal and that former cohabiters do not have a lower likelihood of divorce than those who have never cohabited in some countries (especially those with “average” levels of cohabitation). However, these results do not necessarily threaten the operationalization of union instability used in this study. The reason is that the mentioned studies control for the duration of the total union (including the time married women and men have cohabited prior to their marriage), whether parents have experienced a divorce, and the age at the start of the union. Due to a limitation of data, my study does not control for these factors, which have all been proven in previous research to increase the likelihood of union dissolution. Because they are all positively correlated with unmarried cohabitation prior to marriage (especially the first and last factors), some of the effects of these variables are captured by my operationalization of union instability. Thus, the experience of cohabitation is very likely to be positively associated with the likelihood of union dissolution in my data set even if the association in fact would have turned out to be spurious if more control variables had been used in the regressions.
Diamond 1999). One reason for this is that it is mainly stable unions that result in children. Another reason is that children tend to increase the value of a union, and in that way increase the incentives to stay in the union (and also increase the cost of dissolving it). The distinction made above, therefore, is likely to be a better indicator of union instability the fewer children a woman has. It is likely to be most valid for childless women and then decline in validity for each child that a woman has.

Although it might seem crude, my operationalization of union instability has the advantage of summing up many of the factors that have been proven to affect union instability in previous research. First, it is to a large extent identical with the distinctions made between different kinds of unions in the Second Demographic Transition literature. Thus, it neatly sums up the influence of a range of ideational factors that have been proven, or argued, to affect the likelihood of union disruption. It is also easier to identify and statistically handle the resulting categorization of demographic behaviors than it would be to handle all ideational and relational indicators of union instability individually.

Second, it is possible to link the categorization with several economic factors that have been shown, or argued, to affect union instability. In addition to the factors mentioned above (that it is less costly to break up unions built on cohabitation and that children increase the value of a union), cohabitation has also been shown to be positively associated with women’s labor force participation (Kalmijn 2007). Women’s labor market attachment has been shown to be positively associated with the likelihood of union disruption in many studies (e.g., see Bracher et al. 1993; South 2001; Teachman 2002; Kalmijn 2007).

Although the associations described above have been proven in previous research, in Chapter 6 I show that they are also reflected in the data set used in this study. The likelihood of women cohabiting is closely associated both with women’s value orientations (religiosity) and their economic independence (labor force participation).

In addition to its close proximity to ideational and economic factors that have been proved to affect union instability, my operationalization also has the advantage of focusing on observed demographic behavior. Individuals who choose to cohabit, regardless of whether they choose to marry later on, by their choice reveal a willingness to break traditional norms. In a similar way, individuals who choose to marry before they move in with their partners demonstrate a readiness to adhere to traditional norms. In short, the choice of family form, in a very direct way, reveals an individual’s willingness to break from or adhere to traditional norms regarding family life. Other factors that
are commonly used to predict union instability, for example, women’s labor force participation and church attendance, do not do so in such a direct way. One example of this is that almost half of all women work, even in countries such as Italy, Spain, Greece, and Ireland, in which divorce is almost unheard of. In contrast, very few women cohabit or have experienced unmarried cohabitation in such countries. Although both the cohabitation rate and the female labor force participation rate correlate highly with the divorce rate, the cohabitation rate, thus, seems to better track the actual level of the divorce rate.

This close association between the cohabitation rate and the divorce rate is not surprising. Most theories assume various types of norm-breaking family behavior to reflect responses to similar underlying ideational and/or economic conditions. Observed norm-breaking behavior in one area of family life, such as cohabitation, is therefore likely to be closely associated with norm-breaking behavior in other areas of family life, for example, divorce. An individual who has chosen to break traditional norms of family behavior once is likely to do so in the future, also. Cohabitation and past experience of cohabitation are therefore likely to be better indicators of union instability than indicators that are supposed to more directly measure the numerous ideational and economic factors that have been suggested to be the ultimate source of union instability. At least they are so as long as the latter indicators do not very accurately capture the dimensions they are supposed to capture.

This conclusion is emphasized by the fact that the previous research has found demographic factors (i.e., observed demographic behavior) to be more important than socioeconomic factors in predicting divorce. Cohabitation and past experience of cohabitation, together with the number and age of children, are among the most important such factors. Only the age at the start of the union, parents’ experience of divorce, and the duration of the union are predictors of similar importance. Cohabitation, the experience of cohabitation, and the number of children a woman has had are, in short, among the most reliable predictors of union instability available.

Unfortunately, the latter indicators are unavailable in the data set I use (see below). They are, however, all positively associated with cohabitation and past experience of cohabitation, and therefore much of their effect on the likelihood of divorce is captured by my operationalization of union instability. Cohabiting unions tend to start at younger ages than marriages, and individuals whose parents have experienced a divorce are more likely to cohabit than those people whose parents have not divorced. Marriages in which at least one partner has experienced unmarried cohabitation also tend to have lasted a shorter time than marriages in which neither partner has cohabited (for the simple reason that many of the marriages in which the partners have cohabited started out as cohabiting unions).
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To measure union instability there is, thus, a need for data on how many children a woman has had, whether she cohabits, is married and has cohabited, or if she is married and has not experienced unmarried cohabitation.

Although cohabitation and past experience of cohabitation are very good proxies for union instability, there is one theoretical problem with interpreting their possible effects as effects of union instability proper. This problem is that cohabitation and past experience of cohabitation do not represent only an increased likelihood of union disruption, they also represent all the values, traits, and experiences they are assumed to sum up. This makes it difficult to tell with certainty whether the found effects really are effects of the likelihood of union disruption. In theory, the effects could also be caused by other factors associated with the values, traits, and experiences in question. This ambiguity is, unfortunately, unavoidable. The results presented in the following chapters are therefore potentially open to other interpretations than the story I tell. However, in the absence of a better story, I hold mine to be the most credible.

The generosity of dual-earner policies

To qualify as a dual-earner policy a family policy should reduce the individual costs of reproduction by helping parents combine work and family responsibilities. In other words, it should make marital-specific human capital investments in children less costly, or unnecessary. To be more specific, dual-earner policies should compensate parents individually for the forgone earnings and lost human capital accumulation that having children entails, without forcing the parents to neglect their children’s need for care. To the extent that parents need to provide care for their children, dual-earner policies should compensate them individually for their forgone earnings. Otherwise, dual-earner policies should strive to make it easier for the parents to work, in order to minimize their forgone earnings and loss of human capital accumulation. To sum up, dual-earner policies should help parents maintain the income and earning prospects they had before they had children (i.e., eliminate the family gap between women’s and men’s wages; see Waldfogel 1998b), without making their children suffer.

For reasons discussed in Chapter 4, only two policies live up to these criteria: paid parental leaves with high (wage-related) replacement rates, and subsidies for high-quality child care. In theory, the provision of part-time jobs also helps parents combine work and child-care responsibilities. Despite

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60 My definition of dual-earner policies is close to Gornick & Meyers’ (2004) definition of “dual-earner/dual-carer” family policies. The emphasis is as much on how policies affect children’s well-being as on how they affect parents’ ability to combine work and family duties.
this, I have chosen not to count it as a dual-earner policy. The reason is that the availability of part-time jobs is not entirely up to the state, but also depends on private actors in the labor market. Thus, the availability of part-time jobs is not necessarily a good indicator of the generosity of government policies. It could also reflect factors outside government control, such as the willingness and ability of private employers to provide part-time jobs. Part-time employment has also been shown to contribute to the wage penalty women experience when having children (Waldfogel 1997). Because of this, I have chosen to treat the provision of part-time jobs separately from other dual-earner policies.

An important issue that arises when trying to measure the generosity of dual-earner policies is whether to measure the generosity of policies individually or to estimate the policies’ combined generosity. I have opted for the latter solution. Family policies tend to come as parts of comprehensive family policy packages (Gauthier 1996, 2002; Sainsbury 1996; Korpi 2000; Esping-Andersen et al. 2002; Gornick & Meyers 2004; Engster & Olofsdotter Stensöta 2011). The generosity of individual policies in such packages says something about how much the policies reduce the individual costs of reproduction in a country. However, to get the complete picture it is necessary to estimate how the combined generosity of all policies in the package affects the costs of different work-care strategies. This is because policies affect each other’s value.

For example, some policies can reduce the value of other policies. Parents who choose to put their children into state-provided child care, for example, cannot use parental leave benefits for the time they do so, and vice versa. As a consequence, the combined generosity of policies is often lower than the generosities the individual policies seem to indicate taken separately. This fact often makes it difficult to measure how generous individual policies really are. For example, Denmark, which offers parents relatively short paid parental leaves, compensates parents by providing them with affordable high-quality subsidized child care. As a consequence, child-care enrollment rates are extremely high in Denmark. In Sweden, which offers parents longer paid parental leaves, parents can stay home for a couple of months more and thus

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61 It has been argued that the provision of part-time jobs is a strategy that implicitly assumes spouses to agree to a traditional division of labor and therefore should be characterized as a breadwinner policy and not a dual-earner policy (e.g., see Waldfogel 1997 and Gornick & Meyers 2004). Despite this criticism, I primarily see the provision of part-time jobs as a kind of dual-earner policy. The reason is that it reduces the individual costs of reproduction. It does not do so entirely, but neither do paid parental leaves nor subsidized child care. The difference between these latter policies and the provision of part-time jobs is in practice a question of the degree of compensation that the policies offer. In some cases, the latter policy actually offers parents better compensations than the former policies for the individual costs of reproduction.
do not need to use child-care facilities to the same extent as Danish parents. This has led to child-care enrollment rates that are lower than those in Denmark. On the basis of these differences in child-care enrollment rates it could be tempting to conclude that Denmark has more generous child-care subsidies than Sweden. However, in reality Swedish child-care subsidies are likely to be nearly as generous as the Danish ones. A more reasonable interpretation of the statistics is that Swedish parents prefer to use their longer parental leaves instead of sending their children to child-care centers.

Although parents, because of the different policy incentives, follow somewhat different work-care strategies in Denmark and Sweden, the individual costs of reproduction are likely to be rather similar in both countries. The fact that Swedish parents choose to stay at home a couple of months more than Danish parents is not likely to have a profound impact on their experienced costs of reproduction. Thus, family policy packages that include different individual policies can offer parents similar degrees of compensation for the individual costs of reproduction.

Family policies do not necessarily need to overlap. They can also complement each other so that their total value becomes greater than it would be if each policy were to stand by itself. The reason is that individual policies can be rendered useless if they do not come as part of a larger package of policies that complement them. A drastic example would be a country that had very generous subsidies for child care, but at the same time did not offer parents the right to parental leave. In such a country, parents would need to quit their jobs to be at home with their children. However, if they did that, they could not use the generous child-care subsidies offered by the state. Although no country supports such policies in reality, the example clearly illustrates how dual-earner policies are dependent on each other for their value. Mothers have also been argued to face fewer career disruptions in countries in which they can make a smooth transition from a paid parental leave to public child care services (Gornick et al. 1997; OECD 2007).

This interdependence makes it important to measure the combined generosity of dual-earner policies – that is, paid parental leaves and subsidies for child care. To do so I have constructed a dual-earner index, which measures the combined generosity of paid parental leave and subsidies for child care during a child’s first three years of life. The reason for focusing only on the child’s first three years is that an overwhelming majority of the children above the age of three in Europe are enrolled in professional child care (OECD 2007). It is those dual-earner policies affecting the child’s first three years of life that are most varied in terms of their generosity.
The generosity of parental leave benefits is calculated by multiplying the length of the parental leave (in number of weeks, with an upper limit of 52 weeks) with its replacement level (in percentage of the average wage). The product is then divided by 52 (the maximum number of weeks that a leave can have, according to how I count it). The resulting figure represents the percentage of her wage a woman receives (with the assumption that she earns 100 percent of the average wage in a country) if she stays at home with her child for one year.\textsuperscript{62}

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\text{Generosity of parental leaves} = \text{Replacement rate (in \% of average income)} \times \text{Duration (in weeks divided with 52 (maximum 52))}
\]

The reason for limiting the time period to a year is that longer parental leaves have been shown to reduce women’s labor force participation and incur huge losses of human capital accumulation (Gornick & Meyers 2003). It could, because of this, be questioned whether the provision of parental leaves that go beyond one year really should be defined as a dual-earner policy. I have chosen not to do so. In practice, this has the consequence of decreasing the value of long low-paid parental leaves. Very few highly paid parental leaves extend for more than a year, and those that do seldom go more than a month or two beyond the one-year period. The largest consequence of my limitation, therefore, is to disqualify low-paid parental leaves from being counted fully as dual-earner policies. The kinds of long low-paid maternity leaves that can be found in countries such as Austria and Germany, which sometimes offer compensations for more than three years, are only counted during the first year they offer compensation. Additional years are not counted.

The generosity of subsidized child care is measured by two dimensions: availability and cost (or rather how much the state reduces the cost). The availability dimension is measured as the percentage of 0- to 3-year-old children in child care in a country. The cost dimension is measured by how much

\textsuperscript{62} Thus, I assume that parents do not share the cost resulting from that one of them (usually the woman) take up parental leave. This assumption is questionable as it is not unreasonable to expect parents to share the income shortfall resulting from one of them taking up parental leave. However, from a substantial point of view it does not matter much which assumption we use when calculating the degree of compensation parental leaves offer. The two assumptions lead to versions of the dual-earner index that correlate as highly as .98.

\textsuperscript{63} An alternative strategy would be to follow Morgan and Zippel (2003) and others and exclude low paid and flat rate parental leaves of long duration entirely from the equation. However, although such leaves do not offer the same degree of compensation as wage related parental leaves they nonetheless offer mothers some compensation. Thus, the difference between the two types of leaves is a matter of degree. Because of this, I have chosen to follow a less radical strategy than the one adopted by Morgan and Zippel.

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a couple, earning 100 percent and 67 percent of the average wage, retain (in percent) of their wage after paying for having one child in child care. The availability and the cost dimensions are then multiplied. The resulting figure represents the percentage of children between the ages of 0 and 3 attending publicly financed child-care facilities and the degree to which their places are financed by the state. In other words, it indicates how much the state reduces parents’ forgone earnings in a country by offering them affordable, high-quality child care.

Generosity of subsidized child care = (100 – Cost in % of a typical family’s wage) * (Coverage: % of 0- to 3-year-old children in child care)

The reason for calculating what it would cost a family to put their child in child care instead of calculating what it would cost a single parent to put his/her child in child care is that most children, including those in unstable unions, during their first three years live with their parents. I assume that parents share the cost of their children’s child care during this period. This means that the resulting figure also indicates how much child-care policies reduce the average family member’s forgone earnings during the child’s first years of life.

In a final stage, the parental leave index and the child-care index are combined into a single index. In this combined “dual-earner index,” the child-care index is given three times the weight of the parental leave index. This is to account for the fact that the parental leave index only measures how much dual-earner policies reduce the cost of forgone earnings during a child’s first year, whereas the child-care index measures how much policies reduce the costs of forgone earnings during the child’s first three years. The sum is then divided by 3 to estimate the yearly compensation rate offered to parents.

Generosity of dual-earner policies = (Generosity of parental leaves + generosity of subsidized child care + generosity of subsidized child care + generosity of subsidized child care) / 3

The resulting figure represents how much compensation, in percent, the state offers parents for their forgone earnings during the first three years of a

64 If we instead assume that parents do not share the cost, and construct an index based on the assumption that one parent has to pay the entire cost of his/her children’s child care, the generosity of the dual-earner index declines. However, the resulting index correlates highly (0.98) with the index used throughout the study, why it is not likely that the results would have changed had this alternative way of calculating the cost been used.
child’s life. The interdependency of policies is accounted for by the fact that less generous paid parental leaves can be compensated for by high child-care enrollment rates and vice versa. The high Danish child-care enrollment rates, for example, likely depend in part on Denmark’s offering parents relatively few weeks of paid parental leave (in relation to what the most generous countries offer parents). In estimating how dual-earner policies affect women’s forgone earnings it is the sum of the two policies that is interesting, not the relative generosity of parental leave and child care policies.\textsuperscript{65}

The dual-earner index only measures how much dual-earner policies compensate parents for their forgone earnings during the child’s first three years. It does not directly measure the extent to which dual-earner policies prevent parents’ loss of human capital accumulation. Neither does it directly measure the degree to which dual-earner policies increase children’s well-being by making it affordable for their parents to be at home with them during their first year of life. Child-care enrollment rates, however, reveal the extent to which parents work and could afford to work. Similarly, the generosity of paid parental leaves gives a hint of how long parents can afford to stay at home with their children if they want to. Thus, the degree to which dual-earner policies prevent human capital losses and make it affordable for parents to be at home with their children is likely to be highly correlated with the generosity of the dual-earner index. The only thing the index does not capture is the relative importance of preventing the loss of human capital accumulation and making it affordable for parents to be at home with their children. However, assuming that it is important that policies do both, the dual-earner index is likely to approximate all dimensions of the generosity of dual-earner policies rather well.

No index quite like the dual-earner index has been used in the previous research on the effect of policies on fertility. However, the indicators that make up the index (the generosity of paid parental leaves and the provision and cost of child care) have been used individually in several other studies (e.g. Castles 2003; Kögel 2006). In addition, various indexes measuring the combined generosity of dual-earner policies have been used in studies on other topics (e.g. Korpi 2000; Engster & Stensöta 2011). Two differences between my index and previously used “dual-earner indexes” should be emphasized. First, I give the child-care indicator three times the weight of the parental leave indicator. Other studies tend to give both indicators equal

\textsuperscript{65} This is not entirely true as most parents likely want to be at home with their children for some time and work some time during their children’s first three years of life. In the extreme case where a country does not offer parents any paid parental leave, or does not offer them any subsidized child care, the relative generosity of policies is therefore likely to matter greatly. However, such extreme cases do not exist in the data.
weight (e.g. Engster & Olofsdotter Stensöta 2011), even though subsidies for child care reasonably reduce the costs of reproduction considerably more than paid parental leave does. Parental leave with a high replacement rate is seldom paid for more than a year, whereas subsidized child care is provided for several years. I argue that the fact that I account for this makes it likely that my index gives a better picture of the combined generosity of paid parental leave and subsidized child care than alternative calculations used in the previous research. Second, previous studies have tended to focus only on the coverage of child care, whereas the cost dimension is often neglected (e.g. Korpi 2000; Castles 2003; Kögel 2006). I argue that this neglect of the cost of child care could distort the picture of how generous government child-care subsidies are. A realistic estimate of how much subsidized child care reduces the costs of reproduction should include the cost of purchased child-care services as well as its availability (however, in reality the two dimensions are highly correlated). Overall, the dual-earner index is therefore likely to better capture the generosity of dual-earner policies than alternative indexes used in the previous research.

66 It should be noted that the dual-earner index builds on a combination of the degree of compensation that states offer parents and the degree to which parents choose to use the compensations offered by the state. The parental leave component is based on the degree of compensation that states offer parents. Parents do not necessarily need to use this compensation fully. For example, parents in a country that offers parents one year of fully paid parental leave could choose to take only six months of leave and leave the other six months unused. The child-care component, in contrast, is partially based on the degree to which parents actually use state-subsidized child care, as it counts the number of children actually enrolled in child care. Although it might seem wrong to compare theoretical maximums with the degree to which parents use the theoretical compensations offered to them in this way, the problem is smaller than it appears. The reason is that enrollment rates in child care among children under three years old in many countries is partly a function of the degree to which parents choose to use their right to paid parental leave and vice versa. In countries with generously paid parental leaves, the natural alternative to using subsidized child care is to use the right to paid parental leave, as all other alternatives would be immensely costly. Therefore, it can be assumed that parents actually use close to the theoretical maximum of paid parental leave for which they are eligible in countries with generous dual-earner policies. However, it is possible that the generosity of the dual-earner index can be somewhat overestimated in countries in which the generosity of paid parental leave is low, where other options (such as working part-time or having grandparents care for the children) might be economically preferable.
Figure 5.1, which illustrates the average generosity of dual-earner policies in the years 2002–2005, shows that the generosity of dual-earner policies varies considerably between countries. Denmark, Norway, Sweden, and Iceland implement the most generous dual-earner policies, with replacement rates over 65 percent. In second place are Belgium, France, and Finland, with replacement rates between 40 and 50 percent. The least generous dual-earner policies are found in Southern and Central Europe, where replacement rates range between 10 and 30 percent. The average replacement rate in the sample is 34 percent. In no country except Denmark, in which the replacement rate is 86 percent, are dual-earner policies so generous that they replace almost all of the parents’ forgone earnings.

To account for the phenomenon of decreasing returns I use the log of the dual-earner index in all statistical analyses presented in the following chapters.
The generosity of family benefits

The generosity of family policies that are not defined as dual-earner policies is measured by a “benefits index.” This index measures the combined generosity of family benefits, tax cuts, and other monetary transfers to families with children—that is, all policies that aim at increasing the budgets of families with children. Although, family benefits, tax cuts, and transfers to families with children can be differently structured in different countries, with the most obvious difference being that family benefits are also paid in the event of a divorce whereas joint taxation does not contribute to single parents’ economic well-being, I have chosen not to measure them separately. There are two reasons for this. First, family benefits and joint taxation are policies that aim to increase families’ budgets without increasing the labor force participation of mothers. Although the two policies work differently in the event of a divorce, they do not help women retain their economic autonomy during the time they stay in their unions. Even to the extent that family benefits help women economically in the event of a divorce, they do not assure them anything near the same degree of economic compensation as dual-earner policies. In no country in Europe do family benefits reach close to the replacement levels offered by generously paid parental leaves and generous subsidies for child care. This, of course, does not prevent them, in combination with dual-earner policies, from contributing to lone parents’ economic well-being. But it does hinder them from providing lone parents with an income guarantee in the absence of generous dual-earner policies. For that reason I equate family benefits with joint taxation benefits.

Second, and equally important, the generosity of family benefits and taxation schemes for families in which both spouses work is highly correlated with the generosity of family benefits and taxation schemes for families in which the wife does not work (R .75). Both seem to reflect a policy dimension of being generous toward families with children by offering them benefits and tax cuts. Given the small number of countries available for testing my hypotheses (see below), I have chosen to use just one of them to measure the generosity of family benefits.

The resulting benefits index measures the generosity of child benefits and tax cuts for families in which both parents work. It is calculated by comparing the income of a typical family with children with that of a similar family without children. My typical family consists of two parents and two children under the age of six, in which one parent earns 100 percent, and the other 67 percent, of the average wage. This family’s total income, including family benefits and tax reductions, is then compared to that of a similar family without children using OECD’s tax-benefits calculator. The resulting difference
in income between the two family types, measured in percent, constitutes the benefits index. Similar indexes have been used in several studies on the impact of family policies on fertility (e.g., see d’Addio & d’Ercole 2005 a and b; Ferrarini 2006).

Even though the generosity of family benefits for families with children in which one partner does not work correlates highly with the generosity of family benefits for families with children in which both partners work, the former families, as a general rule, receive more family benefits and experience more generous tax cuts than the latter families in most countries in Europe. Thus, the actual level of compensation that states offer families with children is not necessarily equivalent to the level of the benefits index, even though it is highly correlated with it. However, the relative ranking of how generous family benefits are in different countries is not likely to be affected by this.

Figure 5.2. The generosity of family benefits, tax cuts, and other transfers for families with children

Comments: The graph illustrates the average generosity of the benefits index 2002–2005. The source of all data is OECD’s tax-benefits calculator.
Figure 5.2, which illustrates the average generosity of family benefits in the years 2002–2005, shows that the generosity of family benefits, tax cuts, and transfers for families with children varies considerably between countries. The most generous family benefits are found in Central European countries, with Luxembourg, Hungary, Belgium, Austria, and Germany being the most generous. All of these countries offer families with children in which both parents work family benefits, tax cuts, and transfers at a value that corresponds to more than 10 percent of the families’ income. Most other countries offer families benefits, tax cuts, and transfers that correspond to between 5 and 10 percent of families’ incomes. The average compensation rate in the sample is 7 percent. The correlation between the generosity of the dual-earner index and the generosity of the benefits index is a mere .17. Nordic countries, which implement the most generous dual-earner policies, for example, only offer parents family benefits of average compensation.

The compensation rates offered by the benefits index, which range between 1 to 14 percent, are considerably lower than the replacement rates offered by dual-earner policies, which range from 12 to 86 percent. However, it should be remembered that family benefits, tax cuts, and transfers are paid for a longer period than dual-earner policies. The dual-earner index only measures how generous dual-earner policies are during a child’s first three years. Although child-care subsidies are paid for a longer time period, they cease to be paid when children start school at the age of six or seven. In contrast, child benefits are often paid until children turn 18. Thus, the lower compensation level of the benefits index is more generous than it might first seem. The compensation levels of the two family policy indexes therefore cannot be directly compared.

In the statistical analyses presented in the following chapters I use the log of the benefits index to account for the phenomenon of decreasing returns.

The availability of data and its implications for the study’s design

Two important issues about the availability of data arise when trying to test the hypotheses presented in Chapter 4. The first is that there is limited data available on the provision and cost of state-subsidized child care. For most countries there is reliable data for these policy dimensions for only a few years after the year 2000. The existing data also shows little variation over time. This lack of data strictly limits the time frame and methods that can be used for testing the argument. More specifically, the time frame of the study is limited to the years 2000–2008.
The second issue is that there are relatively few data sets that provide the comparative individual-level data needed for testing the hypotheses. This is particularly true for the years for which child-care data is available. The Family and Fertility Surveys and the European Community Household Panel that have been used in most recent research on demographic behavior in Europe, for example, date from the early and late 1990s respectively and therefore cannot be used together with the available child-care data. To my knowledge, only one data set provides suitable individual-level data on women’s union and fertility histories for a large number of countries for the years for which child-care data is available: the second and third rounds of the European Social Survey (ESS).

The ESS is “an academically-driven social survey designed to chart and explain the interaction between Europe’s changing institutions and the attitudes, beliefs and behavior patterns of its diverse populations,” with the objective of “providing conceptually well-anchored and methodologically bullet-proof data on changing social attitudes and values with optimal comparability” between countries (http://www.europeansocialsurvey.org/). Although not intentionally designed for fertility studies, the second and third rounds of the ESS contain representative data from more than 20 European countries on women’s union statuses, fertility histories, and (to a limited extent) union histories as well as important control variables.

Although it is the best data set available for testing the hypotheses presented in Chapter 4, the ESS comes with some problems. First, it contains limited information on women’s union histories and even less retrospective information on some important control variables. As a consequence the event-history analytical techniques that are usually preferred in demographic analyses cannot be used. It does not, however, render all types of causal tests impossible. For example, the data contains enough information for mapping some of the most important aspects of women’s union histories at least a few years back in time. This information is enough for constructing a panel that can be used for testing how union instability and the generosity of dual-earner policies shape fertility outcomes (see Chapter 8 for more details). The hypotheses relating to the likelihood of women living in stable unions and unstable unions can, however, only be tested indirectly by a footpaths model, similar to that used in the research on the SDT. In other words, it is only possible to trace the patterns that could be expected, given the hypotheses, by mapping correlations between policies, individual characteristics, and union statuses in cross-sectional data. Although this seems to constitute a problem for the validity of the results presented below, I argue in Chapters 6 and 7 that the problem is not as huge as it might seem at first sight. This is due to
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the relative stability of family policy regimes. Most European countries have until very recently implemented family policies with roots that are decades old. Family policy regimes, in other words, have long been path-dependent.

Second, the ESS only contains data from European countries. Developed countries outside Europe are not included. This fact limits the generalizability of the study somewhat. At the same time, it also makes comparisons between the countries that are included in the study more valid. The reason is that professional child care in European countries is mainly provided by the state, whereas professional child care is often bought in the market in Anglo-Saxon countries outside Europe (OECD 2007). Although state-provided and market-bought child care fulfill similar needs, it is more difficult to estimate the cost and availability of the latter due to the fractured nature of the market. In the latter countries, the availability and costs of child care also reflect factors other than government policies. The dual-earner index, therefore, constitutes a more reliable measure of the generosity of dual-earner policies in countries in which the state is the main provider of professional child care.

These problems notwithstanding, the ESS provides the best comparable individual data on a range of demographic behaviors in Europe for the years for which child-care data is available.

There are only two alternatives to using the ESS in testing the hypotheses in Chapter 4 (for an overview of research strategies for establishing the effect of policies on fertility, see Björklund 2007).67 The first is to use national data sets to compare how individuals time union and fertility decisions in a few countries that differ with respect to how generous their family policies are (for an example of this strategy, see Blossfeld et al. 2005). The problem with such a strategy is that it is hard to control for how important various factors are at influencing the decisions in question. Unless it can be shown that the countries have similar values on all control variables (which is highly unlikely), it simply has to be assumed that eventual differences between the countries can be ascribed to differences in the generosity of the family policies they implement.

The other strategy is to use national data sets to compare how changes in the generosity of family policies within countries affect union and fertility decisions, by comparing how individuals behave before and after the changes take place (e.g., see Lalive & Zweimöller 2005; Milligan 2002, 2005). Although this strategy eliminates the problem that control variables can take on different values in different countries, it still presents the problem that the

67 Cross-section time series studies, for example, cannot be carried out due to the limited availability of data.
value of control variables can vary over time. Thus, it risks leading to biased estimates because of omitted variable bias.\textsuperscript{68}

Another problem is that within-country changes in family policies must be large enough to make a difference for individuals and families. It is unlikely that small adjustments in the generosity of existing family policy packages will have a major effect on union and fertility decisions. Family policy change will have to be radical to make a difference. Even though such radical breaks in family policy can be found in some countries, the within-country variation is nevertheless considerably smaller than the between-country variation. Most countries implement family policies with deep historical roots that fit into coherent family policy packages. They very seldom adopt family policies that do not fit into these policy packages. Family policy reforms tend to take the form of small adjustments of the generosity of long-since implemented policies. As a result, it is likely to be difficult to track any major changes in demographic behavior by investigating policy reforms over time within countries.\textsuperscript{69}

The problems described above can be overcome to some degree by combining the two strategies and studying how a change in family policies in a country affects existing demographic differences between the country and other countries. Such a difference-in-difference strategy can, for example, control for general time trends in demographic behavior that are impossible to control for in single-country studies (e.g., see Björklund 2006).

However, it is as difficult to use control variables when using difference-in-difference strategies as it is when using the abovementioned strategies. Thus, one simply has to assume that changes in demographic behavior can be attributed to the change in family policies. It is not possible to control for changes in other important variables. Another drawback of the strategy is that most family policy changes, as pointed out above, tend to be adjustments to long-established family policy packages and therefore are not likely to cause radical shifts in demographic behavior.

The choice of using the ESS, as mentioned above, also has its problems. The most obvious is that there is little or no variation over time in the gener-

\textsuperscript{68} Similar studies that explore how different samples of women respond to policy reforms that offer different incentives for different groups of women using difference-in-difference strategies are more reliable, although they also suffer from the problem of omitted variable bias (e.g., see Hoem 1993; Hoem et al. 2001; Olah 1998).

\textsuperscript{69} For the same reason, it is difficult to draw conclusions on studies of regional policy variation in countries. The existing regional policy variation is simply likely to be too small in most countries. This could explain why so few studies have found the regional variation in the availability and cost of subsidized child care within countries to have an effect on fertility (e.g., see Kravdal 1996; Hank & Krezenfeld 2003; Andersson, Duvander & Hank 2004).
osity of family policies in the resulting data set. Even in the panel studies, almost all variation is between countries. Although the generosity of policies changes in some countries between the second and third rounds of the ESS, the changes are small. Because of this, the results are mainly driven by the between-country variation. The within-country variation contributes little to the analyses (even though it contributes somewhat to the panel study on fertility). As a consequence, there is a risk that the effect of family policies is confounded by unobserved country characteristics that affect demographic behavior. The found demographic patterns could, for example, reflect cultural or other country-specific characteristics. However, there are two reasons for doubting that this is the case. First, in order to confound the results, the unobserved country-specific characteristics must be systematically correlated with the generosity of family policies. If they are not, they cannot distort the results.

Second, it is possible to control for at least some of the cultural and economic traits that are specific to countries and that can be thought to influence union and fertility decisions. This fact decreases the risk of unobserved characteristics affecting the results.

Another problem with using the ESS, with its short time frame, is that the causal relationship between family policies and union decisions cannot be determined with certainty. Correlation does not equal causation in cross-sectional data. The found correlations therefore cannot automatically be assumed to reflect causal relationships. I nonetheless argue that they are likely to do so. The reason is the stability of family policy regimes. Current family policy regimes reflect long-standing differences between countries’ family policies. Family policy patterns have only started to change significantly in the last ten or so years. Women are therefore likely to have experienced family policy conditions in the past that are similar to those they experience today.

Causality is not an issue to the same extent in the models of women’s fertility decisions, as the data used for the fertility models is not only cross-sectional in nature, but also contains variation over time. As the fertility models also control for women’s past fertility histories, the results can be given a causal interpretation.

Overall, the choice between using the ESS, with its shortcomings, and other data sets and analytical strategies boils down to which uncertainties to prefer. The choice to use alternative data sets would reduce the problem of finding variation over time. The choice of using the ESS reduces the problem of finding variation between countries. As most previous studies have pre-
ferred the former uncertainties and the advantages that come with them, there is a need for studies that opt for the latter. This is where my study fits in.

The outlines of the study

The empirical study that follows is divided into four chapters, with distinctive themes. Together, they cover all parts of the model that concluded Chapter 4. The theme of the first chapter (Chapter 6) is women’s likelihood of living in unions. More precisely, the chapter asks and answers three questions. First, it asks whether women’s earning opportunities (attachment to the labor market) reduce their likelihood of living in unions (as hypothesis 4 claims). Second, it asks if generous family policies increase women’s likelihood of living in unions (as hypothesis 5 claims). Third, it asks whether generous dual-earner policies mainly increase women’s likelihood of living in unions by increasing the likelihood of women with high earning opportunities living in unions (as hypothesis 6 claims). Due to a lack of data, the hypotheses regarding women’s union formation and union dissolution that were presented in Chapter 4 are not tested directly. Instead, the chapter tests the combined effects of women’s earning opportunities and the generosity of family policies on women’s likelihood of living in unions. The hypotheses tested in the chapter are summed up in Figure 5.3.

Figure 5.3. Hypotheses tested in Chapter 6

Comment: The dashed arrows indicate negative effects.
The theme of the second empirical chapter (Chapter 7) is women’s choice of type of union, with the focus being on how women’s earning opportunities and the generosity of family policies affect the likelihood of women living in unstable unions. Specifically, the chapter asks two questions. First, it asks whether women with relatively high earning potentials are more likely than women with relatively low earning opportunities to live in unstable unions (as hypothesis 7 claims). Second, it asks whether generous dual-earner policies have an independent additional positive effect on the likelihood of women living in unstable unions (as hypothesis 8 claims). It also tests to examine the extent to which religiosity affects the same likelihood. The hypotheses tested in the chapter are summed up in Figure 5.4.

![Figure 5.4. Hypotheses tested in Chapter 7](image)

Comment: The thick arrows indicate positive effects.

The theme of the third empirical chapter (Chapter 8) is women’s fertility decisions. The focus is on how the generosity of family policies and union instability interacts in shaping the likelihood of women experiencing a first-, second-, and higher-order births. Three specific questions are asked. First, the chapter asks whether union instability reduces women’s likelihood of having a first, second, and third child (as hypothesis 1 claims). Second, it asks whether generous dual-earner policies reduce the negative effect of union instability on women’s likelihood of having children of different parities (as hypothesis 2 claims). Finally, it asks whether generous family policies have a direct positive effect on women’s likelihood of having children of different parities (as hypothesis 3 claims). The hypotheses tested in the chapter are summed up in Figure 5.5.
The aim of the fourth empirical chapter (Chapter 9) is to validate the findings of Chapter 8 by investigating how the generosity of family policies and union instability shape women’s fertility plans. The questions posed in the chapter are identical to those in Chapter 8, with the exception that the dependent variable is not women’s likelihood of having a child, but their likelihood of planning to have a child in the future. Because of the similarity with the questions in Chapter 8, the hypotheses tested in the chapter are summed up in Figure 5.5.

**Figure 5.5. Hypotheses tested in Chapters 8 and 9**

![Diagram](image)

Comments: Dashed arrows indicate negative effects. Thick arrows indicate positive effects.

In addition, Appendix A explores the link between the generosity of dual-earner policies and women’s, and then especially mothers’, labor force participation (see Figure 5.6).

**Figure 5.6. Hypotheses tested in Appendix A**

![Diagram](image)

Comment: Thick arrows indicate positive effects.
Together, the four chapters and the Appendix A make up the empirical part of the study. More specific discussions of the design of the studies and variables used in the chapters are included in each chapter.

The findings of the empirical chapters are wrapped up and put in a larger perspective in a concluding chapter. However, all findings and their direct theoretical implications are briefly discussed in the empirical chapters. The order of the chapters has been decided by the normal ordering of events as they take place. Usually, a woman first decides on whether to live with a partner and how to do so. Then she decides whether she wants to have children with her partner. Of course, the order of events is different in some cases. More important, the decisions are intertwined with each other (indeed, that is one of the main thrusts of this study). However, the chapters have to be ordered, and the usual ordering is the one that comes most naturally to mind.
The likelihood of women living in unions

Women form unions at different ages and rates in European countries. In Chapter 4, I argued that these patterns can be explained by the generosity of family policies. The aim of this chapter is to test my argument. In the first part of the chapter I briefly repeat the argument and the empirical implications following from it. Next, I examine aggregate union formation patterns and their association with family policies. Then, I discuss method and data for testing the argument on individual-level fertility data. I then go on to test how family policies are associated with the likelihood of women living in unions, based on individual-level data from rounds 2 and 3 of the European Social Survey. I conclude with a brief discussion of the results and their implications.

Hypotheses

I argued in Chapter 4 that union formation decisions are intimately related to fertility decisions and that, because of this, it is reasonable to expect a negative association between women’s earning opportunities and their likelihood of living in unions. Hence, we should expect that:

\[ H4. \text{ Good earning opportunities for women should reduce their likelihood of living in unions.} \]

Because family policies, and especially dual-earner policies, can reduce the opportunity costs of reproduction (i.e., the main obstacle to union formation following from women’s earning opportunities), I also argued that:
H5. Generous family policies (especially, generous dual-earner policies) should increase the likelihood of women living in unions.

Given that dual-earner policies’ positive effect on women’s union formation is dependent on women’s earning opportunities, I finally proposed that:

H6. Generous dual-earner policies should mainly increase the likelihood of women living in unions by increasing the likelihood of women with good earning opportunities living in unions.

One of the most used indicators of women’s earning opportunities is their attachment to the labor market. Thus, it follows from the three hypotheses above that:

• All else being equal, we should expect women who participate in the labor force or intend to do so – to be less likely to live in unions than women outside the labor market (H4).
• All else being equal, we should expect women in countries with generous family benefits and generous dual-earner policies to be more likely to live in unions than women in countries with less generous family policies (H5).
• All else being equal, we should expect women with who participate in the labor force or intend to do so – to be more likely to live with partners in countries with generous family policies. In other words, we should expect the difference in the likelihood of living in unions between women who do and who do not participate in the labor market to be smaller (or even non-existent) in countries with generous family policies (H6).

Below I test whether these implications can be verified. I start by exploring aggregate union patterns and their association with dual-earner policies.

Aggregate union patterns
The expected negative association between the female labor force participation rate and the percentage of women in unions (H4) does not manifest itself in aggregate union patterns. In fact there is a strong positive bivariate association (Pearson’s R .50) between the log of the female labor force participation rate and the percentage of women in unions (results not shown). For
some reason, women’s earning opportunities seem positively associated with their likelihood of living in unions.

However, as expected, the log of the dual-earner index correlates well with the number of women, aged 18 to 45, in unions (Pearsons R. 58). Relatively many women of childbearing age are living in unions in countries with high scores on the dual-earner index (see Figure 6.1 below). In Denmark, for example, which scores 4.5 on the logged dual-earner index, over 70 percent of the women aged 18 to 45 live in unions. In contrast, only 55 percent of the women in the same age category live with partners in Italy, which only scores 3 on the logged dual-earner index. Hypothesis H5, that generous family policies should increase the likelihood of women living in unions, is, thus, partially consistent with aggregate union patterns.

Figure 6.1. The generosity of dual-earner policies and the percentage of women (aged 18–45) in unions

Pearsons R: .58
There is, however, no corresponding strong positive association between the benefits index and the percentage of women living in unions (results not shown), and therefore the hypothesis is only partially confirmed. Aggregate union patterns are, however, consistent with hypothesis H6, that generous dual-earner policies should mainly increase the likelihood of women living in unions by increasing the likelihood of working women and women who are students living in unions. The log of the dual-earner index is strongly positively correlated (R. 76) with the percentage of working women and women who are students living in unions (see Figure 6.2 below), whereas it is actually negatively correlated (R. –18) with the percentage of women outside the labor market living in unions (results not shown). Generous dual-earner policies, in other words, only seem to be positively correlated with the likelihood of working women and women who are students living in unions.

Figure 6.2. The generosity of dual-earner policies and the percentage of working women and women who are students (aged 18–45) living in unions

Pearson’s R. 76

To sum up, while aggregate union patterns do not support H4, they give H5 and H6 some indirect support.

However, the abovementioned correlations do not constitute final evidence on the validity of any of the hypotheses. They do not prove that women’s earning opportunities and the generosity of family benefits are not associated with women’s likelihood of living in unions. Neither do they prove that generous dual-earner policies increase the likelihood of women living in unions. Correlation does not equal causation. Furthermore, the risk of ecological fallacies is huge, especially in the case of bivariate correlations at the country level. The question is how the hypotheses fare in tests with individual-level fertility data.

Data and method
To test my hypotheses, below I estimate multilevel logistic regression models of women’s likelihood of living in unions. The data I use comes from the second and third rounds of the European Social Survey (ESS2 and ESS3) carried out between 2003 and 2006.

Design of the study
Although the ESS provides reliable high-quality data, it has one major drawback: the data it provides is cross-sectional in nature and does not account for variation over time. Hence, it is impossible to identify with certainty how the effects work. The results presented below, therefore, only reveal correlations between the dependent variable and the independent variables. For example, many of the unions in the data were formed years before the dual-earner index was measured. The assumed effect, thus, precedes the cause in many cases. In some cases it precedes it by several years. Thus, it could be doubted whether verifications of the implications above can prove that H4, H5, and H6 are correct. All causal interpretations of the results must be treated with great caution. Despite this, I argue that there are reasons to see verifications of the implications as evidence that the effect goes in the argued direction.

The first reason is that family policy regimes have remained quite stable over time, even though there has been a general trend toward more generous family policies in all regimes in recent years (Gornick et al. 1997; Gauthier 2002; Lynch 2006; Medulders & O’Dorchai 2007; Engster & Olofsdotter Stensöta 2011 – but see Thévenon 2011). Only a few countries – essentially Nordic social democratic welfare states such as Sweden and Denmark – have implemented dual-earner policies on a large scale. These countries, however, have done so consistently for quite a long time. Other countries – especially
BEDROOM POLITICS

liberal welfare states and Southern European welfare states, such as the U.K., Ireland, Spain, Greece, and Italy, to mention some of the most extreme cases – have never implemented generous dual-earner policies. Conservative welfare regimes, such as the Netherlands and Germany, often place themselves somewhere in between these two extremes (Gauthier 1996; Gornick & Meyers 2004, Korpi 2000). Thus the dual-earner index is likely to correlate strongly with, and clearly reflect, long-standing historical between-country variations in family policy regimes. The broad country cluster pattern in spending on family benefits has also remained rather stable over the years. Liberal and Southern European welfare states, such as the U.K., Ireland, Italy, and Spain, have never spent much on family benefits. To the extent that they have been generous, they have only been so toward vulnerable families. In contrast, Central European conservative welfare states, such as Germany and Austria, have always been very generous in granting benefits to families with children. Nordic social democratic welfare states have usually placed themselves somewhere in between these two extremes. Thus, the variation in the generosity of family benefits, which the benefits index measures, is also likely to correlate highly with, and clearly reflect, long-standing historical between-country variations in family policy regimes.

The second reason for supposing the effect to go in the assumed direction is that how women balance between work and family is likely to reflect historical considerations and choices to some degree. Decisions on education, labor market participation, and family formation tend to be taken simultaneously and be path-dependent. Once a woman has invested in an education and started to participate in the labor market, she is likely to experience increasing returns from further investments in education and paid work. Once a woman has chosen to focus on her career instead of on her family, she is likely to stay committed to her choice. Likewise, a family in which the woman has decided on a career as a housewife is likely to benefit from increasing returns if the woman specializes even more in housework. Women who have at some point decided to prioritize their families are, thus, likely to still do so today. Given this, it is likely that the present balance between family involvement and labor market participation reflect past decisions on family and work to some degree.

The third reason for assuming the effect to go in the expected direction is that current union statuses do not only reflect past union formation decisions, they also reflect decisions to stay in unions. It is legally possible for individ-

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30 However, there is considerable heterogeneity within this group, reflecting long-standing differences in national policies. France and Belgium, for example, have historically implemented more generous dual-earner policies than Germany and Austria.

120
uals to unilaterally break up their unions in most European countries (González & Viitanen 2009). Therefore, if the risks and costs of a union outweigh the costs of breaking it up, partners will be more likely to terminate it. This is especially true for cohabiting unions, as they tend to be less costly to break up than marriages (there are not the same legal obstacles to breaking up a cohabiting union as there are to breaking up a marriage). It is, given this, not implausible to interpret individuals’ unions as continually ongoing decisions that it is worth staying with their partners. Such decisions are not only likely to be affected by previous investments in the union, they are also likely to be affected by factors that affect union formation decisions in general. If dual-earner policies affect the latter decisions, by making it less costly to enter unions, they are also likely to affect the former decisions, by making it less costly to continue living in unions. The likelihood of women living in unions is not only a product of women choosing to enter unions; it is also a product of women choosing to stay in unions. Together, these reasons make it realistic to interpret verifications of the implications presented above as tentative evidence that women’s earning

71 Admittedly, as was pointed out in Chapter 4, the generosity of dual-earner policies also reduces the costs of breaking up unions.
opportunities and family policies have the effects that H4 to H6 assume them to have. However, to reduce the risk of temporary fluctuations in the generosity of policies and economic conditions distorting the results, all contextual variables presented below are measured as the average of the values the variables take on during the four years prior to the year in which the respondents were interviewed. This does not solve the problem, but it reduces the influence of yearly fluctuations somewhat. The reason I have chosen to use a four-year period instead of a longer time period is that no reliable data exists, especially for the dual-earner index, for longer time-periods.

The dependent variable
The dependent variable is defined using a dichotomous variable, coded as 1 if a woman is married or cohabits with a partner, and as 0 if she does neither.

Country-level independent variables
The generosity of policies is measured by the dual-earner index and the family benefits index. In addition to the two family policy indexes I also control for three other country-level factors that have been argued to influence union formation or affect the costs of reproduction (which, I argue, affect union formation): namely, the total unemployment rate (as a percentage of the total workforce), the availability of part-time work (as a percentage of the total workforce) and the age on leaving the parental home (as a percentage of all women in the relevant age group in a country who live with their parents).

The association between the unemployment rate and the costs of reproduction – and hence the likelihood of women living in unions – is ambiguous. Insofar as it is women who are affected by the unemployment rate, it is likely to increase women’s incentives to enter and stay in unions. This is because the risk of future unemployment reduces women’s expected earning prospects and, hence, also their expected costs of reproduction. However, to the extent that it is men who are affected by the unemployment rate, it is likely to reduce women’s incentives to enter and stay in unions, because a reduction in men’s earning prospects lowers the expected benefits for women should they invest in children. The fewer men there are with incomes that allow them to establish and support traditional breadwinner families, the harder it will be for women to find men with whom they can establish unions that would allow them to stay at home and raise children. Which of these effects dominates the other is an open question. However, recent empirical research indicates that a high unemployment rate reduces fertility (Adserà
The likelihood of women living in unions.

2004, 2005), so we might expect a similar negative effect on the likelihood of women living in unions.

The availability of part-time work reduces women’s costs of reproduction by increasing their chances to stay in the labor market if they have children. Thus it is likely that the availability of part-time work will be positively associated with women’s likelihood of living in unions.

The age on leaving the parental home is undoubtedly one of the most important factors affecting women’s likelihood of living in unions. Several studies have also concentrated on explaining why young people leave the parental home at such different ages in Europe and to what extent home-leaving patterns are associated with the likelihood of young people entering their first unions (Aassve et al. 2002; Billari et al. 2001; Holdsworth 2000; Mulder et al. 2002; Mulder 2006; Dalla Zuanna 2001; Billari & Liefbroer 2007). The findings of these studies suggest that the age at which adults leave the parental home affects the age at which young people enter into their first unions, but that the effect varies between countries. Although, no study has systematically investigated the relative importance of the age on leaving the parental home vis-à-vis other factors in explaining the likelihood of women living in unions, the expectation is that the average age at which young people leave the parental home will be negatively correlated with the likelihood of women living in unions.

The direct control for the age on leaving the parental home is also likely to account for much of the effect of other variables affecting both the age on leaving the parental home and union formation in general. An example of this is the price of housing, which is likely to both increase the age on leaving the parental home and reduce the likelihood of women living in unions. High housing costs make it costlier for an individual both to establish a single household and to establish a household together with a partner. Youth unemployment, in a similar way, makes it harder for young people to earn the income needed both for living alone and for living together with a partner. To the extent that the age on leaving the parental home is determined by such economic factors, it functions as a kind of general control variable, which indirectly controls also for other important factors affecting the likelihood of women living in unions.

Individual-level control variables
Women’s earning potential is measured by whether the respondent’s main activity during the last week has been paid work or studies, or activities outside the labor market (including looking after children). It is assumed that women who are working and studying have higher earning potentials than
women outside the labor market, because their future earning opportunities are greater than those of women who voluntarily or involuntarily find themselves outside the labor market. Women students have invested heavily in their careers by educating themselves and actually often have more to lose on having children than working women do, as the value of an education often deteriorates faster than the value of working experience (Trussel 1976).

Educational attainment has also been shown to be a good proxy for women’s earning potentials. However, it is likely that much of educational attainment’s value as a proxy for women’s earning potentials will be eaten up by the more direct control for women’s labor market attachment. Nonetheless, it is assumed that women’s educational attainment will be negatively associated with their likelihood of living in unions.

In addition, I control for other individual-level variables that have been argued to influence the likelihood of women living in unions, namely, age, frequency of church attendance, self-estimated religiousness, religious denomination (Protestant, Catholic, Orthodox, other, or none), and whether the respondent lives in an urban or rural area (e.g., see Kalmijn 2007).

Age is assumed to have a positive curvilinear relationship with the likelihood of women living in unions.

The association between the various indicators of religiousness and the likelihood of women living in unions is not straightforward. However, several studies show that religious women marry earlier, and in greater numbers, than secular women (Kalmijn 2007). Thus, if marriage were the only type of union to exist, we should expect a positive association between religiousness and the likelihood of women living in unions. However, religiousness might only affect women’s choice of type of union. In several studies, religiousness has been shown to have a negative effect on women’s likelihood of cohabiting (ibid.), and it is possible that this negative effect takes out its positive effect on their likelihood of marriage.

There are two reasons for assuming that women who live in rural areas are more likely to live in unions than women who live in urban areas. First, housing prices tend to be lower in rural areas than in urban areas. The cost of establishing a household suited for bringing up children is, consequently, relatively low in rural areas (Felson & Solaun 1975). Second, we know from previous studies that women and men who plan to have children tend to move from urban areas to rural areas for various reasons (see Kulu & Vikat 2008 for a review of the literature). Together, these circumstances give us reason to assume that women living in rural areas will be more likely to live in unions than women living in urban areas. Summarized statistics of all variables are provided in
Table 6.1. Summation of variables

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<th>Variable</th>
<th>Observations</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
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<td>.45</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>In paid work</td>
<td>14808</td>
<td>.59</td>
<td>.49</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>In education</td>
<td>14808</td>
<td>.12</td>
<td>.33</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>(log)Dual-earner index</td>
<td>14808</td>
<td>3.31</td>
<td>.55</td>
<td>2.30</td>
<td>4.46</td>
</tr>
<tr>
<td>(log)Benefits index</td>
<td>14808</td>
<td>1.77</td>
<td>.53</td>
<td>0</td>
<td>2.73</td>
</tr>
<tr>
<td>(log)Unemployment rate</td>
<td>14808</td>
<td>1.85</td>
<td>.58</td>
<td>.64</td>
<td>2.93</td>
</tr>
<tr>
<td>(log)Part-time work</td>
<td>14808</td>
<td>2.64</td>
<td>.75</td>
<td>.74</td>
<td>3.82</td>
</tr>
<tr>
<td>(log)Living with parents</td>
<td>14808</td>
<td>1.82</td>
<td>.61</td>
<td>.66</td>
<td>2.78</td>
</tr>
</tbody>
</table>

Comments: Unweighted means. Reference categories in italics. For construction of variables and sources of data: see Appendix C.

Sample restrictions

As my argument focuses on the type of union formation that is relevant for fertility, the sample has been restricted to include only women of childbearing age (i.e., women aged 18 to 45).

In a first stage, the purpose of which is to establish what effect family policies and women’s labor market status have on women’s overall likelihood of living in unions, all women in the relevant age group are included in the models regardless of their labor market status.

In a second stage, I run two new models to account for the problem of endogeneity, which arises from the assumption that generous dual-earner policies not only increase the likelihood of working women living in unions, but also the likelihood of women working.

First, I rerun the models from the first stage without controls for labor market status. The resulting models capture both the direct (supposedly positive) association between dual-earner policies and the likelihood of women living in unions and the indirect (supposedly negative) association between
the two, which depends on the association between dual-earner policies and the likelihood of women in unions working.

Second, I restrict the sample to include only women who do not have children under the age of six and who work or are students. One reason for this restriction is that working women and women who are students are likely to be affected more by the indirect costs of reproduction because of their greater earning opportunities. They are, thus, likely to be more responsive to policy incentives than women outside the labor market.

The reason for including only women who do not have children below school age is that such a restriction avoids the endogeneity problem mentioned above. Dual-earner policies only increase women’s likelihood of working because they make it easier for mothers with small children to maintain their careers. When the children start school, the need for child care is drastically reduced. Appendix A shows that there is no significant association between the generosity of dual-earner policies and the likelihood of women who do not have children below school-age working. This fact makes it possible to avoid the endogeneity problem and separates the two effects from each other by excluding women who have children under the age of six from the models.

Finally, I also run a model of the likelihood of women outside the labor market living in unions. I do so to establish whether the effect of policy variables on women’s likelihood of living in unions differs between working women and women outside the labor market.

Statistical models
For several reasons, I use multilevel modeling to test my hypotheses (Snijders & Bosker 1999; Raudenbush & Bryk 2002; Hox 2002; Gelman & Hill 2006). Multilevel modeling, originally developed in educational science, is based on the fact that observations often fall into hierarchically ordered clusters. For example, students can be nested within schools, citizens within nations, and employees within business organizations. In these situations, because of clustering effects, the number of effective observations is smaller than if cases were truly independent of each other. Unlike ordinary logistic regression, multilevel modeling takes clustering into account by estimating intra-class correlations at each hierarchical level. In doing so, it produces more correct standard errors for all coefficients included in the analysis.

Second, multilevel modeling allows me to calculate the proportion of variation in the dependent variables attributable to contextual-level and individual-level factors, respectively. Specifically, for each dependent variable I will begin my empirical analyses by estimating a model that includes only indi-
individual-level variables together with a random error term for each hierarchical level; that is, countries and individuals. The size of the error term variance at the country level indicates the degree to which yet-unspecified country-level factors affect women’s relationship decisions. Strong intra-class correlations indicate that women in the same country are similar to each other, controlling for their individual attributes, so country-level factors are potentially influential. Following this, I include the country-level variable of main interest (i.e., the dual-earner index) in the model, to see whether it reduces the between-country variation. Finally, I estimate a full model that includes all contextual and individual-level control variables.

The multilevel models of women’s likelihood of living in unions include 14,808 women from 22 countries. The models of the likelihood that women who do not have children below school age and who work or study live in unions include 8,292 women from 22 countries, whereas the models of the likelihood of women outside the labor market living in unions only include 2,253 women from 22 countries. Formally, the first measure the probability that individuals, \( i \), nested within countries, \( j \), live in unions, \( Y=1 \), given a number of covariates, \( X_1...X_n \) (below represented with their names) and an intercept \( B_0 \). The models also include a random intercept, \( u_{ij} \), which represents country-specific likelihoods of women living in unions.

Simulation studies have shown that sample size affects the robustness of the results in multilevel modeling. The overall conclusion is that estimates of regression coefficients are unbiased, but that variance components and their standard errors tend to be biased downward (underestimated) when the number of level 2 units is less than 30 (Maas & Hox 2005). The problem seems even more accentuated in multilevel logistic models (Moineddin et al. 2007). Using multilevel logistic modeling with only 22 groups (or 20 groups as in Chapter 9) at the highest level is to stress the limits of multilevel modeling. However, the only alternative to using multilevel modeling would be to use ordinary regression with standard errors clustered by country. That would be an easier test for my hypotheses than using multilevel modeling, as statistical significance is easier to achieve using the former technique. Results based on multilevel modeling with fewer than 30 – and sometimes fewer than 20 – groups are also regularly published in political science and sociology journals. Despite the possible bias of variance components and their standard errors, I have therefore chosen to use multilevel modeling. However, variance components and their standard errors should be interpreted with some caution as they likely are biased downward.

Technical note: The models have been run with `gllamm` in Stata10 (see Rabe Hesketh, Skrondal & Pickles 2004; Rabe-Hesketh & Skrondal 2005).
In all models, cases have been weighted by the design weights (dweights) provided by the ESS. The design weights account for differences in sampling design between countries and correct standard errors and point estimates. However, I have chosen not to weight the cases with the population weights (pweights) that are also provided in the ESS and that account for countries’ different population sizes. The main reason I do not do so is that the population weights would distort the estimates of the standard errors and render the whole idea of using multilevel modeling meaningless. In multilevel modeling, standard errors should reflect sampling design and not population size (Asparouhov 2004). As countries have not been chosen randomly, all countries are assigned equal weights (1) in the regressions. There is also another, more substantial, reason why I only weight my cases with the design weights, which is that the main interest of this chapter lies in exploring and explaining differences in likelihoods between countries, rather than estimating some overall average likelihood for all countries that are included in the models (see van Bavel 2010 for a similar argument). The questions guiding this chapter concern whether women’s likelihood of living in unions varies between countries and between women within countries, and the extent to which potential variations can be explained by family policies and women’s labor market attachment; the question is not how likely an average woman, from the 22 countries included in my model, is to live with a partner.
The overall likelihood of women living in unions

Are women’s earning potentials negatively associated with their likelihood of living in unions as H4 suggests? According to Model 1 in Table 6.2, working women are significantly less likely than women outside the labor force to live in unions.74

The impression that women’s earning potentials are negatively associated with their likelihood of living in unions is further strengthened by the observation that women who have a university education have a lower predicted probability of living in unions than women who do not have a university education. Even though the difference between the two groups is significant only at the 10-percent level, it is nonetheless telling. Women with high earning potentials seem less willing to enter unions than women with low earning potentials.

These findings contrast starkly with the positive correlation between the female labor force participation rate and the number of women in unions found at the country level. Labor force participation is, in other words, negatively associated with women’s likelihood of living in unions within countries, even though a relatively large number of women live in unions in countries with high female labor force participation rates. This observation makes it likely that the main explanation for differences in women’s likelihood of living in unions should be sought after in factors other than the female labor force participation rate.

The random part (i.e., the country-specific intercepts) of Model 1, moreover, shows that women’s likelihood of living in unions varies considerably between countries. Thus, a significant part of the variation can be attributed to country-level factors, such as policies. Can part of this observed variance be explained by dual-earner policies, as H5 suggests?

74 The results in Table 6.2, as well as in the following tables, show odds ratios. Odds ratios are notoriously hard to interpret intuitively. For ease of interpretation, instead of reporting and discussing the odds ratios, I have chosen to discuss all results directly in terms of their substantial meanings for the likelihood of having a(nother) child. In my discussion of the results I only mention these likelihoods, and not the odds ratios they are based upon. It could, however, be of interest for the reader to know that an odds ratio of more than 1 increases, and an odds ratio of less than 1 decreases, the likelihood of the outcome in question.
# Table 6.2. Odds ratios of women living in unions

<table>
<thead>
<tr>
<th>Individual level</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>2.10 (.07)**</td>
<td>2.10 (.07)**</td>
<td>2.10 (.07)**</td>
<td>2.42 (.10)**</td>
</tr>
<tr>
<td>Age*Age</td>
<td>.99 (.00)**</td>
<td>.99 (.00)**</td>
<td>.99 (.00)**</td>
<td>.99 (.00)**</td>
</tr>
<tr>
<td>Living urban</td>
<td>.73 (.04)**</td>
<td>.73 (.04)**</td>
<td>.73 (.04)**</td>
<td>.70 (.04)**</td>
</tr>
<tr>
<td>University education</td>
<td>.86 (.07)+</td>
<td>.85 (.07)*</td>
<td>.85 (.07)*</td>
<td>.79 (.07)**</td>
</tr>
<tr>
<td>Monthly church</td>
<td>1.33 (.11)**</td>
<td>1.34 (.11)**</td>
<td>1.34 (.11)**</td>
<td>1.34 (.11)**</td>
</tr>
<tr>
<td>Religiosity</td>
<td>.99 (.01)</td>
<td>.99 (.01)</td>
<td>.99 (.01)</td>
<td>.99 (.01)</td>
</tr>
<tr>
<td>Protestant</td>
<td>1.30 (.13)**</td>
<td>1.27 (.12)**</td>
<td>1.24 (.12)*</td>
<td>1.20 (.11)+</td>
</tr>
<tr>
<td>Catholic</td>
<td>1.15 (.10)+</td>
<td>1.15 (.10)+</td>
<td>1.18 (.10)+</td>
<td>1.17 (.10)+</td>
</tr>
<tr>
<td>Orthodox</td>
<td>1.06 (.26)</td>
<td>1.18 (.23)</td>
<td>1.22 (.24)</td>
<td>1.25 (.22)</td>
</tr>
<tr>
<td>In education</td>
<td>.23 (.04)**</td>
<td>.22 (.04)**</td>
<td>.22 (.04)**</td>
<td>.22 (.04)**</td>
</tr>
<tr>
<td>In paid work</td>
<td>.60 (.06)**</td>
<td>.59 (.06)**</td>
<td>.60 (.06)**</td>
<td>.60 (.06)**</td>
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<table>
<thead>
<tr>
<th>Country level</th>
<th></th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(log)Dual-earner index</td>
<td>1.45 (.11)**</td>
<td>1.27 (.09)**</td>
<td>1.18 (.09)**</td>
<td></td>
</tr>
<tr>
<td>(log)Benefits index</td>
<td>1.17 (.08)+</td>
<td>1.18 (.09)+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(log)Part-time work</td>
<td>1.00 (.13)</td>
<td>.99 (.14)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(log)Unemployment rate</td>
<td>1.11 (.14)</td>
<td>1.13 (.14)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(log)Percentage living with parents</td>
<td>.76 (.10)+</td>
<td>.78 (.11)+</td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
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<th>Random part</th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept level 2</td>
<td>.29 (.05)**</td>
<td>.21 (.04)**</td>
<td>.17 (.04)**</td>
<td>.17 (.04)**</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Observations</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Individuals</td>
<td>14808</td>
<td>14808</td>
<td>14808</td>
<td>14808</td>
</tr>
<tr>
<td>Countries</td>
<td>22</td>
<td>22</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>Log likelihood</td>
<td>-7291.234</td>
<td>-7284.787</td>
<td>-7219.657</td>
<td>-7450.03</td>
</tr>
<tr>
<td>AIC</td>
<td>14612.47</td>
<td>14601.57</td>
<td>14599.31</td>
<td>14936.06</td>
</tr>
</tbody>
</table>

Standard errors in parentheses

* p < 0.1,  † p < 0.05,  ‡ p < 0.01,  *** p < 0.001

When the dual-earner index is introduced in Model 2 it becomes significantly positively associated with the odds of women living in unions. At the same time, the between-country variation is reduced by 25 percent (from .29 to .21). The fit statistics (the log likelihood and Aikike’s information criteria) also show that the model fit is improved over Model 1. Although the strength of the association decreases considerably with the introduction of the country-level control variables in Model 3, the association remains significant and positive.

Figure 6.3 illustrates the strength of the association for women outside the labor market, working women, and women who are students.
The figure shows that working women in the country with the most generous dual-earner policies (Denmark) have a .1, or 16 percent, higher probability of living in a union compared to working women in the country with the least generous dual-earner policies (Switzerland). Alternatively formulated, each log-unit increase on the dual-earner index is associated with approximately a .05 (or 7.3 percent) increase in the predicted probability of working women living in unions.

---

75 It is an established truth in the statistical community that two 95-percent confidence intervals can overlap and yet be significantly different from one another at the 0.05 level. To cite Austin and Hux (2002): “When one compare two means, the probability that one mean would lie in the upper 2.5\(^t\) percentile of that means sample distribution, while the other simultaneously lies in the lower 2.5\(^t\) percentile of its sampling distribution, is substantially less than 5%. Hence despite having overlapping 95% confidence intervals, one can reject the null hypothesis with a P value that is substantially less than .05.” In the literature, it is therefore recommended to use overlapping 83-percent confidence intervals to judge whether effects are significantly different from each other at the 0.05 level (Schenker & Gentleman 2001; Austin & Hux 2003; Payton, Greenstone & Schenker 2003; Maghsoodloo & Huang 2010).
Women outside the labor market and women who are students are also more likely to live with a partner in countries with generous dual-earner policies. However, because women outside the labor market originally have higher, and women who study have lower, predicted probabilities of living in a union, the difference in predicted probabilities is smaller (.06 or ca. 8 percent) and larger (.11 or ca. 28 percent) in their cases. Each log-unit increase on the dual-earner index increases the likelihood of women outside the labor market living in unions by .027 (or ca. 4 percent), whereas it increases the likelihood that women students live with partners by .05 (or ca. 12.5 percent). Thus, H5 is supported by the data: generous dual-earner policies are positively associated with women’s likelihood of living in unions.

The benefits index is also positively associated with women’s likelihood of living in unions (see figure 6.4). The total strength of the association is of approximately the same size as that for the dual-earner index. Working women in the country with the highest score on the benefits index (Luxembourg), in other words, have a predicted probability of living in unions that is .1, or 16 percent, higher than the predicted probability that working women in the country with the lowest score on the benefits index (Poland) live in unions. However, it should be noted that the benefits index varies somewhat more than the dual-earner index. Whereas the dual-earner index only varies between 2.3 and 4.5, the benefits index varies between 0 and 2.7. Thus, a one-unit log change on the dual-earner index is associated with a somewhat larger increase in the likelihood of women living in unions than is a one-unit change on the benefits index. Nonetheless, the results show that the dual-earner policies are not the only family policies that simultaneously reduce the cost of reproduction and increase the likelihood of women living in unions.

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with the lowest score on the benefits index (Poland) live in unions. However, it should be noted that the benefits index varies somewhat more than the dual-earner index. Whereas the dual-earner index only varies between 2.3 and 4.5, the benefits index varies between 0 and 2.7. Thus, a one-unit log change on the dual-earner index is associated with a somewhat larger increase in the likelihood of women living in unions than is a one-unit change on the benefits index. Nonetheless, the results show that the dual-earner policies are not the only family policies that simultaneously reduce the cost of reproduction and increase the likelihood of women living in unions.

Several control variables are also significant. As expected, women who live in urban areas have a lower predicted probability of living in unions than women who live in rural areas. Whether this finding reflects higher costs of establishing households (i.e., higher housing costs) in urban areas or if it should be ascribed to selection processes, (i.e., women in unions preferring to live in rural areas and/or women who live as singles preferring to live in urban areas, or both), is hard to say.

Women who attend church at least once a month have a higher predicted probability of living with a partner than women who attend church less often. Protestants and Catholics are also significantly more likely to live with partners in comparison with women who do not have a religious denomination. This could be seen as a confirmation that the positive effect of religiousness on the likelihood of women marrying, and marrying early in life, is stronger than the negative effect of religion on women’s likelihood of cohabiting. Religiousness not only affects the type of union women choose to live in, but also women’s overall likelihood of living in unions. However, this impression is somewhat diluted by the fact that self-estimated religiousness is not significantly associated with women’s likelihood of living in unions.

The only significant country-level control variable is the percentage of women who live with their parents, which strongly reduces women’s likelihood of living in unions. Consequently, the factors that influence the age on leaving the parental home also affect women’s likelihood of living in unions. As discussed earlier, this is not surprising given that the two events are closely interrelated. In some cases they even reflect one and same decision: that is, the decision to leave the parental home in order to live with a partner. As also previously mentioned, the main issues in discussions on the determinants of the age on leaving the parental home have been the cost of housing, youth unemployment, and culture-specific family norms (see Chapter 4). However, family policies might also affect the timing when young people leave the parental home, and a part of family policies’ effect on women’s likelihood of living in unions might go via the policies’ effect on the age when young
people leave the parental home. At least there is reason to suspect that this is the case when the decision to leave the parental home is taken at the same time as (or as a consequence of) the decision to start a new household with a partner. If such cases are common, the effect of family policies on the likelihood of women living in unions can be suspected to be greater than what is revealed by the coefficients in Model 3. Further regressions (results not shown; available from the author on request) also show that the positive association between the dual-earner index and the likelihood of women living in unions increases if the age on leaving the parental home is excluded from the regressions. This behavior is explained by the fact that the generosity of dual-earner policies is highly correlated with the age on leaving the parental home. This is of course only to be expected if generous dual-earner policies lower the age on leaving the parental home.

For some reason the availability of part-time work does not have an impact on women’s likelihood of living in unions.

So far the results both confirm the existence of a negative association between female labor force participation and women’s likelihood of living in unions (H4) and the existence of a positive association between generous family policies and women’s likelihood of living in unions (H5). However, as discussed in the methodology part of the chapter, generous dual-earner policies are not only likely to increase women’s likelihood of living in unions, but also their likelihood of working. Given that labor force participation is associated with a lower probability of women living in unions, the overall positive association between generous dual-earner policies and the likelihood of women living in unions could therefore be smaller than what is revealed by models that control for women’s labor market status.

To account for this endogeneity problem and test how strong the overall association between the dual-earner index and the likelihood of women living in unions really is, I rerun Model 3 without controls for labor market status. The idea is that the resulting model will capture both the direct (assumed positive) association between policies and the likelihood of women living in unions and the indirect (assumed negative) association between the two, which depends of the association between policies and the likelihood of women participating in the labor market. The results are shown in Model 4 in Table 6.2.

As could be expected, the overall positive association between the dual-earner index and women’s likelihood of living in unions is somewhat weaker in the new model, but it remains significant at the 5-percent level. The positive association between the benefits index and the likelihood of women
living in unions, however, remains intact. All control variables also behave similarly to how they behave in Model 3.

If the coefficient of the dual-earner index, which shows the change in odds ratios (1.18), is translated into predicted probabilities (see Figure 6.5), each log-unit change on the dual-earner index increases the predicted probability of women living in unions by about .035 (or 5 percent). Going from the country with the lowest score (Switzerland) on the dual-earner index to that with the highest score (Denmark) increases the predicted probability of women living in unions by .075. In other words, 12 percent more women are predicted to live in unions in the country with the most generous dual-earner policies than in the country with the least generous dual-earner policies.

Figure 6.5. The dual-earner index and the likelihood of women living in unions

Comments: Builds on Model 4 in Table 6.2. The graph shows the association between the predicted probability of women living in unions and the dual-earner index when all other variables are kept at their mean. The shaded area shows the 95-percent confidence interval.

The total strength of the association between the benefits index and the likelihood of women living in unions, which is illustrated in Figure 6.6, is somewhat stronger than that between the dual-earner index and the same likelihood. Women in the country with the most generous family benefits have a predicted probability of living in unions that is .1, or 16 percent, higher than
the predicted probability of women in the country with the least generous family benefits living in unions. However, it should be noted that a log-unit change on the dual-earner index is equally strongly associated with the likelihood of women living in unions as a log-unit change on the benefits index. The latter index has a greater total effect on women’s likelihood of living in unions only because it varies more than the dual-earner index.

Figure 6.6. The benefits index and the likelihood of women living in unions

<table>
<thead>
<tr>
<th>(log)Benefits index</th>
<th>Predicted probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0.55</td>
</tr>
<tr>
<td>1</td>
<td>0.6</td>
</tr>
<tr>
<td>2</td>
<td>0.65</td>
</tr>
<tr>
<td>3</td>
<td>0.7</td>
</tr>
<tr>
<td>4</td>
<td>0.75</td>
</tr>
</tbody>
</table>

Comments: Builds on Model 4 in Table 6.2. The graph shows the association between the predicted probability of women living in unions and the benefits index when all other variables are kept at their mean. The shaded area shows the 95-percent confidence interval.

To sum up, hypothesis H5 is robust for controls for the endogeneity problem. However, it still remains to be tested whether the positive association between generous family policies and women’s likelihood of living in unions depends on a positive association between generous family policies and the likelihood of working women living in unions. This I do next.
The likelihood of women in and outside the labor market living in unions

Does the positive association between generous family policies and the likelihood of women living in unions mainly depend on a positive association between generous family policies and the likelihood of working women and women who are students living in unions? To test whether this is the case, I perform split-sample analyses among women with and without labor market attachment. The results from the models of the likelihood of women with labor market attachment living in unions are presented in Models 5 to 7 in Table 6.3.

Table 6.3. Odds ratios of women living in unions: working women and women who are students who do not have children below school age

<table>
<thead>
<tr>
<th></th>
<th>Model 5</th>
<th>Model 6</th>
<th>Model 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual level</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Age</td>
<td>1.78 (.08)***</td>
<td>1.78 (.08)***</td>
<td>1.78 (.08)***</td>
</tr>
<tr>
<td>Age*Age</td>
<td>.99 (.00)***</td>
<td>.99 (.00)***</td>
<td>.99 (.00)***</td>
</tr>
<tr>
<td>Living urban</td>
<td>.79 (.05)***</td>
<td>.78 (.05)***</td>
<td>.78 (.05)***</td>
</tr>
<tr>
<td>University education</td>
<td>.80 (.07)**</td>
<td>.78 (.07)**</td>
<td>.78 (.07)**</td>
</tr>
<tr>
<td>Monthly church</td>
<td>1.09 (.10)</td>
<td>1.10 (.10)</td>
<td>1.12 (.10)</td>
</tr>
<tr>
<td>Religiosity</td>
<td>.97 (.01)*</td>
<td>.97 (.01)*</td>
<td>.97 (.01)*</td>
</tr>
<tr>
<td>Protestant</td>
<td>1.20 (.19)</td>
<td>1.16 (.17)</td>
<td>1.10 (.16)</td>
</tr>
<tr>
<td>Catholic</td>
<td>1.16 (.15)</td>
<td>1.17 (.15)</td>
<td>1.20 (.15)</td>
</tr>
<tr>
<td>Orthodox</td>
<td>1.29 (.28)</td>
<td>1.40 (.26)+</td>
<td>1.37 (.23)+</td>
</tr>
<tr>
<td>Other</td>
<td>.98 (.18)</td>
<td>.97 (.18)</td>
<td>.98 (.18)</td>
</tr>
<tr>
<td>Country level</td>
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<td></td>
<td></td>
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<tr>
<td>(log)Dual-earner index</td>
<td>1.61 (.17)***</td>
<td>1.36 (.12)***</td>
<td></td>
</tr>
<tr>
<td>(log)Benefits index</td>
<td>1.26 (.12)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(log)Part-time work</td>
<td>1.00 (.12)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(log)Unemployment rate</td>
<td>1.27 (.14)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(log)Living with parents</td>
<td>.71 (.09)**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Random part</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Intercept level 2</td>
<td>.35 (.06)***</td>
<td>.24 (.04)***</td>
<td>.17 (.03)***</td>
</tr>
</tbody>
</table>

Observations

<table>
<thead>
<tr>
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<th>Countries</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8292</td>
<td>22</td>
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</table>

Log likelihood

<table>
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<tr>
<th></th>
<th>-4376.192</th>
<th>-4368.932</th>
<th>-4362.354</th>
</tr>
</thead>
</table>

AIC

|                | 8780.383    | 8767.863   | 8762.709   |

Standard errors in parentheses

*p < 0.1, **p < 0.05, ***p < 0.01, ****p < 0.001
In line with the expectations, Model 7 shows that the dual-earner index is more strongly associated with the likelihood of working women and women who are students living in unions than with women’s overall likelihood of living with partners.

Figure 6.7, which illustrates the association, shows that a working woman who does not have children below school age has a predicted probability of about .5 of living with a partner in the country with the least generous dual-earner policies, when all other variables are held constant at their means. The predicted probability of a similar woman living in a union in the country with the most generous dual-earner policies is over .65.

Figure 6.7. The dual-earner index and the likelihood of working women and women who are students living in unions

Comments. Builds on Model 7 in Table 6.3. The graph shows the effects of the dual-earner index and women’s labor market status when all other variables are kept at the sample mean. The shaded areas show the 83-percent confidence intervals. This means that confidence intervals that do not overlap show likelihoods that are significantly different from each other at the 5-percent level.

Thus, each log unit separating the two countries on the dual-earner index is associated with a .075 (15 percent) increase in the predicted probability of working women who do not have children below school age living in unions. This means that 30 percent more working women live with partners in the
country with the most generous dual-earner policies in comparison to the country with the least generous dual-earner policies.

The positive association between the dual-earner index and the likelihood of women who are students living in unions is even stronger. The predicted probability that women who are students live in unions is .14 higher in the country with the most generous dual-earner policies compared to what it is in the country with the least generous dual-earner policies. As the predicted probability of women who are students living in unions in the latter country is only .28, this means that almost 50 percent more women who are students are predicted to live in unions in the country with most generous dual-earner policies compared to in the country with least generous dual-earner policies.

The association between the dual-earner index and the likelihood of working women and women who are students living in unions in Model 7 is considerably stronger than the one found in the models in Table 6.2, which do not exclude women outside the labor market. To be more exact, the association is 50 percent stronger (.1 compared to .15) for working women and 25 percent (.11 compared to .14) stronger for women who are students. Consequently, it is safe to say that the strength of the positive association between the dual-earner index and the likelihood of women living in unions is stronger among working women and women who are students than among women outside the labor market.

The association between the benefits index and women’s likelihood of living in unions is also stronger among women who are working and studying than it is in the models that include women outside the labor market (see Figure 6.8). The predicted probability of working women living in unions is .15, or 33 percent, higher in the country with the most generous family benefits compared to in the country with the least generous family benefits; the predicted probability of women who are students living in unions is .13, or nearly 50 percent, higher in the country with the most generous family benefits. The difference in the magnitude of the effects between the models including and excluding women outside the labor market is of about the same size as that for the dual-earner index.
THE LIKELIHOOD OF WOMEN LIVING IN UNIONS

Figure 6.8. The benefits index and the likelihood of working women and women who are students living in unions

Comments: Builds on Model 7 in Table 6.3. The graph shows the effects of the dual-earner index, the benefits index, and labor market status when all other variables are kept at the sample mean. The shaded areas show the 83-percent confidence intervals. This means that confidence intervals that do not overlap show likelihoods that are significantly different from each other at the 5-percent level.

Two interesting observations regarding the behavior of the control models should be mentioned. The first is that the association between participation in organized religiousness and the likelihood of living in a union seems to be weaker among women in the labor market. The frequency of church attendance is not significantly associated with the likelihood of working women and women who are students living in unions, whereas self-estimated religiousness is actually negatively associated with the same likelihood. For some reason, religious working women and religious women who are students are less likely to live in unions than their more secular sisters. Perhaps this is a sign of the difficulty involved in simultaneously maintaining a career and adhering to religious teachings on women’s family duties.

Also, the observation that the unemployment rate is positively associated with the likelihood of working women and women who are students living in unions, whereas it is not significantly associated with women’s overall likelihood of living in unions, deserves mention. As was pointed out in the meth-
ods discussion, unemployment reduces the opportunity costs of reproduction drastically, because of the resulting loss of the woman’s wage. Other things being equal, this fact might tilt women who expect to be, or fear becoming, unemployed in the future toward considering a union (with children) a relatively attractive option. Thus, as the unemployment rate is likely a good proxy for women’s risk of unemployment, it is not surprising to find a positive association between it and the likelihood of women living in unions. However, one could wonder why only women who have jobs or who are currently or soon to be seeking one are affected by the unemployment rate. The reason most likely is that such women, in contrast to women outside the labor market, under normal circumstances have relatively good earning opportunities. Women who are, voluntarily or involuntarily, outside the labor market are likely to have relatively poor earning opportunities even during good labor market conditions and are, thus, in all probability less sensitive to labor market conditions when making their union decisions. This is easily illustrated by the fact that only women who have jobs risk losing their jobs in times of high unemployment. Women who actively plan on seeking jobs (i.e., women students) are also more sensitive to labor market conditions than women who have voluntarily chosen to stay outside the labor market, or who, even during normal circumstances, cannot manage to get a job.

In all, the results from Models 5 to 7 seem to confirm that the positive association between generous family policies and the overall likelihood of women living in unions mainly depend on a positive association between generous family policies and the likelihood of working women and women who are students living in unions. They also seem to confirm that working women and women who are students overall are more sensitive to economic factors than women outside the labor force. However, in order to draw such a conclusion with more certainty, it is necessary to also examine how variables are associated with the likelihood of women outside the labor market living in unions. Therefore, I also run a model of the likelihood of women outside the labor market living in unions. The results are presented in Model 8 in Table 6.5.
Model 8, which only includes individual-level variables, shows that educational attainment is not negatively associated with the likelihood of women outside the labor market living in unions. Although the coefficient of having a university education is slightly negative, it is not near to being statistically significant. This likely reflects the fact that women outside the labor market are not able to capitalize on their educations to the same extent as women who are established in the labor market. A woman’s education matters little for her earning potential if she nevertheless finds herself outside the labor market with few opportunities and little inclination to (re)enter it. It is also a fact that an education decreases in value with time if it is not kept up to date, for example, through work experience. It is, thus, no surprise to see a stronger association between educational attainment and the likelihood of working women and women who are students living in unions than between educa-

Model 8

Table 6.5. Odds ratios of women living in unions: women outside the labor market who do not have children below school age

<table>
<thead>
<tr>
<th>Individual level</th>
<th>Model 8</th>
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<tbody>
<tr>
<td>Age</td>
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</tr>
<tr>
<td>Age*Age</td>
<td>.996 (.001)***</td>
</tr>
<tr>
<td>Living urban</td>
<td>.75 (.08)**</td>
</tr>
<tr>
<td>University education</td>
<td>.89 (.17)</td>
</tr>
<tr>
<td>Monthly church</td>
<td>1.56 (.19)***</td>
</tr>
<tr>
<td>Religiosity</td>
<td>.97 (.02)</td>
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<tr>
<td>Protestant</td>
<td>1.76 (.33)**</td>
</tr>
<tr>
<td>Catholic</td>
<td>1.21 (.22)</td>
</tr>
<tr>
<td>Orthodox</td>
<td>1.15 (.24)</td>
</tr>
<tr>
<td>Other</td>
<td>1.16 (.20)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Country level</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>(log)Dual-earner index</td>
<td></td>
</tr>
<tr>
<td>(log)Benefits index</td>
<td></td>
</tr>
<tr>
<td>(log)Part-time work</td>
<td></td>
</tr>
<tr>
<td>(log)Unemployment rate</td>
<td></td>
</tr>
<tr>
<td>(log)Living with parents</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Random part</th>
<th></th>
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<tbody>
<tr>
<td>Intercept level 2</td>
<td>.14 (.11)</td>
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<table>
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<td>AIC</td>
<td>2536.237</td>
</tr>
</tbody>
</table>

Standard errors in parentheses
* p < 0.1, ** p < 0.05, *** p < 0.01, **** p < 0.001

Model 8, which only includes individual-level variables, shows that educational attainment is not negatively associated with the likelihood of women outside the labor market living in unions. Although the coefficient of having a university education is slightly negative, it is not near to being statistically significant. This likely reflects the fact that women outside the labor market are not able to capitalize on their educations to the same extent as women who are established in the labor market. A woman’s education matters little for her earning potential if she nevertheless finds herself outside the labor market with few opportunities and little inclination to (re)enter it. It is also a fact that an education decreases in value with time if it is not kept up to date, for example, through work experience. It is, thus, no surprise to see a stronger association between educational attainment and the likelihood of working women and women who are students living in unions than between educa-
tional attainment and the likelihood of women outside the labor market living in unions.

The impression that economic incentives do not affect the relationship decisions of women outside the labor market is further strengthened by the fact that the likelihood of such women living in unions does not vary significantly between countries. The random intercepts (presented in the random part of the model) are not even near conventional levels of significance (the coefficient is .14 with a standard error of .11). Because there is not a significant variation between countries to explain, there is no need to continue exploring whether country-level characteristics are associated with the likelihood of women outside the labor market living in unions. Only the likelihood of working women and women who are students living in unions is associated with country-level characteristics. Consequently, H6 is confirmed: the positive association between generous family policies and the overall likelihood of women living in unions is totally dependent on a positive association between generous family policies and the likelihood of working women and women who are students (i.e., women with relatively large expected future earnings) living in unions.

Concluding discussion
This chapter has shown that working women and women who are students are less likely than women outside the labor market to live in unions. It has also shown that women are more likely to live in unions in countries that have implemented generous family policies. Finally, it has shown that the latter finding can be explained by the fact that working women and women who are students are more likely to live with partners in countries with generous family policies. These findings are compatible with my argument that good earning opportunities reduce women's incentives to enter unions, but that the effect can be reduced by generous family policies that compensate mothers for their forgone earnings and lost career opportunities.

The family policy explanation of women's diverging likelihoods of living in unions tested in this chapter fares relatively well in relation to the major alternative to it: the age on leaving the parental home explanation (Aassve et al. 2002; Billari et al. 2001; Baizán, Aasve & Billari 2003, 2004; Holdsworth 2000; Mulder et al. 2002; Mulder 2006). The mean age when adults leave the parental home is negatively associated with women's likelihood of living in unions – and strongly so. However, it cannot offer a better explanation of the between-country variation in women's likelihood of living with partners than the generosity of family policies. The age on leaving the parental home is
also likely affected by the generosity of family policies in many cases, such as when the decision to leave the parental home is taken as a consequence of a decision to start a family with a partner.\textsuperscript{76} Insofar as it has focused on individual-level fertility patterns, the previous research, thus, seems to have missed a large part of family policies’ effect on fertility when it has neglected to study family policies’ effect on women’s incentives to form unions. When the latter effect is taken into account, it becomes apparent that generous family policies can have a positive effect on fertility.

The likelihood of women choosing to live in unions, however, is not the only aspect of women’s union formation decisions that matters for the focus of this study, which is the effect of family policies on fertility. Besides the decision of whether or not to enter a union, women also have to decide on the kind of union they want to enter into: one based on cohabitation or one based on marriage. This choice has important repercussions for their future fertility decisions. The question of how it is affected by family policies is the topic of the next chapter.

\textsuperscript{76} Further regressions (not shown; available from author on request), that exclude the age on leaving the parental home and control directly for the cost of housing (measured as the percentage of their income that a typical family in a country spends on housing) and youth unemployment, suggest that family policies have a much stronger positive effect on women’s likelihood of living in unions than the results presented in this chapter indicate. Thus, there is some evidence that point to that generous family policies can make adults to leave their parental home early in life.
Chapter 6 showed that the likelihood of women of childbearing age living in unions varies across Europe and that the variation can be partly explained by the generosity of family policies. However, the types of unions women enter into also vary across Europe. In some countries almost everyone cohabits before they marry – if they marry at all. In other countries nearly everyone forms their first union by marrying, and would never contemplate unmarried cohabitation. These different choices have profound consequences for the stability of the unions women enter into, as cohabiting unions are less stable than marriages. In Chapter 4, I argued that these patterns can be partly explained by the fact that generous dual-earner policies increase the likelihood of women living in unstable unions. Chapter 7 aims to test this claim. First, I briefly restate my argument. Then follows an exploration of how aggregate patterns of cohabitation correlate with the generosity of dual-earner policies. After that, I go on to discuss method and data for testing the argument on individual-level data. Then follows a study on how family policies are associated with the likelihood of women in unions cohabiting based on individual-level data. The findings and their implications are wrapped up in a brief discussion at the end of the chapter.

Hypotheses

Women who are established in the labor market enjoy greater economic freedom than women outside the labor market, as they are not dependent on their partners for income. I argued in Chapter 4 that, because of this, they are less
likely than women outside the labor market to demand the economic security that comes with a stable union. Hence,

\[ H7. \text{Women with relatively high earning opportunities (i.e. women who work and study) should be more likely than women with relatively low earning opportunities (i.e. women outside the labor market) to live in unstable unions.} \]

Generous dual-earner policies increase the likelihood of women in unions having high earning opportunities. Such policies also reduce the cost of leaving a bad union. Because of this, I also argued in chapter 4 that,

\[ H8. \text{Generous dual-earner policies should increase the likelihood of women living in unstable unions.} \]

Given the assumption that cohabiting unions are less stable than unions built on marriage two implications follow from the hypotheses above:

- All else being equal, we should expect women in unions who work and study to be more likely to cohabit (as opposed to marry) than women in unions who are outside the labor market.
- All else being equal, we should expect the likelihood of women in unions cohabiting to be higher in countries with high scores on the dual-earner index than it is in countries with low scores on the dual-earner index.

An important question to ponder is whether the expected positive association between generous dual-earner policies and the likelihood of women in unions cohabiting will disappear entirely when it is taken into account that women in unions who work and study are more likely to cohabit than women in unions who do not work or study. It is, after all, in part based on the assumptions i) that generous dual-earner policies increase the likelihood of working women and women who are students living in unions, and ii) that such women are more likely than women outside the labor market to cohabit.

However, there is a reason to doubt that controls for women’s labor market status will make the positive association disappear entirely, and that is that generous dual-earner policies are necessary in order for a mother with small children to sustain her career and remain financially independent of her partner. It matters little for the woman’s financial independence, if she has a job, if she must give it up in order to care for her children. Under such circumstances the woman must rely on her partner for income, anyway. Only
generous dual-earner policies can guarantee financial independence to women who have children. Therefore, it is likely that generous dual-earner policies will be significantly positively associated with the likelihood of women in unions cohabiting even when controlling for women’s labor market status.

Aggregate patterns of cohabitation
In line with the findings of previous studies, aggregate patterns show a strong positive association between the log of the female labor force participation rate and the percentage of women in unions cohabiting (Pearson’s R: .78; results not shown). Aggregate data is, in other words, consistent with hypothesis H7, that women with relatively good earning opportunities are more likely to cohabit than women with relatively low earning opportunities: cohabitation is more widespread in countries with high labor force participation rates.

Figure 7.1. The generosity of dual-earner policies and aggregate cohabitation patterns

Pearson’s R: .75
The data is also consistent with hypothesis H8, that cohabitation should be more prevalent in countries with generous dual-earner policies (the correlation is .75; see Figure 1). Women in countries with high scores on the dual-earner index relatively often choose to live in unstable unions. In countries with low scores on the dual-earner index, women overwhelmingly choose more stable relationships. In Denmark, which scores 86 on the dual-earner index (corresponding to a score of 4.46 on the logged dual-earner index), for example, more than 32 percent of the women in unions between the ages of 18 and 45 cohabit. The corresponding share of the women in unions cohabiting in Greece, which scores 13 on the dual-earner index (corresponding to a score of 2.54 on the logged dual-earner index), is not even 5 percent.

To sum up, aggregate patterns seem to indicate that generous dual-earner policies increase both the number of women in unions and the number of women in unions cohabiting. However, as was pointed out in Chapter 6, an aggregate pattern is one thing and an individual-level pattern is another. Therefore, next I discuss how to test my hypotheses on individual-level data.

Data and method
The individual-level study on the likelihood of women in unions cohabiting for the most part uses the same methods, data, and variables as were used in the analyses on the likelihood of women living in unions in Chapter 6. The data for the study comes from rounds 2 and 3 of the European Social Survey, and I use multilevel modeling to estimate my models. All units are weighted with design weights, but not with population weights. In addition, both the individual-level and country-level independent variables are identical to those used in the models presented in chapter 6. For the same reasons discussed in Chapter 6, all included policy indicators and macro-economic indicators are represented with their four-year average from the period directly preceding the year of the interview. The sources of all data are the same as in Chapter 6.

Dependent variable
The dependent variable is coded as 1 if a woman cohabits with her partner without being legally married to him and as 0 if she is married. I have chosen to equate secular marriages with church marriages, so that only women who do not have marriage contracts count as cohabiting (the focus of my hypotheses is on the economic aspects of the difference between marriage and cohabitation).
Country-level independent variables

I use the same independent variables at the country level as in Chapter 6 because they capture the economic conditions under which union formation decisions are taken. In addition to the expected positive association between generous dual-earner policies and the likelihood of women in unions cohabiting, the expectation is that all policies that decrease women’s financial dependence on their partners are likely to increase the likelihood of women cohabiting. In particular, the availability of part-time jobs could be expected to do so, because part-time jobs allow women to stay in the labor market while they have children.

Family benefits only marginally reduce women’s financial independence from their partners. Therefore, we should, at most, expect a weak positive association between the benefits index and the likelihood of women in unions cohabiting.

The association between the unemployment rate and the likelihood of women in unions cohabiting is harder to foresee as it theoretically both increases and reduces women’s incentives to cohabite. In times of high unemployment a marriage contract could work as an insurance against future unemployment. If only women were affected by the risk of unemployment, the unemployment rate could therefore be assumed to be negatively associated with the likelihood of women in unions cohabiting. However, a high unemployment rate also increases men’s risk of unemployment. To the extent it does so, it dilutes the value of potential marriage contracts and reduces women’s incentives to marry. Which of these effects dominates is an open question. The unemployment rate could be positively, negatively, or not at all associated with the likelihood of women in unions cohabiting.

Also, the association between the percentage of young people who live with their parents and the likelihood of women in unions cohabiting is ambiguous. To the degree that a high age on leaving the parental home reflects high youth unemployment, the association is as ambiguous as that for the unemployment rate. To the degree that it reflects other economic obstacles to establishing an independent household, such as high housing costs, there is no reason to expect a significant association with the likelihood of women in unions cohabiting, as there is no obvious link with women’s financial independence. Only to the extent that the age on leaving the parental home reflects cultural norms regarding living arrangements is there reason to assume an association with women’s incentives to cohabit. Cultural traditions tend to be more conservative in countries where the age on leaving the parental home is higher, thus, any found association with cohabitation in such a case is likely to be negative.
Individual-level independent variables

Regarding the individual-level control variables, there is reason to expect a positive association between women’s educational attainment and their likelihood of cohabiting. Women’s educational attainment is a good proxy for their earning potential, and with a high earning potential comes a relatively high degree of financial independence. Highly educated women, thus, do not need a marriage contract to the same extent as less-educated women, hence they are likely to see cohabitation as an attractive alternative to marriage. However, it is likely that much of the usefulness of educational attainment as a proxy for women’s earning potential is eaten up by the more direct control for women’s labor market status.

All variables measuring subjective and organized religiousness (i.e. participation in religious activities) are expected to be negatively associated with the likelihood of women in unions cohabiting. Christianity and other major religions strongly condemn unmarried cohabitation and extramarital sexual relationships. Hence, religious individuals must pay a hefty psychological price for cohabiting (Lehrer 1996; Westhoff & Frejka 2007). Some researchers also argue that religious congregations, when given the chance, pressure their members into obedience to their teachings by punishing those who depart from their teachings (McQuillan 2004). There is no reason to assume unmarried cohabitation to be an exception to this rule. Hence, it can be expected that both subjective and organized religiousness, independent of each other, will be strongly negatively associated with the likelihood of women in unions cohabiting.

Summary statistics are presented in Table 7.1.
Table 7.1. Summation of variables

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</tr>
<tr>
<td>Essround</td>
<td>9550</td>
<td>2.42</td>
<td>.49</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Outside labor market</td>
<td>9550</td>
<td>.34</td>
<td>.47</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>In paid work</td>
<td>9550</td>
<td>.62</td>
<td>.48</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>In education</td>
<td>9550</td>
<td>.03</td>
<td>.18</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>(log)Dual-earner index</td>
<td>9550</td>
<td>3.33</td>
<td>.56</td>
<td>2.30</td>
<td>4.46</td>
</tr>
<tr>
<td>(log)Benefits index</td>
<td>9550</td>
<td>1.78</td>
<td>.53</td>
<td>0</td>
<td>2.73</td>
</tr>
<tr>
<td>(log)Unemployment rate</td>
<td>9550</td>
<td>1.85</td>
<td>.58</td>
<td>.64</td>
<td>2.93</td>
</tr>
<tr>
<td>(log)Part-time work</td>
<td>9550</td>
<td>2.65</td>
<td>.74</td>
<td>.74</td>
<td>3.82</td>
</tr>
<tr>
<td>(log)Living with parents</td>
<td>9550</td>
<td>1.84</td>
<td>.61</td>
<td>.86</td>
<td>2.78</td>
</tr>
</tbody>
</table>

Comments: Unweighted means. Reference categories in italics. For construction of variables and sources of data: see Appendix C.

Sample restrictions

The sample of women is restricted, including only women who live in unions. This restriction is made in order not to conflate the likelihood of cohabiting once one has decided to live with a partner with the likelihood of living with a partner in the first place. The likelihoods resulting from the combination of the likelihood of living in a union and the likelihood of living in a special type of union (i.e., cohabiting or living as married) are presented at the end of the chapter. Only women aged 18 to 45 are included in the models.

Because of the close relationship between dual-earner policies and women’s labor market status, I run models both including and excluding labor market status. The idea is that the latter model will illustrate the overall association between the generosity of dual-earner policies and the likelihood of women in unions cohabiting, whereas the former models will illustrate the extent to which this overall association depends on a direct association between both likelihoods and the extent to which it depends on the indirect association that goes via generous dual-earner policies’ positive association with women’s likelihood of working.
Statistical models

Formally, the models of the likelihood of women in unions cohabiting are structured as follows:³⁷

$$\log t_i(\pi_i) = \beta_0 + \beta_1 \text{Age}_i + \beta_2 \text{Age}^* \text{age}_i + \beta_3 \text{urban}_i + \beta_4 \text{university}_i$$

$$+ \beta_5 \text{Church \ 1/ month}_i + \beta_6 \text{religiosity}_i + \beta_7 \text{Catholic}_i + \beta_8 \text{Protestant}_i$$

$$+ \beta_9 \text{Orthodox}_i + \beta_{10} \text{Other denomination}_i + \beta_{11} \text{Essround}_i + \beta_{12} \text{In education}_i$$

$$+ \beta_{13} \text{In paidwork}_i + \beta_{14} \text{Dual-earner index}_i + \beta_{15} \text{Benefits index}_i$$

$$+ \beta_{16} \text{Unemployment rate}_i + \beta_{17} \text{Part-time work}_i + \nu_{ij}$$

³⁷ Technical note: The models have been run with gllamm in Stata10 (see Rabe Hesketh, Skrondal & Pickles 2004; Rabe-Hesketh & Skrondal 2005).
The overall likelihood of women in unions cohabiting

Model 1 in Table 7.2 confirms that women in unions who work and study are more likely to cohabit than women in unions who do not work or study. The difference between the groups is considerable. If the odds ratios are translated into predicted probabilities, working women are over 30 percent more likely to cohabit than women outside the labor market. The predicted probability of women students cohabiting is more than 130 percent higher than that of women outside the labor market cohabiting.

Table 7.2 Odds ratios of women in unions cohabiting

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual level</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>.65 (.05)***</td>
<td>.66 (.05)***</td>
<td>.66 (.05)***</td>
<td>.62 (.05)***</td>
</tr>
<tr>
<td>Age*Age</td>
<td>1.005 (.001)***</td>
<td>1.005 (.001)*</td>
<td>1.005 (.001)***</td>
<td>1.005 (.001)***</td>
</tr>
<tr>
<td>Living urban</td>
<td>1.17 (.10)*</td>
<td>1.17 (.10)*</td>
<td>1.17 (.10)*</td>
<td>1.20 (.10)*</td>
</tr>
<tr>
<td>University education</td>
<td>1.15 (.13)</td>
<td>1.15 (.13)</td>
<td>1.14 (.13)</td>
<td>1.25 (.14)*</td>
</tr>
<tr>
<td>Monthly church</td>
<td>.39 (.03)***</td>
<td>.39 (.03)***</td>
<td>.40 (.03)***</td>
<td>.39 (.03)***</td>
</tr>
<tr>
<td>Religiosity</td>
<td>.95 (.01)***</td>
<td>.95 (.01)***</td>
<td>.95 (.01)***</td>
<td>.95 (.01)***</td>
</tr>
<tr>
<td>Protestant</td>
<td>.84 (.11)</td>
<td>.84 (.11)</td>
<td>.84 (.10)</td>
<td>.81 (.09)*</td>
</tr>
<tr>
<td>Catholic</td>
<td>.63 (.07)***</td>
<td>.64 (.07)***</td>
<td>.65 (.07)***</td>
<td>.65 (.07)***</td>
</tr>
<tr>
<td>Orthodoxy</td>
<td>.39 (.15)*</td>
<td>.42 (.17)*</td>
<td>.50 (.21)*</td>
<td>.50 (.21)*</td>
</tr>
<tr>
<td>Other</td>
<td>.28 (.09)**</td>
<td>.28 (.09)**</td>
<td>.28 (.09)**</td>
<td>.25 (.07)**</td>
</tr>
<tr>
<td>In education</td>
<td>3.17 (.72)***</td>
<td>3.14 (.72)***</td>
<td>3.13 (.71)***</td>
<td>3.13 (.71)***</td>
</tr>
<tr>
<td>In paid work</td>
<td>1.74 (.22)***</td>
<td>1.73 (.33)***</td>
<td>1.74 (.22)***</td>
<td>1.74 (.22)***</td>
</tr>
<tr>
<td>Country level</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(log)Dual-earner index</td>
<td>1.82 (.47)*</td>
<td>1.34 (.23)*</td>
<td>1.56 (.34)*</td>
<td>1.56 (.34)*</td>
</tr>
<tr>
<td>(log)Benefits index</td>
<td>1.27 (.45)</td>
<td>1.21 (.54)</td>
<td>1.41 (.29)*</td>
<td>1.77 (.50)*</td>
</tr>
<tr>
<td>(log)Part-time work</td>
<td>1.99 (.32)</td>
<td>1.23 (.56)</td>
<td>1.41 (.29)*</td>
<td>1.77 (.50)*</td>
</tr>
<tr>
<td>(log)Unemployment rate</td>
<td>.71 (.17)</td>
<td>.76 (.18)</td>
<td>.71 (.17)</td>
<td>.76 (.18)</td>
</tr>
<tr>
<td>(log)Living with parents</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Random part</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept level 2</td>
<td>.68 (.10)***</td>
<td>.59 (.09)***</td>
<td>.40 (.06)***</td>
<td>.44 (.06)***</td>
</tr>
<tr>
<td>Observations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individuals</td>
<td>9550</td>
<td>9550</td>
<td>9550</td>
<td>9550</td>
</tr>
<tr>
<td>Countries</td>
<td>22</td>
<td>22</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>Log Likelihood</td>
<td>-3715.99</td>
<td>-3712.475</td>
<td>-3705.83</td>
<td>-3752.071</td>
</tr>
<tr>
<td>AIC</td>
<td>7461.979</td>
<td>7456.949</td>
<td>7451.66</td>
<td>7540.142</td>
</tr>
</tbody>
</table>

Standard errors in parentheses

* p < 0.1,  † p < 0.05,  ‡ p < 0.01,  § p < 0.001
The implications following from H7 are, thus, confirmed. Women’s labor market attachment is positively associated with their likelihood of cohabiting once they have decided to live in a union. However, as the random part of the model shows, the likelihood of women in unions cohabiting varies significantly between countries. Thus, there is room for dual-earner policies to make a difference, even after controlling for women’s labor market status.

Model 2, which adds the dual-earner index to Model 1, shows an improved model fit over Model 1 both according to Aikike’s information criteria and the log likelihood. The random intercept at the country level (i.e., the variation in predicted probabilities between countries) is also reduced by about 13 percent. These improvements are explained by the fact that the dual-earner index, when introduced, is significantly and strongly positively associated with the likelihood of women in unions cohabiting. However, Model 2 does not include controls for other factors influencing the economic conditions under which union decisions are taken. When such controls are included in Model 3, the positive association between the dual-earner index and the likelihood of women in unions cohabiting is reduced drastically, but does remain significant at the 10-percent level. The strength of the association, which is illustrated in Figure 7.2, is still considerable.

Women in unions who are outside the labor market have a very low predicted probability, of just over .06, of cohabiting in the country with the lowest score on the dual-earner index. The predicted probability of such women cohabiting in the country with the highest score on the dual-earner index is approximately .12. This means that 100 percent more women outside the labor market cohabit in the country with the highest score on the dual-earner index compared to in the country with the lowest score on the dual-earner index.

The difference in predicted probabilities between working women cohabiting in the two countries is of equal magnitude. In the country with the lowest score on the dual-earner index, working women in unions have a predicted probability of cohabiting of about .1. In the country with the highest score on the dual-earner index, the same group has a predicted probability of cohabiting of .19. In other words, the likelihood of working women cohabiting is more than 90 percent higher in the latter country. Put another way, each log-unit increase on the dual-earner index increases the predicted probability of working women cohabiting by about .04.
Women who are students have the highest predicted probability of cohabiting. In the country with the lowest score on the dual-earner index, they have a predicted probability of cohabiting of .19, whereas the corresponding predicted probability that they cohabit is .3 in the country with the highest score on the dual-earner index. Thus, the predicted probability of women who are students cohabiting is almost 60 percent higher in the latter country. This means that each log-unit change on the dual-earner index increases the predicted probability of women students cohabiting by a little more than .05.

It should be noted that the positive association between the dual-earner index and women in unions cohabiting is so strong that working women in the country with the highest score on the dual-earner index are almost as likely to cohabit as are women who are students in the country with the lowest score on the dual-earner index.

To sum up, it seems that hypothesis H8 – that the increased likelihood of women living in unions that comes with generous dual-earner policies should
go together with a higher likelihood of women in unions cohabiting – is correct even when controlling for women’s labor market status. Also, women outside the labor market seem more willing to enter cohabiting unions in countries with generous dual-earner policies. This indicates that generous dual-earner policies have an independent effect on women’s perceived need for a marriage contract in addition to the indirect effect they have by increasing women’s labor market attachment. As previously discussed, this likely has to do with the fact that generous dual-earner policies are necessary to enable mothers with small children to exploit their labor market attachment and remain financially independent of their husbands in the event of a union dissolution.

Generous dual-earner policies also seem to exert a significant indirect effect on women’s willingness to cohabit, via their positive effect on women’s labor market attachment. An indication of this is that the positive association between the dual-earner index and the likelihood of women in unions cohabiting increases and becomes significant at the 5-percent level when the controls for labor market status are excluded in Model 4.

Figure 7.3., which illustrates the association, shows that the likelihood of women in unions cohabiting is more than twice as high in the country with the most generous dual-earner policies as it is in the country with the least generous dual-earner policies. In other words, each log-unit increase on the dual-earner index increases the predicted probability of women in unions cohabiting by about .04. Thus, the combined direct and indirect effect of dual-earner policies on the likelihood of women in unions cohabiting is substantial.
Only one country-level control variable is significantly associated with the likelihood of women in unions cohabiting: the availability of part-time work as a percentage of the total workforce. The strength of the significant association is, on the other hand, considerable, especially in Model 4, which excludes the controls for women’s labor market status. Each log unit change on the index increases the expected odds of women in unions cohabiting by a factor of 1.77. As illustrated in Figure 7.4, this means that each log-unit change increases the predicted probability of women in unions cohabiting by about .035, when all other variables are held constant at their mean. In the country with the lowest availability of part-time work, the predicted probability of women in unions cohabiting is only .07. In the country with the highest availability of part-time work, the corresponding predicted probability is higher than .18. The predicted probability of women in unions cohabiting is, in other words, more than 150 percent higher in the country in which part-time work is most prevalent in comparison to what it is in the country in which part-time work is least available.
Figure 7.4. The availability of part-time jobs and the likelihood of women in unions cohabiting

Comments: Builds on Model 4 in Table 7.2. The graph shows the strength of the association between the availability of part-time jobs and the likelihood of women in unions cohabiting when all other variables are kept at the sample mean. The shaded area shows the 95-percent confidence interval.

The positive association between the availability of part-time work and the likelihood of women in unions cohabiting strengthens the impression that policies that help women retain their labor market attachment in the event they have children increase the likelihood of women cohabiting. The fact that they also do so after controls for women’s labor market status have been introduced in the models speaks for the conclusion that such policies have a direct positive effect on women’s financial independence in addition to the indirect positive effect they have via their positive effect on women’s labor market attachment. Women not only seem to give weight to their current earning potentials (financial independence) when deciding on whether to cohabit or marry, they also seem to give weight to how their future earning potentials (financial independence) will be affected by having children. In countries in which mothers have a relatively good chance to stay in the labor market and retain their financial independence, women are relatively willing...
to cohabit. In countries in which mothers must give up their careers and financial independence, women are less willing to cohabit.

The most striking observation, relating to the individual-level control variables, is the strong negative association between all indicators of religiosity and the likelihood of women in unions cohabiting. The hypothesis that religiosity increases the cost, and therefore lowers the probability, of cohabitation seems to be supported. However, it should be pointed out that the causal relationship likely works in both ways. Religious women are likely to adjust their lifestyles to their teachings and avoid cohabitation, whereas women who cohabit are likely to adapt to and defend their choice of union status by becoming less religious. Nonetheless, the association is so strong that it is reasonably safe to assume religiosity to have an impact on women’s likelihood of cohabiting. Women who attend church at least once a month, for example, have 60 percent lower odds of cohabiting than women who do not attend church regularly. Also, subjective religiosity reduces the likelihood of cohabiting. For each step on the eleven-point scale on which respondents are asked to estimate how religious they are, the odds of cohabiting are reduced by 5 percent. The combined negative association between church attendance and self-estimated religiousness and the likelihood of women in unions cohabiting is huge.

Interestingly, women’s denominational belonging seems intimately related to their likelihood of cohabiting. Practicing Protestant women are only slightly less likely to cohabit than women who do not belong to any denomination. In contrast, practicing Catholic and Orthodox women are much less likely to cohabit than women who do not belong to any denomination. This could mean that Catholic and Orthodox congregations are more effective in controlling their adherents’ relationship behavior. It could also mean that Catholic and Orthodox women have more conservative views on marriage than Protestant women. Whatever the reason, relatively few Catholic and Orthodox women cohabit.

As expected, women’s educational attainment is positively associated with their likelihood of cohabiting. But the association is, somewhat surprisingly, not significant, except for in Model 4. Furthermore, the significant association in Model 4 can likely be ascribed to the fact that educational attainment captures some of the effect of the excluded variables measuring women’s labor market status (highly educated women are more likely to work than less educated women). For some reason, highly educated women’s relative financial independence does not seem to matter for their choice between cohabitation and marriage. The most important factor affecting wom-
en’s choice of type of union seems to be whether they have a foot in the labor market.

Concluding discussion
To conclude, relatively many women cohabit in countries with generous dual-earner policies and high availability of part-time jobs. In part, this can be explained by the fact that generous dual-earner policies and the availability of part-time jobs increase women’s labor market attachment, and that women in paid work and education are more likely to cohabit than women outside the labor market. However, much of the positive association between said policies and women’s likelihood of cohabiting remains even after women’s labor force participation is controlled for. Policies shape women’s willingness to cohabit in more direct ways than through the effect such policies have on women’s labor force participation. Both hypothesis H7, that women with relatively high earning potentials should be more likely to cohabit than women with relatively low earning potentials, and hypothesis H8, that the increased likelihood of women living in unions that comes with generous dual-earner policies should result in an increased likelihood of women in unions cohabiting, are thus confirmed.

Religiousness also seems to play an important role in shaping cohabitation patterns in Europe. Religious women are much less likely than secular women to cohabit. Cultural and psychological traits, thus, also seem to matter for women’s choice of type of union. Together, family policies and religiousness can explain much of the variation in cohabitation patterns in contemporary Europe.

Women who cohabit make up only a minority of the women in unions in European countries. For most women, cohabitation is only a first step toward marriage. In other words, cohabitation functions as a kind of trial marriage, where partners can evaluate whether it is a good idea to get married for real (Perelli-Harris et al. 2009). Only in Sweden, and to a lesser extent in other Nordic countries, does cohabitation seem to be a real – permanent – alternative to marriage (ibid.). Most women who cohabit during their lifetimes eventually get married. The likelihood of women in unions cohabiting, hence, reveals only a part of policies’ effect on union stability. Much of the union instability associated with cohabitation should instead be sought after in marriages that started out as cohabiting unions, or in marriages in which the partners have cohabited with others before they got married.

Although the likelihood of women in unions cohabiting is relatively low, it is intimately linked with women’s overall likelihood of living in unions. As
THE LIKELIHOOD OF WOMEN LIVING IN UNSTABLE UNIONS

Figure 7.5 shows, dual-earner policies mainly affect working women’s and, especially, student women’s likelihood of living in unions by affecting their likelihood of cohabiting. Only to a lesser extent do they affect the likelihood of such women living as married. Women students, for example, only have a .04 higher predicted probability of being married in the country with the highest score on the dual-earner index compared to in the country with the lowest score on the dual-earner index. The predicted probability of such women cohabiting is, in contrast, .1 higher in the former country than in the latter country.

Figure 7.5. The dual-earner index and the likelihood of working women and women who are students living in unions, cohabiting, and living as married

Comments: Builds on Model 3 in Table 6.2 in Chapter 6 and Model 3 in Table 7.2 in Chapter 7. The graphs show how the likelihood of women living in unions and living as married correlate with the dual-earner index when all variables are kept at the sample mean.

Generous dual-earner policies also increase the likelihood of women outside the labor market cohabiting. Moreover, they do so without increasing their likelihood of living in unions. Together with the fact that the cohabitation rate is positively correlated with the number of married women who have cohabited, this fact makes it dubious whether generous dual-earner policies really has such a positive effect on fertility as its positive association with the likelihood of working women and women who are students cohabiting seems to indicate. As pointed out in Chapter 4, we know from previous research that unstable unions result in fewer children than stable unions. The fact that the unions women enter into in countries with generous dual-earner policies are less stable than the unions women enter into in countries with less generous dual-earner policies risks offsetting much of generous dual-earner policies’ positive effect on fertility. This risk is clearly illustrated by Figure 7.6, which shows how the likelihood of women living in unstable unions increases sim-
ultaneously as the likelihood of women living in unions increases with high scores on the dual-earner index.

Figure 7.6. The dual-earner index and the likelihood of women living in unions, cohabiting, living as married, and living as married without having cohabited

The figure shows that almost all of generous dual-earner policies’ positive effect on women’s likelihood of living in unions can be ascribed to the fact that such policies increase the likelihood of women cohabiting. It also shows that the likelihood of married women never having cohabited is halved with high scores on the dual-earner index. In the country with the lowest score on the dual-earner index, the predicted probability of a married woman not having cohabited is higher than .4. The corresponding likelihood in the country with the highest score on the dual-earner index is only a little above .2. The overall likelihood of women being married, however, does not vary between the two countries.

Given the modest increase in the likelihood of women living in unions between the countries, it is questionable whether generous dual-earner policies actually do increase fertility by increasing the likelihood of women living in
unions, as was argued in Chapter 4. One could even suspect the opposite to be true: that generous dual-earner policies lower fertility by reducing the likelihood of women living in stable unions.

It should be noted that generous family benefits do not increase the likelihood of women in unions cohabiting. At first sight, the positive association between the benefits index and the likelihood of women living in unions is, because of this, more likely to result in higher fertility than is the positive association between the dual-earner index and the likelihood of women living in unions. Thus, the conclusion that generous family policies in general have a positive effect on fertility is not threatened. Previous studies on the topic have likely underestimated the positive effect of generous family policies on fertility when they have avoided studying how family policies affect women’s likelihood of living in unions. It remains unclear, though, whether they have done so when they have avoided studying dual-earner policies’ effect on women’s likelihood of living in unions.

However, as was argued in Chapter 4, the negative effect of union instability on fertility can likely be offset by generous dual-earner policies. If this is the case, generous dual-earner policies’ positive effect on the likelihood of women living in unions might avoid being offset by such policies’ destabilizing effect on unions. Thus, it is still possible that previous studies have underestimated the positive effect of generous family policies on fertility when they have neglected to study such policies’ effect on women’s likelihood of living in unions.

To establish whether previous studies have underestimated the positive effect of generous dual-earner policies on fertility, it is therefore necessary to investigate the association between union instability and fertility – and how it is affected by the generosity of dual-earner policies. That is what I do in the next two chapters.
Union instability and women’s fertility decisions

Women’s willingness to have children outside wedlock varies considerably between countries. In some countries, almost no women have children before they marry. In other countries, a majority of women have children without being married. I argued in Chapter 4 that this variation can be explained by the varying generosity of dual-earner policies. The overall aim of this chapter is to test this hypothesis. I do so by investigating what effect union instability and the generosity of dual-earner policies and the interaction between the two have on the likelihood of women having a first, a second, and a third child. The chapter starts with a brief review of my argument and a description of aggregate fertility patterns. Following that is a discussion on how to test the argument on micro-level data and the following empirical study. The chapter ends with a discussion of the empirical findings and their implications.

Hypotheses

I argued in Chapter 4 that union instability increases the risk of reproductive investments from an individual perspective. This is especially true from a woman’s perspective, as it is women who tend to bear the main burden of reproductive investments in terms of pregnancies and child-rearing. Hence,

\[ H1. \text{Union instability should reduce fertility.} \]

Given that cohabitation and past experience of cohabitation have been proven to be good indicators of union instability (see Chapter 5), we could reformulate H1 as follows:
BEDROOM POLITICS

H1. Cohabitation and past experience of cohabitation should reduce fertility; women who cohabit and those who are married but have previously cohabited should be less likely to have another child than women who are married and have never cohabited.

Unlike most other family policies, generous dual-earner policies reduce women’s risk of having children in unstable unions. For example, they allow women to retain their financial independence when they become mothers. Because of this we should expect that,

H2. Generous dual-earner policies should reduce the negative effect of union instability on fertility.

Given that cohabitation and past experience of cohabitation are good predictors of union instability, we could reformulate H2 as follows:

H2. Generous dual-earner policies should reduce the negative effect of cohabitation and past experience of cohabitation on fertility: women who cohabit or who are married but have previously cohabited should be more likely to have another child in countries with generous dual-earner policies than in countries with less generous dual-earner policies.

In addition to this indirect positive effect on fertility, generous dual-earner policies are also, like other generous family policies, likely to have a direct positive effect on fertility because they reduce the costs of reproduction. Hence,

H3. Generous family policies should increase fertility.

It follows from the hypotheses above that:

• All else being equal, we should expect women in unstable unions (i.e., women who cohabit or are married but have previously cohabited) to have fewer children than women in stable unions (i.e., women who are married and have never cohabited).
• All else being equal, we should expect the fertility gap between women in unstable and stable unions to be smaller – or even non-existent – in countries with relatively high scores on the dual-earner index.
• All else being equal, we should expect women in countries with high scores on the dual-earner index (and other family policy in-
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dexes) to have more children than women in countries with low scores on the dual-earner index (and other family policy indexes).

Below I try to verify these implications with aggregate data.

Aggregate fertility patterns

Aggregate fertility patterns are largely consistent with hypothesis H3, that generous family policies should increase fertility. Both family policy indexes correlate positively with the total fertility rate. As expected, the strongest correlation is that between the log of the dual-earner index and the total fertility rate (Pearson’s R: .68; see Figure 8.1).

Figure 8.1. The generosity of dual-earner policies and the total fertility rate

Pearson’s R: .68

Countries with high scores on the dual-earner index – that is, countries that have generous subsidies for child care and paid parental leaves – have rela-
tively high fertility rates, whereas countries with low scores on the dual-earner index have relatively low fertility rates. The difference is huge in practical terms. Women, on average, have about 0.5 more children in the countries with the highest scores on the dual-earner index compared to the countries with the lowest scores on the dual-earner index.

There is also a positive correlation between the log of the benefits index and the total fertility rate. The strength of the correlation, however, is very weak (Pearson’s R: .17; results not shown). If generous family benefits have a positive effect on fertility, the effect does not reveal itself particularly well in a bivariate correlation with the total fertility rate.

The data provided by the ESS makes it possible to do a rudimentary test to determine if there is also a fertility gap between women living in stable and unstable unions, and if it exists, to what extent it varies between countries with different scores on the dual-earner index. To test whether this is the case, below I present figures on how many children 35- to 45-year-old women have had during their lives by their union status at the time of their interview for the ESS. I separate the women into two groups, depending on whether the countries they live in score below or above the mean value of the dual-earner index (which largely coincides with the median value so that the groups contain an equal number of countries). The results are presented in Table 8.1 below.

Table 8.1. Achieved fertility by union status (women aged 35–45)

<table>
<thead>
<tr>
<th></th>
<th>Below mean level of the dual-earner index</th>
<th>Above mean level of the dual-earner index</th>
<th>Fertility difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Married (have not cohabited)</td>
<td>2.10</td>
<td>2.18</td>
<td>+0.08</td>
</tr>
<tr>
<td>Married (have cohabited)</td>
<td>1.82</td>
<td>2.24</td>
<td>+0.42</td>
</tr>
<tr>
<td>Cohabiting</td>
<td>1.35</td>
<td>1.78</td>
<td>+0.43</td>
</tr>
<tr>
<td>No union</td>
<td>0.96</td>
<td>1.31</td>
<td>+0.35</td>
</tr>
<tr>
<td>All women</td>
<td>1.74</td>
<td>1.97</td>
<td>+0.23</td>
</tr>
</tbody>
</table>

Comments: The table shows the average number of children women aged 35–45 have had during their lives by their union status at the time of their interview for the ESS. The women are divided into two groups depending on whether they live in countries that score above (mean score: 3.7) or below (mean score: 2.8) the average value (3.3) of the dual-earner index (1999–2006). The mean difference between the two groups’ scores on the dual-earner index is 0.9. All countries are weighted equally (i.e., provide one observation). Source of data: Rounds 2 and 3 of the European Social Survey.

Although the generosity of dual-earner policies has increased in recent years, the pattern of relative generosity has, as has been pointed out earlier, been rather stable over time. Because of this it is fairly safe to conclude that wom-
en in countries that today score above the mean value of the dual-earner index have historically experienced more generous dual-earner policies than women who live in countries that today score below the mean value of the dual-earner index. If my argument is correct, we should consequently expect fertility differences between women in stable and unstable unions to be less accentuated in the aforementioned countries.

In line with the expectations, union instability correlates negatively with the number of children women had at the time for their interview, especially in countries that score relatively low on the dual-earner index. In countries that score below the average of the dual-earner index, cohabiting women have about 0.8, and married women who have cohabited have about 0.3, fewer children than married women who have not cohabited. In countries that score above the average, the corresponding differences are much smaller or even non-existent. Also, women who were not living in a union at the time of their interview for the ESS (i.e., single women who may or may not have lived in unions that had broken up before the time of their interview) have more children in countries with relatively generous dual-earner policies. On average, women who live in unstable types of unions or have had unions that ended before their interviews have 0.4 more children in the countries with relatively generous dual-earner policies. Given this, it is remarkable that the total number of children of women who live in the most stable type of union differs only somewhat between countries. This observation seems to support the conclusion that women in unstable unions have more children in countries with generous dual-earner policies, whereas women in relatively stable unions are not affected to the same extent by dual-earner policies in their fertility decisions. As the last row of the table shows, this also means that women in countries with generous dual-earner policies on average have more children (0.23 children to be exact) than women in countries with less generous dual-earner policies. The fact that the total fertility gap is somewhat smaller than the fertility gap for women in less stable unions can be ascribed to the fact that relatively many women live in the most stable types of unions in the latter countries. Nonetheless, women in the former countries on average have almost 0.25 children more than women in the latter countries.

However, the comparisons of means between groups of women presented above cannot do more than lend some initial credibility to my argument. The comparison does not control for other factors that could potentially confound the results, and it strains the limit on how far back in time we can assume present-day conditions to mirror past conditions. Completed fertility is, after all, a product of women’s complete adult life histories, and for the oldest women in the sample, these life histories go back over 25 years. Therefore,
below I turn to test my argument in a more thorough way with individual-level data.

Data and method
In order to test my hypotheses in a more thorough way, I next estimate multi-level logistic regression models of the likelihood of women in unions having experienced a birth during the three-year period prior to the year they were interviewed for their participation in the second and third rounds of the European Social Survey.

The dependent variable
Despite its limitations, the ESS provides reliable and detailed yearly retrospective data on women’s fertility histories. This means that we can know for certain how many children a woman has had and the year(s) in which she gave birth to them. From this data it is possible to construct full fertility histories for all women in the sample. For a certain year we can know how many children a woman has had up until that year and how many years it was since she last had a child. We can, moreover, know if she had a child during the year. This data makes it possible to estimate the likelihood of a woman giving birth in a certain year, given the previous number of children she has had. I have used this data to construct a dependent variable measuring the likelihood of a woman having given birth in the three-year period prior to the year in which she was interviewed for her participation in the ESS, conditioned on her previous number of children.

The likelihood of women having given birth within the three-year period prior to their interview for the ESS is modeled separately for women who had no children or one child at the start of the three-year period and women who had two or more children at the start of the three-year period. Only women who could potentially experience a birth of the parities in question at the start of the three-year period are included in the models. Hence, the models that estimate the likelihood of experiencing a first or a second birth include only women who were childless or had one child at the start of the three-year period. The models that estimate the likelihood of having a third- or higher-order child include only women who had at least two children at the start of the three-year period.

The reason for modeling the likelihood of a first and a second birth separately from the likelihood of third- and higher-order births is that the effects of individual- and macro-level variables on fertility have been shown to dif-
fer depending on how many children a woman has already given birth to. For example, studies have shown that highly educated women tend to wait longer than less educated women before having their first child, but that, after their first births, they proceed as quickly to higher-order births as less educated women (Kravdal 2004). To account for this, I have as far as possible modeled births of different parities separately so that the effects of all variables are allowed to vary between parities. Ideally, it would have been preferable to model births of all parities separately. However, the relatively small number of women of childbearing age that were interviewed for the ESS makes such a strategy unfeasible. To achieve the statistical power that comes with adequate numbers of women it has been necessary to pool together women who had different numbers of children at the start of the three-year period.

The choice to model first and second births together and separately from third- and higher-order births has been guided by two considerations. The first is practical and builds around the fact that the numbers of women in unions who had no children or only one child at the start of the three-year period are relatively small, taken separately. Considerably more women in unions had two children at the start of the period. By pooling together the women who had no children or one child at the start of the three-year period we get a group that is somewhat larger than the group of women who had two or more children at the start of the period.

The second consideration is more theoretical and builds on the fact that third- and higher-order births are much less common than first and second births. Women who have three or more children are likely to be a very select group because they are so few. Women who have one or two children, in contrast, constitute a much broader group, which includes the majority of women in European countries. Because of this, the two groups are likely to differ considerably with respect to fertility-relevant characteristics. For this reason I have chosen to study the effect of family policies and other variables separately for the two groups. To account for the fact that women within the groups have different numbers of children, I have included dummy variables for the number of children each woman has at the start of the three-year period. To also account for the fact that some variables are likely to vary in effect between women with different numbers of children within the two separate groups, I have in some cases interacted independent variables with the number of children a woman has at the start of the three-year period (see the variable description below for information on which variables have been interacted).

Ideally, it would have been best to investigate the fertility histories of the respondents from the day they turned 18 until the time they were interviewed.
for the ESS. The main reason I, despite this, have decided to use a three-year period to measure fertility is that reliable data for many of my independent variables is unavailable or unreliable for longer time periods. Reliable comparative data on dual-earner policies, for example, is available only from the end of the 1990s for most of the countries included in the study.

The reason I have decided on a three-year period instead of a four-, two-, or one-year period (which the data would have allowed for) has partly to do with statistical convenience. The distribution of the dichotomous variables measuring whether a respondent has experienced a first- and a second-order birth is rather skewed in favor of respondents not having given birth for periods shorter than three years. As for statistical reasons, it is preferable to have an evenly distributed dependent dichotomous variable, and the choice of a three-year period is convenient from a methodological point of view.

A second reason for using a three-year period, instead of a longer or shorter time period, is that the second round of the ESS contains data on whether women intend to have a child in the three years after their interview. This use of three-year periods in research on fertility intentions is widespread. In the next chapter I explore what effect family policies and union instability have on such fertility intentions. Using a three-year period as the dependent variable in this chapter allows for the results in the chapters to be directly compared to each other as well as with the previous research on fertility intentions.

To sum up the discussion on the dependent variable, the first set of models presented below illustrates the likelihood of women in unions who have no children or one child at the start of the period having a first or a second child within the three-year period prior to the year of their interview for the ESS. The second set of models illustrates the likelihood of women in unions who have two or more children at the start of the period having a third or higher-parity child within the three-year period prior to the year of their interview.

Design of the study
The models of the likelihood of women in unions giving birth during the three-year period preceding the year they were interviewed for their participation in the ESS could be compared to a two-stage panel study with information collected before and after the three-year period. The only difference from an ordinary two-stage panel study is that the data for the first stage has been collected retrospectively at the second stage. Under normal circumstances the fact that data has been collected retrospectively could render causal interpretations of the effect of variables difficult. The data on women’s
fertility histories, however, is likely to be very reliable and not likely to entail retrospective adjustments.78 Therefore, the dependent variable fits all necessary conditions for a two-stage panel design; it reliably measures whether an event does or does not occur during the three-year period under study, given a number of known conditions at the start of the period.

In order to give the coefficients in the models a causal interpretation, the independent variables must also measure the state of affairs at the start of, and during, the three-year period in a reliable way. Therefore it is necessary to examine more closely the quality of the data available for the construction of independent variables.

Before doing so, however, it is necessary to bring up another question. Namely, what does the dependent variable really measure? Does the dependent variable only measure the timing of fertility, or does it also measure the quantum of fertility? The simple answer is that there is no real answer: we cannot know for certain if it measures the timing or quantum of fertility. A more nuanced answer is that at least the models of the likelihood of women having third- and higher-order children likely to some extent measure effects on the quantum of fertility. Third- and higher-order births are relatively uncommon in Europe. Therefore, in most cases, such births are reliable indicators of the quantum of fertility. When it comes to first and second births, the question is more complicated. However, it should be noted that timing effects can also have an impact on the quantum of fertility. Women’s fecundity falls with age, and drastically so after they enter their mid-30s. If women wait too long to have children it is not certain they will be able to have the number of children they intend to. Only in some countries do women recuperate the births they postpone later in life. In other countries, women wait so long before they attempt to have children that age prevents them from having the children they once intended to have. Therefore, it is likely that at least some of the effects on the likelihood of women having a first and second child can be interpreted as effects on the quantum of fertility. However, caution should be observed when interpreting effects on women’s likelihood of having first and second children as effects on the quantum of fertility.

Country-level independent variables

All variables at the country level measure the conditions during and directly prior to the three-year period. They represent the average policy and labor

78 The only minor exception to this judgment is the fact that women are asked to report only all surviving children they have given birth to. Thus, children who have died after birth are not included in the women’s fertility histories. The absence of this information, however, is likely to be a very minor problem given the low rates of infant and child mortality in contemporary Europe.
market conditions of the three-year period prior to the year of the interview, plus the year prior to the three-year period. Thus, the country-level variables represent four-year averages. The reason I have chosen to include the year preceding the three-year period in the four-year averages is to account for the fact that the decision to have a child must be taken approximately nine months before a birth occurs. Because of this, births occurring during the three-year period can, in some cases, reflect fertility decisions taken the year before the start of the three-year period. To capture the factors involved in such decisions it is necessary to account for conditions during the year prior to the three-year period. The choice to use four-year averages for all country-level variables is thus a consequence of the ambition to capture the conditions women are likely to have taken into account when deciding on whether to have a(nother) child during the three-year period prior to their interview for the ESS. Since the country-level variables actually capture these conditions, it is possible to give their coefficients a causal interpretation.

The generosity of family policies is measured by the log of the dual-earner index, the log of the benefits index, and the log of the availability of part-time jobs.

Two variables are used to measure labor market conditions: the log of the total unemployment rate and the log of the female labor force participation rate. The expected association between the unemployment rate and the likelihood of women having a(nother) birth during the three-year period is ambiguous. Insofar as women are affected by the unemployment rate, it is likely to increase women’s incentives to have a(nother) child. This is because the risk of future unemployment reduces women’s expected earning prospects and, hence, also their expected costs of reproduction. However, to the extent that men are affected by the unemployment rate, it is likely to reduce women’s incentives to have a(nother) child. In cases where the male partner risks becoming, or actually becomes, unemployed, the income effect is likely to dominate the opportunity effect, so that the family cannot afford to have

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79 There are two exceptions to this rule, namely the child care availability and cost components of the dual-earner index. Yearly data for the availability and cost of child care is not available for all years during the two four-year periods. Data on the availability of child care is only available for the years 1999/2000 and 2005. Data on the cost of child care is only available for the year 2005. Because of this, the availability component is measured by the average of the figures for 1999/2000 and 2005 for women participating in round 2 of the ESS, and by the figures for 2005 for women participating in round 3. The cost component is measured by the figures from 2005 for all women. Although the lack of data is unfortunate, it should be noted that the availability of child care in 1999/2000 correlates highly with the availability in 2005 (.8). There is a general trend towards greater availability, but the broad country patterns remain intact. In addition, it should be pointed out that the available data represent the year before and the year after the first four-year period. Thus, it suffices that the increase in child care availability is constant over the period for the used average to perfectly represent the average availability of child care during the period.
a(nother) child. Which effect dominates the other is an open question. How-

ever, recent research indicates that a high unemployment rate reduces fertility
(Adserà 2004; 2011), hence the effect is likely to be negative.

For reasons described below it is not possible to control for women’s in-
dividual earning opportunities in the models by measuring their attachment to
the labor market. Therefore, I have chosen to include the female labor force
participation rate as a proxy of women’s overall earning opportunities. Since
women’s earning opportunities increase their costs of reproduction, the ex-
pectation is that the association between the female labor force participation
rate and women’s likelihood of having a(nother) child will be negative.

Finally, I have included the percentage of women who live with their par-
ents in a country as a proxy for other factors that could affect women’s re-
productive decisions, such as housing prices and youth unemployment rates.
The expectation is that there will be a negative association between this vari-
able and the likelihood of women having a(nother) child.

Individual-level independent variables
If the country-level variables reliably measure policy conditions and econom-
ic conditions during the four-year period prior to the interview, the situation
is somewhat different when it comes to the individual-level variables. The
most important independent individual-level variables are women’s union
status and union histories. Unfortunately, the individual data on union histo-
ries provided by the ESS only contains fully reliable information on the sta-

tus and duration of the union respondents lived in at the time they were inter-
viewed for their participation in the ESS. Unions preceding the union in
which respondents were living at the time of their interview are only sketchi-
ly covered by the data (respondents who state that they are not living in a
union at the time of the interview are asked if they have ever lived with a
partner before the time of the interview and under what circumstances they
have done so). This means that we can know only five things about women’s
unions and union histories for certain. First, we can know whether a woman
lived in a union at the time of her interview for the ESS. Second, in cases
where the woman was living with a partner at the time of her interview, we
can know how long the union had lasted at the time of the interview. Third,
in cases where a woman did not live with a partner at the time of her inter-
view, we can know whether she had lived in a union before her interview.
Fourth, in the event a woman was living in a union at the time of her inter-
view, we can know whether she was cohabiting or married. Fifth, in the event
a woman was married at the time of her interview, we can know if she had
ever cohabited with a partner without being married to him.
From this data it is possible to construct dummy variables measuring the type of union in which a woman lived at the time of her interview for the ESS. First, we can know if she cohabited or lived as married. Second, we can distinguish whether she lived as married without having experienced unmarried cohabitation or whether she lived as married having experienced unmarried cohabitation. Together, these distinctions make it possible to differentiate between five types of unions and modes of single living: i) cohabiting unions, ii) unions built on marriage and in which the woman has experienced unmarried cohabitation, iii) unions built on marriage in which the woman has not experienced unmarried cohabitation, iv) women who did not live in a union at the time of their interview, but who have lived in a union sometime during their lives, and v) women who have never lived in a union. I use these distinctions to create a set of dummy variables that can be used as proxies for union stability. This set includes three dummy variables following the three first distinctions mentioned above. In line with the expectations discussed in Chapter 5, cohabiting unions are expected to be least stable, marriages in which the woman has cohabited are expected to be of average stability, and marriages in which the woman has not cohabited are expected to be most stable.

The ESS also provides information on how many years a woman has lived in the union in which she was living in at the time of her interview for the ESS. From this information it is possible to construct a control variable measuring the number of years within the four-year period prior to the year of her interview during which she did not live with the partner she had at the time of the interview. This variable is used as a technical control to account for the fact that some women have not lived with their partners during the entire four-year period preceding the year of their interview (the variable is used in the regressions, but is not reported in the results).

So far the retrospective information on women’s union histories provided by the ESS is rather reliable. However, the ESS does not provide information on two other dimensions of women’s union histories that we ideally would want to know about. First, and most important, we cannot know whether a woman who does not live in a union at the time of her interview for the ESS, but who has lived with a partner previously, lived in a union during any of the other four years described above. Therefore, these years are counted for all women. The resulting variable is included as a technical control measuring the number of years during the four-year period a woman has not lived with the partner she had when being interviewed for the ESS (this variable is used in the regressions, but is not reported in the results).
years of the four-year period prior to her interview. Because of this, women who lived in a union that broke up during the period are left censored and counted together with the women who lived as singles during the whole period in a separate category. With the exception of the robustness tests (see below), this category of women is excluded from the models.\textsuperscript{81}

The second problem with the data provided by the ESS is that we cannot know whether a woman who was married at the time of her interview, but who has experienced unmarried cohabitation, married before or during the period under investigation. Such a woman may have lived a part of the investigated period in a cohabiting union. As it is not farfetched to assume that it is the most stable cohabiting unions that are turned into marriages, the lack of reliable retrospective data risks making cohabiting unions appear less likely to result in children than they really are.

To circumvent these problems and test whether my results are robust for the exclusion of women whose unions ended before the end of the four-year period and the problem of distinguishing between married women who have cohabited before and during the period, I construct a second set of dummies measuring union stability. This second set also contains three dummy variables, which, in order of stability, distinguish between i) women who live as married and who have not experienced unmarried cohabitation, ii) women who cohabit or live as married and have experienced unmarried cohabitation, and iii) women who have lived with a partner but who were single at the time of their interview. The models using this set exclude only women who at the time of their interview stated that they had never lived with a partner. Thus, they solve the problem of the exclusion of women whose unions ended during the investigated period. By merging married women who had experienced unmarried cohabitation and women who were cohabiting into one group, the models also partially solve the problem of distinguishing between

\textsuperscript{81} It might seem as if this omission potentially threatens to undermine my findings, as it is possible that results would have been different if this group of women had been included. However, I argue that this shortcoming only threatens to undermine null results. It does not threaten eventual confirmations of my hypotheses. Unions not lasting the entire four-year period can by definition be said to have been relatively unstable. The surviving unions used to model union stability’s effect on women’s likelihood of having children are, thus, more stable than unions were in general during the four-year time period. In other words, the surviving unstable unions can be seen as relatively stable unstable unions. In all likelihood, this means that it will be harder to detect an eventual negative effect of union instability on fertility among the unions used in the models presented below, than it would have been if the unions that broke up during the four-year period had also been included in the models. Likewise, it will in all likelihood be harder to detect an eventual positive effect of dual-earner policies on fertility among women who live in unstable unions. The exclusion of women who lived in unions that broke up during the four-year period thus makes the test for my hypotheses harder than it would have been if the women had been included in the models.
married women who have lived part of the period in cohabiting unions and those who have not. The simple solution is to treat all women who have started out as cohabiters uniformly (unless they were not living as singles at the time of their interview). Thus, it is possible to estimate the overall effect of starting out as a cohabiter (as opposed to starting out as married) on the likelihood of having children during the investigated period.

Also, a limitation of most individual-level control variables is that the ESS mainly provides information on the status of the respondents at the time of their interviews and not on their past status. However, in most cases the problem of lacking information on the respondents’ past is not so grave as to warrant their exclusion from the models, although, caution with causal interpretations is advised. The only exception to this rule is women’s labor market attachment.

The information on women’s labor market attachment that is provided by the ESS is not suitable for modeling women’s fertility decisions four years back in time, as it only reports on women’s activities during the week prior to their interview. As it is well known from previous research that women who have given birth to a child tend to withdraw from the labor market during a longer time period, it would be impossible to use this information to model women’s fertility decisions without running into overwhelming endogeneity problems. For this reason I have chosen not to include control variables on women’s labor market attachment as proxies for their earning capacities in the models presented below. Instead, I have decided to use the female labor force participation rate to measure women’s overall earning opportunities.

To have at least some measure of women’s individual earning opportunities, I have included in the models women’s highest level of educational attainment at the time of their interview. This variable is also problematic, as it is measured at the end of the period and in some cases is likely to have changed during the period. However, the problem is not as large as it might seem. Most students know when they begin their studies what their future highest level of education will be. A student of medicine, for example, knows that, in all likelihood, she will be a medical practitioner in the future. This makes it likely that women take their future level of education into consideration when deciding whether to have a(nother) child. If this is the case, it does not appear problematic to model women’s fertility decisions during the period as a consequence of their educational attainment at the end of the period.

82 The ESS instructs interviewers to code women who are on parental leave as working if they have a job to go back to after the leave period ends. However, in many countries the only way for women to stay at home with their children is to quit their jobs, so the coding instructions provided by the ESS do not solve the discussed endogeneity problem.
Therefore, I include a dummy for women’s educational attainment, coded as 1 if the woman has a university education and as 0 if she does not, as a control variable in the models below. The expectation is that women who have a university education will be less likely to give birth during the three-year period, because of their greater earning opportunities.

For similar reasons as those for including women’s educational attainment in the models, I also include a control variable measuring the educational attainment of the women’s partners. The idea is that this variable, which is coded as 1 if the partner has a university education and as 0 if he does not, will control for the impact of the partner’s earning opportunities on the couple’s fertility decisions. Men’s earning opportunities have been proven to have a positive effect on their partners’ fertility in several studies. Therefore, the expectation is that women who have a partner with a university education will be more likely than women who do not have a partner with a university education to have a child during the three-year period.

If it is reasonable to model women’s fertility decisions as a consequence of their educational attainment at the time of their interview, it is more problematic to model their fertility decisions as a consequence of where they reside (whether in an urban or rural area) at the time of their interview. We know from previous research that high rural and low urban fertility, at least in part, is a consequence of selection mechanisms (Kulu & Vikat 2008). Families who plan to have children move from urban areas to more rural areas for several reasons, and women who do not plan to have children often move from rural areas to urban areas. Given these facts, it could be doubted whether it is wise to include in the models controls for where women reside at the time of their interview. Nonetheless, I have done so to account for the fact that women in urban areas also tend to have fewer children for reasons other than the selection effect discussed above. Housing, for example, tends to be more expensive in urban areas than in rural areas, making it more costly to acquire adequate space for housing another child. However, the sign of the coefficient of the resulting variable should be interpreted with caution given the possibility of the effect going in both ways.

Similar caution is warranted when interpreting the coefficients of variables measuring different aspects of religiousness. It is not unthinkable that the arrival of a child could increase the mother’s religiousness. Several studies, for example, have shown that women who have children tend to adopt more conservative values. However, it is likely that the subjective and behavioral aspects of religiousness are more prone than the more institutional aspects of religiousness to such change. The coefficients of the dummies measuring denominational belonging (Catholic, Protestant, Orthodox, Other denomina-
tion and No denomination) are therefore likely to provide reliable estimates of the influence of religiousness on fertility.

In addition to the abovementioned control variables, the models also include dummy variables distinguishing between women with different numbers of children. The models of the likelihood of women in unions having a first and a second child include a dummy variable distinguishing between women who did not have a child at the start of the period and women who had one child at the start of the period. The models of the likelihood of women in unions having third- and higher-order children include a dummy distinguishing between women who only had two children at the start of the period and women who had three or more children at the start of the period.

In one case I have chosen to interact the number of children women have with another individual-level variable – namely, union stability. As was pointed out in Chapter 5, the arrival of a(nother) child tends to stabilize a union. Therefore, union instability is likely to diminish with the number of children a woman has. It is also likely that only relatively stable “unstable” unions result in children in countries that lack generous dual-earner policies. In other words, the suitability of union status as a proxy for union stability is likely to lose in value for each child a woman has. Because of this, I have chosen to interact the dummies representing women’s union status with the number of children a woman has in the models of the likelihood of women having a first and a second child. I have not deemed it necessary to do so in the models of the likelihood of women having a third- or higher-order child, as it is reasonable to assume that the value of union status as a proxy for union stability is diluted when women have had two or more children.

All models also include control variables for women’s age and women’s age squared at the start of the three-year period as well as a dummy variable representing the round of the ESS that the women were interviewed for (the last variable is only used in the regression and is not reported in the results).

Although some of the individual-level control variables introduce endogeneity problems into the models, it should be pointed out that their inclusion (women’s labor market status) and exclusion (religiousness and area of residence) do not alter the coefficients and standard errors of the (more reliable) main variables in any important aspects (results not shown; available from the author on request). Thus, endogeneity is primarily a problem when it comes to interpreting the causal effect of some of the control variables. The main results presented below do not seem to be affected in any important sense.
Cross-level interactions
In addition to the country and individual-level variables, some of the models also include a cross-level interaction between union status and the log of the dual-earner index. This interaction, which allows for the effect of the dual-earner index to vary between women with different union statuses, is included to test whether generous dual-earner policies reduce union instability’s negative effect on fertility.

Sample restrictions
As the purpose of the models is to test how union instability and the generosity of family policies affect women’s fertility, the sample of women is restricted to include only women who were of fertile age during the three-year period prior to the year of their interview for the ESS. In practice this means that only women who were older than 17 years and younger than 42 years at the start of the period, and older than 20 years and younger than 45 years at the end of the period are included in the models. First, I run models that include only women who were living in unions at the time of their interview for the ESS. The reason for including only women with partners in the models is that a partner is a necessary condition for having children in most countries in Europe. However, to account for the problem of imperfect information on women’s past union histories, I also, as mentioned above, rerun all models without excluding women who did not live in a union at the time of their interview for the ESS, but who had done so at some point in their lives.

Statistical models
One advantage with multilevel modeling, in addition to the advantages mentioned in Chapter 5, is that multilevel modeling allows for the effect of specific variables to vary between contexts. In essence, this means that the slope of the coefficient of a variable, such as being married without having experienced unmarried cohabitation, is allowed to differ between clusters. Significant variance in the slope of being married without having experienced unmarried cohabitation indicates that there is systematic between-context variation worth exploring. Moreover, once I have introduced an interaction term for being married without having experienced unmarried cohabitation and the dual-earner index, the proportion of the remaining variance will present information about whether the interaction term picks up all systematic between-context variation in the effect of being married without having experienced unmarried cohabitation. I will use this feature of multilevel modeling
when testing whether the effect of union instability varies between countries, due to the generosity of the dual-earner index (i.e., I will use it to test H3).

The multilevel models of the likelihood of women aged 18 to 45 having a first or second child during the three-year period include 5365 women from 22 countries. The multilevel models of the likelihood of women aged 18 to 45 having a third- or higher-order child during the three-year period include 4288 women from 22 countries. Formally, the first models measure the probability that individuals, $i$, nested within countries, $j$, have a child, $Y=1$, given a number of covariates, $X_1,...,X_n$ (below represented with their names) and an intercept $B_0$. The models also include a random intercept, $U_{0j}$, which represents country-specific likelihoods of women having a birth during the three-year period, and a random coefficient, $U_{1j}$, which allows for the effect of being married without having experienced unmarried cohabitation, to vary between countries.\(^\text{83}\)

$$\log \pi_i (\tau_j) = \beta_0 + \beta_A \text{Age}_i + \beta_A \text{Age}_i \times \text{age}_j + \beta_{\text{urban}} + \beta_{\text{university}} + \beta_{\text{Church 1/ month}} + \beta_{\text{religion}} + \beta_{\text{Catholic}} + \beta_{\text{Protestant}} + \beta_{\text{Orthodox}} + \beta_{\text{Other denominations}} + \beta_{\text{Essround}} + \beta_{\text{Married (only)}} + \beta_{\text{Married (have cohabited)}} + \beta_{\text{(log) Dual – earner index}} + \beta_{\text{(log) Benefits index}} + \beta_{\text{(log) Unemployment rate}} + \beta_{\text{(log) Part time work}} + \beta_{\text{(log) Living with parents(%)}} + \beta_{\text{(log) FLFP}} + \beta_{\text{(log) Married (only)}} \times (\log) \text{Dual – earner index} + \upsilon_{ij} + \upsilon_{ij} \text{Married (only)},$$

For the same reasons discussed in Chapter 5, all units are weighted with design weights, but not with population weights. The questions guiding this chapter are whether the likelihood of women in unions having a(nother) child varies between countries and between women within countries, and to what extent can the potential variation be explained by union instability and family policies. The question is not how likely an average woman in a union, from the 22 countries included in my models, is to have a(nother) child.

Summary statistics of all variables are presented in the results section separately for the models of the likelihood of women having a first or second child and the models of the likelihood of women having a third- or higher-order children.

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\(^{83}\) Technical note: The models have been run with *gllamm* in Stata10 (see Rabe Hesketh, Skrondal & Pickles 2004; Rabe-Hesketh & Skrondal 2005).
The likelihood of women having a first and a second child

Of the 5391 women in unions in the sample who had no children or one child at the start of the three-year period, 33 percent gave birth in the following three years. Women who had one child were somewhat more likely to give birth during this period than women who were childless.

Table 8.2. Summation of variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Observations</th>
<th>Mean</th>
<th>Std. dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experienced a birth</td>
<td>5391</td>
<td>.33</td>
<td>.47</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Age</td>
<td>5391</td>
<td>29.3</td>
<td>6.1</td>
<td>18</td>
<td>42</td>
</tr>
<tr>
<td>Age*age</td>
<td>5391</td>
<td>.64</td>
<td>.48</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Rural residence (ref.)</td>
<td>5391</td>
<td>.36</td>
<td>.48</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Urban residence</td>
<td>5391</td>
<td>.64</td>
<td>.48</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Low education (ref.)</td>
<td>5391</td>
<td>.66</td>
<td>.47</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>High education</td>
<td>5391</td>
<td>.34</td>
<td>.47</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Partner low education (ref.)</td>
<td>5391</td>
<td>.71</td>
<td>.45</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Partner high education</td>
<td>5391</td>
<td>.29</td>
<td>.45</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Monthly church att.</td>
<td>5391</td>
<td>.23</td>
<td>.42</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Not attending church (ref.)</td>
<td>5391</td>
<td>.77</td>
<td>.42</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Religiocity</td>
<td>5391</td>
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<td>2.9</td>
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<td>10</td>
</tr>
<tr>
<td>Protestant</td>
<td>5391</td>
<td>.15</td>
<td>.36</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Catholic</td>
<td>5391</td>
<td>.35</td>
<td>.48</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Orthodox</td>
<td>5391</td>
<td>.04</td>
<td>.19</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Other</td>
<td>5391</td>
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<td>.21</td>
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</tr>
<tr>
<td>Not belonging to church (ref.)</td>
<td>5391</td>
<td>.41</td>
<td>.49</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Have no children</td>
<td>5391</td>
<td>.59</td>
<td>.49</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Have one child</td>
<td>5391</td>
<td>.41</td>
<td>.49</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Cohabiting (ref.)</td>
<td>5391</td>
<td>.26</td>
<td>.44</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Married (cohabited)</td>
<td>5391</td>
<td>.29</td>
<td>.46</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Married (only)</td>
<td>5391</td>
<td>.45</td>
<td>.50</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>(log)Dual-earner index</td>
<td>5391</td>
<td>3.33</td>
<td>.56</td>
<td>2.30</td>
<td>4.46</td>
</tr>
<tr>
<td>(log)Benefits index</td>
<td>5391</td>
<td>1.76</td>
<td>.53</td>
<td>0</td>
<td>2.73</td>
</tr>
<tr>
<td>(log)Part-time employment</td>
<td>5391</td>
<td>2.66</td>
<td>.73</td>
<td>.74</td>
<td>3.82</td>
</tr>
<tr>
<td>(log)Unemployment rate</td>
<td>5391</td>
<td>1.85</td>
<td>.58</td>
<td>.64</td>
<td>2.94</td>
</tr>
<tr>
<td>(log)FLFP</td>
<td>5391</td>
<td>4.07</td>
<td>.16</td>
<td>3.76</td>
<td>4.39</td>
</tr>
<tr>
<td>(log)% Living with parents</td>
<td>5391</td>
<td>1.85</td>
<td>.62</td>
<td>.86</td>
<td>2.78</td>
</tr>
<tr>
<td>Married (only) x (log)Dual-earner index</td>
<td>5391</td>
<td>1.26</td>
<td>1.56</td>
<td>0</td>
<td>4.46</td>
</tr>
</tbody>
</table>

Comments: Unweighted means. Reference categories in italics. For construction of variables and sources of data: see Appendix C.

The likelihood of women having a first and a second child varies considerably with individual and country-level factors. The fixed part of Model 1 in Table 8.3, which includes only individual-level variables, shows that union
instability exerts a limited negative effect on the likelihood of women having a first child.

Table 8.3. Odds ratios of women in unions having a first and second child

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual level</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>1.83 (.15)***</td>
<td>1.84 (.15)***</td>
<td>1.83 (.15)***</td>
<td>1.82 (.15)***</td>
</tr>
<tr>
<td>Age^2</td>
<td>.99 (.00)***</td>
<td>.99 (.00)***</td>
<td>.99 (.00)***</td>
<td>.99 (.00)***</td>
</tr>
<tr>
<td>Living urban</td>
<td>.80 (.07)*</td>
<td>.79 (.07)**</td>
<td>.79 (.07)**</td>
<td>.81 (.08)*</td>
</tr>
<tr>
<td>University education</td>
<td>1.03 (.05)</td>
<td>1.02 (.05)</td>
<td>1.02 (.05)</td>
<td>1.03 (.05)</td>
</tr>
<tr>
<td>Partner university education</td>
<td>1.13 (.12)</td>
<td>1.13 (.12)</td>
<td>1.13 (.12)</td>
<td>1.13 (.12)</td>
</tr>
<tr>
<td>Monthly church</td>
<td>1.17 (.11)+</td>
<td>1.19 (.12)+</td>
<td>1.18 (.12)+</td>
<td>1.20 (.11)+</td>
</tr>
<tr>
<td>Religiosity</td>
<td>1.05 (.01)***</td>
<td>1.04 (.01)***</td>
<td>1.05 (.01)***</td>
<td>1.04 (.01)**</td>
</tr>
<tr>
<td>Protestant</td>
<td>1.17 (.12)</td>
<td>1.12 (.12)</td>
<td>1.12 (.12)</td>
<td>1.11 (.10)</td>
</tr>
<tr>
<td>Catholic</td>
<td>1.04 (.07)</td>
<td>1.07 (.08)</td>
<td>1.06 (.07)</td>
<td>1.09 (.08)</td>
</tr>
<tr>
<td>Orthodox</td>
<td>.96 (.22)</td>
<td>.97 (.20)</td>
<td>.98 (.22)</td>
<td>1.00 (.23)</td>
</tr>
<tr>
<td>Other</td>
<td>1.10 (.20)</td>
<td>1.10 (.19)</td>
<td>1.11 (.19)</td>
<td>1.12 (.20)</td>
</tr>
<tr>
<td>Have no children</td>
<td>.55 (.06)***</td>
<td>.56 (.06)***</td>
<td>.55 (.06)***</td>
<td>.55 (.06)***</td>
</tr>
<tr>
<td>Married (have cohabited)</td>
<td>2.90 (.31)***</td>
<td>2.92 (.32)***</td>
<td>2.97 (.33)***</td>
<td>3.00 (.34)***</td>
</tr>
<tr>
<td>Married (only)</td>
<td>1.41 (.29)+</td>
<td>1.45 (.29)+</td>
<td>8.28 (4.99)**</td>
<td>8.37 (4.72)**</td>
</tr>
<tr>
<td>Married (only) *</td>
<td>2.32 (.45)***</td>
<td>2.29 (.45)***</td>
<td>2.30 (.46)***</td>
<td>2.29 (.44)***</td>
</tr>
<tr>
<td>Have no children</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Country level</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(log)Dual-earner index</td>
<td>1.43 (.10)***</td>
<td>1.62 (.18)***</td>
<td>1.60 (.13)***</td>
<td></td>
</tr>
<tr>
<td>(log)Benefits index</td>
<td>.95 (.09)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(log)Part-time work</td>
<td>1.22 (.15)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(log)Unemployment rate</td>
<td>.82 (.11)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(log)FLFP</td>
<td>.46 (.26)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(log)Living with parents</td>
<td>.92 (.12)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cross-level inter.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(log)Dual-earner index *</td>
<td>.59 (.11)**</td>
<td>.59 (.11)**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married (only)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Random part</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept level 2</td>
<td>.35 (.09)***</td>
<td>.22 (.09)*</td>
<td>.22 (.08)**</td>
<td>.00 (.04)</td>
</tr>
<tr>
<td>Married (only)</td>
<td>.27 (.07)***</td>
<td>.35 (.07)***</td>
<td>.22 (.08)*</td>
<td>.00 (.01)</td>
</tr>
<tr>
<td>Observations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individuals</td>
<td>5391</td>
<td>5391</td>
<td>5391</td>
<td>5391</td>
</tr>
<tr>
<td>Countries</td>
<td>22</td>
<td>22</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>Log likelihood</td>
<td>-3064.084</td>
<td>-3060.528</td>
<td>-3056.812</td>
<td>-3049.3</td>
</tr>
<tr>
<td>AIC</td>
<td>6170.168</td>
<td>6165.057</td>
<td>6159.624</td>
<td>6154.599</td>
</tr>
</tbody>
</table>

Standard errors in parentheses
+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001
Cohabiting women have a considerably lower probability of having a child during the three-year period than women who are married. Married women who have not cohabited, however, are only slightly more likely than married women who have cohabited to have a first child, and they are actually less likely to have a second child than married women who have experienced unmarried cohabitation.

This does not mean that union instability does not have the assumed negative effect on fertility that H1 proposes. The random part of Model 1 shows that the effect of being married without having cohabited varies considerably between countries. In some countries the effect is strong, whereas it is weak, or even nonexistent, in others. This leaves open the possibility that the negative effect of union instability on fertility is masked by generous dual-earner policies, as was argued in Chapter 4.

The random intercepts at the country level also show that the overall likelihood of women having a child in the three-year period varies considerably and significantly between countries (with .35 standard deviations to be exact). In other words, there is room for generous family policies to increase women’s likelihood of having another child.

When the dual-earner index is added to the individual-level control variables in Model 2, two things happen. First, the between-country variation is reduced by more than a third of its original size. Dual-earner policies can, thus, explain a third of the between-country variation in the likelihood of women having a child. Second, the variation in the effect of being married without having experienced unmarried cohabitation increases, indicating that the effect is in some way linked with the generosity of dual-earner policies. The coefficient of the dual-earner index itself is, as expected, significant and positive.

To test if there is an interaction effect between union instability and the generosity of dual-earner policies, as H3 proposes, in Model 3 I introduce an interaction effect between “being married without having experienced unmarried cohabitation” and “the log of the dual-earner index.” This interaction effect allows for the effect of the dual-earner index to vary between married women who have not experienced unmarried cohabitation and women who live in less stable unions. The coefficient of the interaction effect is highly significant and negative. At the same time, the coefficient of the dual-earner

84 The magnitude of the interaction effect in nonlinear models does not equal the marginal effect of the interaction term, and the sign might also be different for different observations (Ai & Norton 2003). Moreover, the statistical significance cannot reliably be determined by the z-statistics reported in the regression output (ibid.). Because of this, I have checked the significance of the interaction effect with the command Inteff developed by Norton, Wang, and Ai (2004). Appendix B provides a graphic illustration of the significance and size of the interaction effects in all models in Chapter 8. The graphs show that the effects are significant for almost all
index, which now shows the effect of the dual-earner index among women who live in unstable unions, increases considerably. Together, these observations indicate that generous dual-earner policies have a strong effect on the likelihood of women who are living in unstable unions having a child, whereas it does not affect the fertility of women who are living in stable unions.

Moreover, the variation in the slope of being married without having experienced unmarried cohabitation is cut by a third with the introduction of the interaction effect. The introduced interaction effect, in other words, explains a considerable part of the variation in the effect of the mentioned variable.

The reduction in the variation in the slope of being married without having experienced unmarried cohabitation comes together with a huge increase of the magnitude of the coefficient of the same variable. Its positive effect on women’s likelihood of having another child is much more accentuated in Model 3 than in Model 2. However, it should be pointed out that the coefficient in Model 3 only shows the effect of the variable when the log of the dual-earner index is set to 0. With each unit increase on the log of the dual-earner index the positive effect of living in a stable union on fertility is reduced drastically. Thus, hypothesis H3, that the negative effect of union stability on fertility should be reduced by generous dual-earner policies, and its implication that the generosity of dual-earner policies should have a more accentuated effect on the fertility decisions of women who are living in unstable unions, seem to be confirmed.

However, Model 3 does not include country-level control variables. When such controls are introduced, in Model 4, the coefficient of the dual-earner index is reduced marginally; however, it remains highly significant and positive. Also, the interaction effect and the effect of being married without having experienced unmarried cohabitation remain significant, with the signs of the coefficients going in the same direction as in Model 3. The effects of union status and the generosity of dual-earner policies on the likelihood of women having a first child during the three-year period are illustrated in Figure 8.3.

Observations in the data and that the mean effects are similar in size and go in the same directions as those shown by the coefficients in the models presented in this chapter.
Comments. Builds on Model 4 in Table 8.3. The graph shows the effect of union status and the dual-earner index on the likelihood of women having a first child when all other variables are held at the sample mean. The shaded areas show the 83-percent confidence intervals. This means that confidence intervals that do not overlap show likelihoods that are significantly different from each other at the 5-percent level.

The figure clearly confirms H1 and H2. In countries that lack generous dual-earner policies, women who are married and have never experienced unmarried cohabitation are significantly more likely to have a first child than women living in less stable unions. In the country with the least generous dual-earner policies, about 38 percent of the women who are married and have never experienced unmarried cohabitation are predicted to have a first child during the three-year period. The corresponding predicted numbers of married women who have experienced unmarried cohabitation and cohabiting women having a first child during the same period are 23 and 9 percent respectively. This means that married women who have never cohabited are almost 70 percent more likely to have a first child compared to women who are married and have experienced unmarried cohabitation, and almost four times as likely to have a first child as cohabiting women.

The difference in predicted probabilities, however, is reduced drastically with high scores on the dual-earner index. Women who are married and have experienced unmarried cohabitation cease to have a statistically significant
lower probability of having a first child when countries score above 3 on the log of the dual-earner index. In the country with the highest score on the dual-earner index, such women are actually more likely to have a first child than women who are married and have never experienced unmarried cohabitation. However, the difference is not significant. Also, the gap between cohabiting women and women who are married and have never cohabited is smaller in countries that score high on the dual-earner index. However, the gap never ceases to be significant, and even in the country with the most generous dual-earner policies, married women who have never experienced unmarried cohabitation have a predicted probability that is 60 percent higher (.35) than that of cohabiting women having a first child (.22).

The fact that the differences in predicted probabilities between women in stable and unstable unions are smaller in countries with high scores on the dual-earner index can wholly be ascribed to the fact that generous dual-earner policies only increase the likelihood of women in unstable unions having a first child. The likelihood of women who are married and have never experienced unmarried cohabitation having a first child is not significantly affected by the generosity of dual-earner policies. In contrast, the positive effect of the dual-earner index on the likelihood of women in unstable unions having a first child is strong and significant. Married women who have experienced unmarried cohabitation are almost twice as likely to have a first child during the three-year period in the country with the highest score on the dual-earner index as they are in the country with the lowest score on the dual-earner index (the predicted probabilities are .23 and .45 respectively). To put it another way, each log-unit increase on the dual-earner index increases the predicted probability of women who are married and who have experienced unmarried cohabitation having a first child by .10, or almost 40 percent.

The predicted probability of cohabiting women having a first child is also twice as high in the country with the highest score on the dual-earner index (where it is .22) compared to in the country with the lowest score on the dual-earner index (where it is .09). In other words, each log-unit change on the dual-earner index increases the predicted probability of cohabiting women having a first child by .06, or 67 percent.

Thus, both hypothesis H1, that union instability should reduce fertility, and hypothesis H2, that generous dual-earner policies should reduce the negative effect of union instability on fertility, are confirmed. In countries with low scores on the dual-earner index, union instability exerts a significant and strong negative effect on women’s likelihood of having a first child. However, in countries with high scores on the dual-earner index, union instability does not exert a similar negative effect on women’s fertility. The reason is
that women who live in unstable unions are much more likely to have a first child in such countries than they are in countries with low scores on the dual-earner index. Women who are married and have never experienced unmarried cohabitation are, in contrast, no more likely to have a first child in countries with high scores on the dual-earner index. Generous dual-earner policies only have a positive effect on the fertility decisions of women who live in unstable unions. Despite this, cohabiting women in countries with generous dual-earner policies also have a lower predicted probability than married women of having a first child. Hence, generous dual-earner policies do not reduce all of union instability’s negative effect on women’s likelihood of having a first child.

The results presented above do not, however, verify hypothesis H3, that generous dual-earner policies should increase fertility. Generous dual-earner policies do not seem to have a general positive effect on women’s likelihood of having a first child in addition to the positive effect they have by reducing the negative effect of union instability on that likelihood. The likelihood of women who live in stable unions having a first child is not affected by the generosity of dual-earner policies. Neither do generous dual-earner policies raise the likelihood of women living in unstable unions having a first child above that of women living in stable unions. Thus, contrary to expectations, H3 is not verified.

Does this mean that generous dual-earner policies do not have a positive effect on fertility? Not necessarily. Keeping in mind the difficulties of distinguishing between a positive effect on the timing and a positive effect of the quantum of fertility when studying only a three-year period, we can at least say that generous dual-earner policies encourage women who are living in unstable unions to have their children earlier in life. Even though generous dual-earner policies also increase the likelihood of women living in unstable unions, this positive effect likely contributes to women in general having their children earlier in life. The fact that cohabiting women have a lower predicted probability than married women of having a first child within the three-year period does not threaten this conclusion. As was shown in Chapter 6, the alternative for those women who cohabit in countries with generous dual-earner policies is not to be within a marriage but to live as a single. Generous dual-earner policies, therefore, likely encourage women to have their first child earlier in life. Whether this effect also results in more children being born in countries with generous dual-earner policies is an open question.

In addition to its positive effect on the likelihood of women having a first child, generous dual-earner policies also have a significant positive effect on
the likelihood of women in unstable unions having a second child within the three-year period (the effect is illustrated in Figure 8.4). In contrast to the case of first births, however, it is obvious that the positive effect can be translated into a general positive effect on, at least, the timing of second births. This is because the positive effect of generous dual-earner policies on the likelihood of women in unstable unions having a second child clearly outweighs the negative effect of union instability on the same likelihood.

As is shown in Figure 8.4, only cohabiting women are less likely than married women who have not experienced unmarried cohabitation to have a second child in countries with low scores on the dual-earner index. The respective predicted probabilities of the two groups having a second child in such countries are .17 and .31. This means that married women who have not experienced unmarried cohabitation are about twice as likely as cohabiting women to have a second child during the three-year period. This should be
compared to the fact that they are four times more likely than cohabiting women to have a first child during the same period. What is even more striking is that married women who have cohabited without being married are not less likely than married women who have not cohabited to have a second child.

The observed reduction in the effect of union instability on the likelihood of having a child, which occurs sometime between the first and the second births, can likely to some extent be ascribed to the selection effect discussed in the methods section. The relatively few women who are living in unstable unions and who have had a first child in countries with low scores on the dual-earner index are likely to live in relatively stable “unstable” unions. A child also contributes to strengthening its parents union by making it costlier for both parents to dissolve the union. The reduction in the effect of union instability could also in part depend on the fact that women in unstable unions, because they have their first children relatively late in life, must speed up their second births before it is too late for them to have children. As women in stable unions on average have their first children earlier in life, they need not rush to the same extent. In all, it is therefore not surprising that the negative effect of union instability, as it is operationalized, on fertility is reduced between the first and the second births.

Moreover, the negative effect of union instability on fertility persisting in countries with generous dual-earner policies is reduced by generous dual-earner policies. The difference in the predicted probability of having a second child between cohabiting women and women who are married and who have not experienced unmarried cohabitation ceases to be significant when countries score above 3.4 on the log of the dual-earner index. In countries with very generous dual-earner policies, the two groups are about equally likely to have a second child within the three-year period (the predicted probability that they have one is about .30). In other words, each log-unit change on the dual-earner index increases the predicted probability of cohabiting women having a second child within the three-year period by .08, or almost 50 percent. It should be noted that this only means that cohabiting women proceed to a second birth as fast as married women who have not cohabited in the cases when both groups of women have had a first birth. It does not mean that they, in general, proceed to a second birth as fast as married women who have not cohabited. As, other things being equal, they tend to have their first child later in life than married women, overall, they proceed more slowly to their second birth, even in countries with generous dual-earner policies.

Interestingly, in countries with generous dual-earner policies, married women who have cohabited are actually more likely to proceed to a second birth.
birth during the studied period than married women who have not cohabited. The reason for this surprising finding is the strong positive effect that generous dual-earner policies exert on the likelihood of women who are married and have cohabited having a second child. In the country with the highest score on the dual-earner index, such women have a predicted probability of having a second child that is .25, or 70 percent, higher than the predicted probability of their having a second child in the country with the lowest score on the dual-earner index. Each log-unit change on the dual-earner index, thus, increases the predicted probability of married women who have cohabited having a second child by .11, or 32 percent. This means that such women are twice as likely as married women who have never cohabited to experience a second birth within the three-year period in the country with the most generous dual-earner policies. This does not automatically mean that they also proceed faster than married women who have never cohabited from being childless to having a second child. It should be remembered that all of them have cohabited before having their first child, which is why they might have progressed more slowly to having their first child than married women who have never cohabited. Women also tend to spend more of their fecund time as childless than as mothers of a child waiting on having a second child. Moreover, it should be noted that childless married women who have never cohabited are definitely likely to proceed faster to a second birth than childless married women who have cohabited in countries with low scores on the dual-earner index. Only in countries with very generous dual-earner policies is there a theoretical chance of childless married women who have cohabited proceeding faster to a second birth. Only by testing how fast women in the average unstable union (i.e., the average union in which either the partners cohabit or where the woman has cohabited without being married) proceed from a first to a second birth can it be determined whether the theoretical chance actually exists in the data. The answer to whether women in unstable unions proceed faster to a second birth in countries with generous dual-earner policies, therefore, has to wait until the robustness checks are completed, in which I do not distinguish between women who cohabit and women who are married and have previously cohabited.

For similar reasons, the results from the robustness checks must be consulted before it can be determined whether H3 is correct. It is possible that generous dual-earner policies have a direct positive effect on the likelihood of women in unstable unions having a second child, in addition to the positive effect they have by reducing the negative effect of union instability on the same likelihood. If that is the case, hypothesis H3, that generous dual-earner policies should have a direct positive effect on fertility, would be par-
tially verified for second births. However, as has been noted, it is impossible to determine whether this is the case without consulting the results from the robustness checks.

As in the case with the effect on the likelihood of women having a first child, it is hard to tell whether the observed positive effect of generous dual-earner policies on the likelihood of women having a second child is an effect on the timing or the quantum of fertility, or both.

With regard to the individual-level control variables, age has the expected curvilinear association with the likelihood of women having both a first and a second child.

Women who live in urban areas have a lower predicted probability of having a(nother) child than women who live in rural areas. As was discussed in the methods section, however, it is difficult to tell in which direction the effect goes, that is, if women who live in urban areas have relatively few children or if women who have relatively few children prefer to live in urban areas.

Neither women’s nor their partners’ educations are near to being significantly associated with the likelihood of women having a(nother) child. Given the expected negative association between women’s earning opportunities and fertility, the finding of a null association is rather surprising. Further regressions (not shown here; available from the author on request), however, show that when an interaction effect between women’s education and the number of children a woman has at the start of the three-year period is introduced, the interaction is near to being statistically significant. The sign of the coefficient of the interaction term indicates that women’s education has a negative effect on their progression to a first birth, but a positive effect on their progression to a second birth. This can likely explain why no effect of women’s education is visible in the models that show the likelihood of women having a first and a second child together. Although the interaction term is only near to being statistically significant, this finding is in line with previous findings on how women’s educations affect their progression to a first and a second birth.

The effect of the partners’ education does not show any sign of varying to the same extent, and is not near to having a statistically significant effect, neither on the progression to a first birth nor to a second birth.

Women’s religiosity is positively associated with their likelihood of having a first and a second child within the three-year period. The strongest positive association is that between women’s self-estimated religiousness and their likelihood of having a(nother) child. Women who attend church once a month or more are likelier to have a(nother) child than women who attend
church less often, although the effect is only significant at the 10-percent level. Given the problem of causality mentioned in the methods section, it is hard to tell in which way the effect goes. However, it is not unreasonable to assume that religiosity has at least a modest positive effect on women’s progression to a first and a second birth. Women’s denominational affiliation, however, does not have an impact on their likelihood of having a(nother) child. The aspect of religiousness that seems to matter for women’s decisions to have first and second children is their degree of religiousness and not the specific version of Christianity they adhere to.

None of the country-level control variables significantly affect the progression to a first and a second birth. However, three variables are statistically significant at the 10-percent level in a one-tailed t-test, although they fail to achieve significance in a two-tailed t-test (tests not shown; available from the author on request). These are the availability of part-time work, the female labor force participation rate, and the unemployment rate. As expected, the availability of part-time work is positively associated with the likelihood of women having a(nother) child. This observation reinforces the impression that policies that help mothers retain contact with the labor market increase women’s willingness to have children, or at least their willingness to have them early in life. The female labor force participation rate is, also as expected, strongly negatively associated with women’s likelihood of having a(nother) child. Women’s earning opportunities seem to reduce their willingness to have children, or at least their willingness to have them early in life. Finally, the unemployment rate is negatively associated with women’s likelihood of having a first and a second child, confirming previous findings of a negative association between unemployment and women’s fertility (Adserà 2004).

Contrary to expectations, the benefits index does not have a significant positive effect on women’s progression to a first and a second birth. Neither does the average age on leaving the parental home affect women’s fertility decisions significantly.
The likelihood of women having third- and higher-order children

Only 10 percent of the 4352 women in unions in the sample who had two or more children at the start of the three-year period experienced a birth in the following three years (see table 8.4). The likelihood of women experiencing third- and higher-order births, in other words, is considerably lower than the likelihood of women experiencing first and second births. Of course, this is only to be expected given that only a small minority of the women in contemporary Europe has three or more children. The small number of women who have had third- and higher-order children, however, makes it harder to detect factors affecting the progression to such births. This should be kept in mind when interpreting the results presented below.

Table 8.4. Summation of variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Observations</th>
<th>Mean</th>
<th>Std. dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experienced a birth</td>
<td>4352</td>
<td>.10</td>
<td>.30</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Age</td>
<td>4352</td>
<td>35.6</td>
<td>4.5</td>
<td>18</td>
<td>42</td>
</tr>
<tr>
<td>Age*age</td>
<td>4352</td>
<td>1287</td>
<td>311</td>
<td>324</td>
<td>1764</td>
</tr>
<tr>
<td>Rural residence (ref.)</td>
<td>4352</td>
<td>.45</td>
<td>.50</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Urban residence</td>
<td>4352</td>
<td>.55</td>
<td>.50</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Low education (ref.)</td>
<td>4352</td>
<td>.78</td>
<td>.41</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>High education</td>
<td>4352</td>
<td>.22</td>
<td>.41</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Partner low educations (ref.)</td>
<td>4352</td>
<td>.78</td>
<td>.41</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Partner high education</td>
<td>4352</td>
<td>.22</td>
<td>.41</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Monthly church att.</td>
<td>4352</td>
<td>.34</td>
<td>.47</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Not attending church (ref.)</td>
<td>4352</td>
<td>.66</td>
<td>.47</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Religiosity</td>
<td>4352</td>
<td>5.2</td>
<td>2.9</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Protestant</td>
<td>4352</td>
<td>.16</td>
<td>.36</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Catholic</td>
<td>4352</td>
<td>.42</td>
<td>.49</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Orthodox</td>
<td>4352</td>
<td>.04</td>
<td>.20</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Other</td>
<td>4352</td>
<td>.05</td>
<td>.21</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Not belonging to church (ref.)</td>
<td>4352</td>
<td>.33</td>
<td>.47</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Have two children</td>
<td>4352</td>
<td>.66</td>
<td>.47</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Have three, or more, children</td>
<td>4352</td>
<td>.34</td>
<td>.47</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Cohabiting (ref.)</td>
<td>4352</td>
<td>.09</td>
<td>.28</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Married (cohabited)</td>
<td>4352</td>
<td>.31</td>
<td>.46</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Married (only)</td>
<td>4352</td>
<td>.60</td>
<td>.49</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>(log)Dual-earner index</td>
<td>4352</td>
<td>3.32</td>
<td>.56</td>
<td>2.30</td>
<td>4.46</td>
</tr>
<tr>
<td>(log)Benefits index</td>
<td>4352</td>
<td>1.79</td>
<td>.51</td>
<td>0</td>
<td>2.73</td>
</tr>
<tr>
<td>(log)Part-time employment</td>
<td>4352</td>
<td>2.64</td>
<td>.75</td>
<td>.74</td>
<td>3.82</td>
</tr>
<tr>
<td>(log)Unemployment rate</td>
<td>4352</td>
<td>1.84</td>
<td>.59</td>
<td>.64</td>
<td>2.94</td>
</tr>
<tr>
<td>(log)FLFP</td>
<td>4352</td>
<td>4.07</td>
<td>.16</td>
<td>3.76</td>
<td>4.39</td>
</tr>
<tr>
<td>(log)% Living with parents</td>
<td>4352</td>
<td>1.82</td>
<td>.61</td>
<td>.86</td>
<td>2.78</td>
</tr>
</tbody>
</table>

Comments: Unweighted means. Reference categories in italics. For construction of variables and sources of data: see Appendix C.
The first result striking the observer of Model 5 in Table 8.5, which presents the results from a model that includes only individual-level variables, is that union instability does not have a significant impact on women’s progression to third- and higher-order births.

| Table 8.5. Odds ratios of women in unions having a third or higher-parity child |
|---------------------------------------------|------------------|------------------|------------------|
| Individual level                          | Model 5          | Model 6          | Model 7          |
| Age                                        | 1.64 (.29)**     | 1.63 (.29)**     | 1.62 (.28)**     |
| Age²                                       | .99 (.00)**      | .99 (.00)**      | .99 (.00)**      |
| Living urban                               | .80 (.10)+       | .80 (.10)+       | .82 (.10)        |
| University education                       | 1.16 (.21)       | 1.13 (.21)       | 1.13 (.21)       |
| Partner university educ.                   | 1.63 (.26)**     | 1.62 (.26)**     | 1.59 (.26)**     |
| Monthly church                            | 1.34 (.19)*      | 1.37 (.20)*      | 1.38 (.21)*      |
| Religiousity                               | 1.05 (.02)*      | 1.05 (.02)*      | 1.05 (.02)**     |
| Protestant                                 | 1.30 (.17)*      | 1.26 (.18)       | 1.25 (.18)       |
| Catholic                                   | .80 (.16)        | .82 (.16)        | .84 (.15)        |
| Orthodox                                   | .36 (.19)+       | .41 (.21)+       | .47 (.22)        |
| Other                                      | 1.13 (.27)       | 1.12 (.27)       | 1.07 (.26)       |
| Have three children+                       | 1.40 (.17)**     | 1.40 (.17)**     | 1.40 (.17)**     |
| Married (have cohabited)                   | .83 (.25)        | .84 (.25)        | .83 (.25)        |
| Married (only)                             | .63 (.16)+       | .65 (.16)+       | .67 (.17)        |
| Country level                              |                 |                 |                 |
| (log)Dual-earner index                     | 1.29 (.16)*      | 1.23 (.15)+      |                 |
| (log)Benefits index                        | .96 (.11)        |                 |                 |
| (log)Part-time work                        | 1.37 (.20)*      |                 |                 |
| (log)Unemployment                          | .87 (.10)        |                 |                 |
| (log)FLFP                                  | .79 (.59)        |                 |                 |
| (log)Living with parents                   | 1.06 (.26)       |                 |                 |
| Random part                                |                 |                 |                 |
| Intercept level 2                          | .32 (.11)**      | .31 (.11)**      | .24 (.10)*       |

| Observations                               |                 |                 |                 |
| Individuals                                | 4352            | 4352            | 4352            |
| Countries                                  | 22              | 22              | 22              |
| Log likelihood                             | -1253.841       | -1252.759       | -1248.857       |
| AIC                                        | 2543.682        | 2543.519        | 2545.714        |

Standard errors in parentheses
* p < 0.1, ** p < 0.05, *** p < 0.01

Married women who have never cohabited do not have a higher predicted probability of having a third- or higher-order child within the three-year period than women who live in less stable unions. Actually, the coefficient indicates that the effect goes in the opposite direction and that union instability
has a positive effect on the likelihood of women having third- and higher-order children, as married women who have not cohabited have a lower predicted probability than cohabiting women of having third- and higher-order children. However, the effect is significant only at the 10-percent level. Moreover, the effect of being married without having experienced unmarried cohabitation does not vary between countries (results not shown; available on request from the author). Both H1 and H2 are thus falsified for third- and higher-order children. Union instability does not have a negative effect on the likelihood of women having third- and higher-order children, and the generosity of dual-earner policies does not mediate the (non-existing) effect of union instability on the likelihood of women having third- and higher-order children.

This finding is likely connected with the finding that the negative effect of union instability, as I define it, on fertility is reduced between the first and the second births. The explanation for the reduction in the effect is likely to be the same in both cases; namely, that only women who live in relatively stable “unstable” unions progress to have higher-order children in countries that do not implement generous dual-earner policies. Women who live in unstable unions in countries that do not implement generous dual-earner policies simply do not have more than one child, or in very rare cases, two children. The arrival of a second child is also likely to stabilize the parents’ union so that it becomes more stable than it was before the child arrived. The relatively modest level of union instability remaining in countries that do not implement generous dual-earner policies after the first birth is likely to decrease significantly, and even disappear entirely, after the second birth. Women in unstable unions who have had two children must likely also progress faster than women in stable unions to having a third child if they want one, as their slower progression to first and second births make it likely that they will have fewer fecund years left than women in stable unions.

The random intercepts at the country level, however, show that the overall likelihood of women having third- and higher-order children varies significantly between countries. This means that it is still possible for generous family policies to have an effect on women’s likelihood of having higher-order children. Even though H1 and H2 have been proven false, there is thus still room for H3 to be true; that is, generous family policies could have a positive effect on the progression to third- and higher-order births.

When the dual-earner index is introduced in Model 6 (in Table 8.5) to test whether this is the case, it becomes significant and positively associated with the likelihood of women having a third child. The model fit is also improved according to the log likelihood and Aikike’s information criteria, even though
the index is able to explain only a small part of the between-country variation in the likelihood of women having another child. When the country-level control variables are introduced in Model 7, the strength of the effect decreases somewhat but remains significant at the 10-percent level. Thus, H3 is confirmed: Generous dual-earner policies have a positive effect on the likelihood of women having third- and higher-order children. This effect is, moreover, independent of women’s union status.

The fact that generous dual-earner policies have a positive effect on the likelihood of women having third- and higher-order children could be interpreted as evidence that the generous dual-earner policies have a positive effect not only on the timing of fertility, but also on the quantum of fertility. As previously mentioned, third- and higher-order births are relatively rare in most countries in Europe. Most European women never progress to having a third child, and even fewer women progress to having four or more children. The third- and higher-order births that women experience within the three-year period are, because of this, likely to be reliable indicators of the quantum of fertility. This impression is reinforced by the observation that the mean age of women in the sample is almost 36 years old at the start of the three-year period and almost 40 when it comes to an end. Since very few women have children after they turn 40, women’s high mean age implies that rather few of them will have another child during their lives. With this in mind, it makes even more sense to interpret the found effect as an effect on the quantum of fertility.

As is shown in Figure 8.5, the observed effect on third births is substantial. The predicted probability of women in unions having a third child is about 75 percent higher in the country with the most generous dual-earner policies than it is in the country with the least generous dual-earner policies. In other words, each log-unit change on the dual-earner index increases the predicted probability of women in unions having a third child within the three-year period by about 35 percent. Despite this strong positive effect, third births are also relatively uncommon in countries that implement generous dual-earner policies: only about 7 percent of the women in unions who had two children at the start of the three-year period are predicted to have had a third child by the end of the period in such countries.
Several individual-level control variables are significantly associated with the likelihood of women in unions having third and higher-order children. Age has the expected curvilinear association with higher-order births.

More interesting is that women whose partners are university educated are more likely than women whose partners are not university educated to have a third child. Thus, in contrast to what is seen in the models of women’s progression to a first and second birth, we find the expected positive association between men’s earning opportunities and women’s fertility decisions. For some reason, men’s earning opportunities seem to matter more for higher-order births than for first and second births. The educational attainment of the women themselves, however, does not have an effect on their likelihood of having a third child.

Both regular church attendance and self-estimated religiousness are positively and significantly associated with the likelihood of women having third- and higher-order children. This finding reinforces the impression from the
models of the progression to a first and second birth that religiousness has a positive effect on fertility. Given that the positive association is found both for lower- and higher-order births, it is reasonable to interpret it as an effect both on the timing and the quantum of fertility. It should be remembered, however, that it is not possible to say with total certainty in which direction the effect goes. Women’s denominational belonging is not significantly associated with their likelihood of having third- and higher-order children.

Only one of the country-level control variables is significantly associated with women’s likelihood of having a third child: namely, the availability of part-time jobs. The strength of the positive association (illustrated in Figure 8.6) is, on the other hand, considerable.

Figure 8.6. The likelihood of women in unions having a third child

Comments: The graph shows the effect of the availability of part-time jobs on the likelihood of women having a third child when all other variables are held at the sample mean. The shaded area shows the 95-percent confidence interval. Builds on a version of Model 7 in Table 8.5, which excludes controls for women’s union status. The reason for representing the results of a model that excludes the effects of different union statuses is that they do not differ significantly from each other.

In the country with the lowest availability of part-time jobs, the predicted probability of women having a third child is only .03, whereas in the country with the highest availability of part-time jobs, the predicted probability of
women having a third child is .08. The predicted probability of women having a third child in the three-year period is, in other words, 270 percent higher in the latter country. The fact that the availability of part-time jobs is positively associated with the likelihood of women having higher-order births reinforces the impression that policies that help mothers retain their attachment to the labor market encourage women to progress faster to having another child.

Robustness tests

As was pointed out in the methods section, women’s union statuses are measured at the time of their interview for the ESS. Because of this, it is possible that the distinctions between different degrees of union stability used up to now do not entirely capture the circumstances under which fertility decisions were taken during the four years preceding the year of the respondents’ interviews for the ESS. The problem is especially acute in the case of the distinction between women who are married and have cohabited and are cohabiting. It is likely that many married women who have cohabited have married during the period because they have had a child. If that is the case, the presented models overestimate the positive effect of being married and having cohabited, and underestimate the negative effect of cohabiting on the likelihood of women having a child in the three-year period. The problem of not knowing how much of the time during their union married women who have cohabited have spent cohabiting also makes it impossible to determine whether the observed positive effect of generous dual-earner policies on the likelihood of these women having a second child means that they progress faster than married women who have not cohabited from being childless to having a second child in countries with generous dual-earner policies. In addition, the models presented above exclude all women who lived in unions that ended during the three-year period. The resulting models, thus, include only relatively stable “unstable” unions. To address these problems, below I rerun all models presented above with two corrections. First, in the new models, I do not distinguish between cohabiting women and married women who have cohabited. Second, I also introduce a new category of women in the models, which consists of all women in the data who were single at the time of their interview for the ESS, but who had lived with partners at some point previously. The idea is that the first correction will correct for the problem of distinguishing between cohabiting women and married women who have cohabited, whereas the second will correct for the exclusion of women who lived in unions that had broken up during the years prior to their interview for
the ESS. The results from the robustness test, presented in Models 8 to 11 in Table 8.6, largely confirm the expectations.

<table>
<thead>
<tr>
<th>Table 8.6. Odds ratios of women having a first and a second child</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model 8</strong></td>
</tr>
<tr>
<td><strong>Individual level</strong></td>
</tr>
<tr>
<td>Age</td>
</tr>
<tr>
<td>Age*Age</td>
</tr>
<tr>
<td>Living urban</td>
</tr>
<tr>
<td>University education</td>
</tr>
<tr>
<td>Partner university educ.</td>
</tr>
<tr>
<td>Monthly church</td>
</tr>
<tr>
<td>Religiosity</td>
</tr>
<tr>
<td>Protestant</td>
</tr>
<tr>
<td>Catholic</td>
</tr>
<tr>
<td>Orthodox</td>
</tr>
<tr>
<td>Other</td>
</tr>
<tr>
<td>Have no children</td>
</tr>
<tr>
<td>Unstable union</td>
</tr>
<tr>
<td>Stable union</td>
</tr>
<tr>
<td>Stable union *</td>
</tr>
<tr>
<td>Have no children</td>
</tr>
<tr>
<td><strong>Country level</strong></td>
</tr>
<tr>
<td>(log)Dual-earner index</td>
</tr>
<tr>
<td>(log)Benefits index</td>
</tr>
<tr>
<td>(log)Part-time work</td>
</tr>
<tr>
<td>(log)Unemployment rate</td>
</tr>
<tr>
<td>(log)FLFP</td>
</tr>
<tr>
<td>(log)Living with parents</td>
</tr>
<tr>
<td><strong>Cross-level inter.</strong></td>
</tr>
<tr>
<td>(log)Dual-earner index *</td>
</tr>
<tr>
<td>Stable union</td>
</tr>
<tr>
<td><strong>Random part</strong></td>
</tr>
<tr>
<td>Intercept level 2</td>
</tr>
<tr>
<td>Married (only)</td>
</tr>
<tr>
<td><strong>Observations</strong></td>
</tr>
<tr>
<td>Individuals</td>
</tr>
<tr>
<td>Countries</td>
</tr>
<tr>
<td>Log likelihood</td>
</tr>
<tr>
<td>AIC</td>
</tr>
</tbody>
</table>

Standard errors in parentheses

"p < 0.1, "p < 0.05, "p < 0.01, "p < 0.001
They are also in line with the findings from the models using the set of finer distinctions between women’s union statuses presented above: Women who are living in stable unions (i.e., married women who have not cohabited) are more likely than women who live in unstable unions (i.e., women who are cohabiting, or who are married and have cohabited in the past) to have a first child in countries with low scores on the dual-earner index. Women who live in unstable unions are, in turn, more likely than single women who have cohabited with a partner before or during the investigated period, to have a first child in such countries. The effects of the dual-earner index and union status on women’s likelihood of having a first child are presented in Figure 8.7.

Figure 8.7. The likelihood of women having a first child

Comments: Builds on Model 11 in Table 8.6. The graph shows the effect of the dual-earner index and union status when all other variables are kept at the sample mean. The shaded areas show the 83-percent confidence intervals. This means that confidence intervals that do not overlap show likelihoods that are significantly different from each other at the 5-percent level.

As expected, the generosity of dual-earner policies is strongly correlated with the likelihood of women in unstable unions and women who are single having a first child, whereas it is not correlated with the likelihood of women in stable unions having one. The effect is strong enough to reduce all of the
negative effect of living in an unstable union on the likelihood of having a first birth: in countries with very generous dual-earner policies, women in unstable unions are not less likely than women in stable unions to have a first child. Although they are not nearly as likely to have a first child as women in unions, single women who have lived with a partner are also significantly more likely to have a first child in countries with generous dual-earner policies.

Also, in the case of second births, the pattern is similar to the one found in the models using the set of finer distinctions between women’s union statuses.

**Figure 8.8. The likelihood of women having a second child**

![Graph showing the likelihood of women having a second child](image)

**Comments:** Builds on Model 11 in Table 8.6. The graph shows the effect of the dual-earner index and union status when all other variables are kept at the sample mean. The shaded areas show the 83-percent confidence intervals. This means that confidence intervals that do not overlap show likelihoods that are significantly different from each other at the 5-percent level.

Figure 8.8, which shows the effect of the dual-earner index and women’s union status, shows that women in stable and unstable unions are equally likely to have a second child in countries with low scores on the dual-earner index. However, in countries with generous dual-earner policies, women in
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unstable unions are almost twice as likely as women in stable unions to have a second child. This means that H3 is partially confirmed. Generous dual-earner policies have a direct positive effect on women’s fertility in addition to the positive effect they have by reducing the negative effect of union instability on fertility. However, the effect is confined to women in unstable unions.

Figure 8.8 also shows that single women are considerably less likely to have a second child than women in unions in all countries, even though the difference between such women and women in stable unions is smaller in countries that implement generous dual-earner policies.

Overall, the found patterns confirm those found in the models using the set of finer distinctions of women’s union statuses. Union instability reduces women’s likelihood of having a first and, to some extent, also a second child. Generous dual-earner policies do reduce the negative effect of union instability on women’s likelihood of having first and second children. In addition to this indirect positive effect, generous dual-earner policies also have a limited positive effect on the likelihood of women in unstable unions having a second child.

As union instability was not shown to have a significant effect on women’s likelihood of having third- and higher-order children in the models presented above, there is no need to rerun the models of women’s likelihood of having third- and higher-order children with the new set of distinctions between women’s union statuses. The results would be the same either way.

Concluding discussion

The empirical results presented so far offer a more complicated picture than the one suggested by the hypotheses presented at the start of the chapter. Hypothesis H1, that union instability should reduce fertility, is only partially verified. Union instability has a strong negative effect on women’s likelihood of having a first child, but only a limited negative effect on women’s likelihood of having a second child, and it has no effect at all on women’s likelihood of having a third child. In the case of second births, only women who live in the least stable category of unions – that is, women who cohabit – show a significant tendency of progressing more slowly from having their first child to having a second one than women who live in the most stable category of unions, which is women who are married and have never experienced unmarried cohabitation. Women in unions of medium stability – that is, married women who have cohabited – do not progress more slowly than women in the most stable unions from having their first child to having a second one in any country in the sample. The same picture emerges in the
models that only distinguish between two kinds of unions and that include women who were living on their own at the time of their interview for the ESS, but who had previously had a partner.

Hypothesis H2, that generous dual-earner policies should reduce the negative effect of union instability on fertility, is only applicable in the case of first and second births, since union instability does not have a negative effect on the progression to having a third child. To the extent that it is applicable, however, it is verified. The effect of union instability on women’s likelihood of having a first and a second child is effectively mediated by the generosity of dual-earner policies. In two out of three cases the effect is strong enough to reduce all of the negative effect of union instability on women’s likelihood of having a(nother) child, and in the third case it halves it. A similar picture emerges in the models including single women.

Hypothesis H3, that generous dual-earner policies should increase fertility, is only partially verified. Generous dual-earner policies do not affect women’s likelihood of having a first child, above reducing the negative effect of union instability on the same likelihood. But they do have a limited positive effect on the likelihood of women having a second child and a strong positive effect on the likelihood of women having a third child. In the case of second births, generous dual-earner policies only make women in unstable unions progress faster to having a(nother) child. Married women who have not cohabited do not progress faster to having a second child in countries with generous dual-earner policies.

Table 8.7, which sums up the empirical findings, shows that only hypothesis H2, that “generous dual-earner policies should reduce the negative effect of union instability on fertility,” is fully verified. Hypothesis H1, that “union instability should reduce fertility,” and hypothesis H3, that “generous dual-earner policies should increase fertility,” are only partially verified.

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85 Generous dual-earner policies do, of course, also increase the likelihood of cohabiting women having a second child. However, they only do so by reducing the negative effect of union instability (cohabitation) on the same likelihood. Generous dual-earner policies, in other words, do not have an additional positive effect on the likelihood of cohabiting women having a second child in addition to the positive effect they have on the same likelihood because they reduce the negative effect of union instability on fertility.
Table 8.7. Summation of the empirical findings

<table>
<thead>
<tr>
<th>Hypotheses</th>
<th>Likelihood of women having a first child</th>
<th>Likelihood of women having a second child</th>
<th>Likelihood of women having third- and higher-order children</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1: Union instability should reduce fertility</td>
<td>Verified</td>
<td>Partially verified</td>
<td>Not verified</td>
</tr>
<tr>
<td>H2: Generous dual-earner policies should reduce the negative effect of union instability on fertility</td>
<td>Verified</td>
<td>Verified/Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>H3: Family policies should increase fertility</td>
<td>Not verified</td>
<td>Partially verified</td>
<td>Verified</td>
</tr>
</tbody>
</table>

The empirical pattern, consequently, does not entirely live up to the theoretical expectations. The digressions from the expected pattern follow two distinct patterns. The first is that the negative effect of union instability on fertility decreases for each child a woman has, until it ceases to exist when a woman has had two children. The second is that the positive effect of generous dual-earner policies on fertility increases for each child a woman has; it starts to have a positive effect on some women’s fertility after they have had one child, and it only affects the fertility of all women after they have had two children. The digressions from the theoretically expected pattern, thus, go in opposite directions.

I have already offered a possible explanation for the first of these digressions (i.e., the effect of union instability decreases for each child a woman has) in the discussion on the results. It is reasonable to assume that only women in relatively stable “unstable” unions have a first and, especially, a second child in countries that do not implement generous dual-earner policies. If this is the case, women who live in “unstable” unions in such countries constitute a more select group of women than – and thus cannot be compared to – the women who live in unstable unions in countries with generous dual-earner policies. The unions of the latter group are likely to be more stable than the unions of the former group and are, therefore, less likely to be affected by the generosity of dual-earner policies than the former group. If only truly “unstable” unions survive the first and second birth in countries with generous dual-earner policies, it is not surprising that the negative effect of union instability on fertility becomes harder to detect for each child a woman has. No union instability survives to have an effect in countries that do not implement generous dual-earner policies, and the negative effect of
union instability surviving in countries with generous dual-earner policies is
masked by the generosity of dual-earner policies. In addition, women in un-
stable unions probably need to progress somewhat faster than women in
stable unions to higher-order births as they, particularly in countries that lack
generous dual-earner policies, progress more slowly than women in stable
unions to having a first child. In particular, the absence of a negative effect of
union instability on women’s progression to third- and higher-order births is
likely to depend on this “recovery-effect.” The observed reduction in the
effect of union “instability” on fertility, thus, does not threaten H1, but only
its operationalization. Union instability does reduce women’s fertility. It is
just that the validity of cohabitation and past experience of cohabitation as
indicators of union instability are reduced for each child a woman has.

The second digression from the expected pattern – that is, the fact that the
direct positive effect of generous dual-earner policies on fertility seems to
increase for each child a woman has – can likely be explained by the accumu-
lated costs of reproduction. The more children a family has, the fewer re-
sources it has to spend on new children and the quality of already existing
children. Thus, the risk that having another child will exceed the limit of
what a family is willing to spend on children increases with the number of
children the family already has. One could therefore expect the effect of
policies that reduce the costs of reproduction to increase in importance for
every child a woman has. Most women who live in stable unions seem will-
ing and able to afford to have at least one, and perhaps two children in coun-
tries that do not implement generous dual-earner policies. However, they
seem unwilling, or unable to afford, to have a third child in the absence of
generous dual-earner policies. When the costs of children accumulate, it
seems that no family can afford to neglect the cost-reducing effect of gener-
ous family policies on the costs of reproduction.86

H3 should be reformulated, however. If the risk that the costs of repro-
duction will have a negative effect on the likelihood of women having a(nother)
child increases for every child a woman has, H3 should be reformu-
lated to:

H3. Generous dual-earner policies should increase fertility with an in-
creasing rate for every child a woman has.

86 The only remaining puzzle is why generous dual-earner policies have a positive effect only on the likelihood
of women who are married and who have experienced unmarried cohabitation having a second child, whereas
they do not affect the same likelihood of married women who have not experienced unmarried cohabitation.
Although, the effect is only significant in a one-sided t-test in the models of the likelihood of women having a first and a second child, it should be pointed out that the availability of part-time work also increases the likelihood of women having children within the three-year period. The fact that no other policy, except a generous dual-earner policy, has a similar effect emphasizes the impression that family policies that help women reconcile work and children increase women’s likelihood of having children more than other family policies.

Despite the modest revision of H3, the overall conclusion of this chapter must be that the argument presented in Chapter 4 seems to be correct. Union instability does reduce fertility, if only the likelihood of women having a first and a second child. Generous dual-earner policies, moreover, reduce the negative effect of union instability on fertility. Finally, generous dual-earner policies have a direct positive effect on fertility, even though the effect is restricted to women’s likelihood of having second- and higher-order children.

This conclusion means that the unstable unions that women form in countries with generous dual-earner policies are likely to increase the countries’ overall levels of fertility. The fear that the positive effect on fertility that comes with dual-earner policies’ positive effect on the likelihood of women living in unions will be offset by the increased union instability among married women, which also comes with generous dual-earner policies, is not warranted. Married women who have cohabited are not less likely than married women who have not cohabited to have a(nother) child in countries that have implemented generous dual-earner policies.

Thus, it does not matter that cohabiting women are somewhat less likely than married women to have a first child even in the presence of generous dual-earner policies. The fact that they are more likely than single women to have children guarantees that the increase in the likelihood of women living in unions, as a result of generous dual-earner policies, will result in more children being born. The alternative for women who otherwise would have cohabited is not marriage, but life without a partner. All else being equal, women who live in cohabiting unions who have relatively few children contribute more to increasing the overall fertility rate than single women who do not have children.

Together with the fact that all women, disregarding the stability of the unions they live in, are more likely to experience third- and higher-order births within the three-year period in countries with generous dual-earner policies, these observations seem to warrant the conclusion that generous dual-earner policies are likely to increase the overall level of fertility.
However, there is one caveat. It is not obvious whether the observed effects should be interpreted as effects on the quantum of fertility or only as effects on the timing of fertility. The studied period is only three years long. Because of this, it is possible that the found effects only are short-term effects on the timing of fertility. Women in countries that do not implement generous dual-earner policies might recuperate, at a later time, the first-, second-, third-, and higher-order births they do not have in the observed three-year period. Their ability to recuperate those births, however, decreases for each child they have had. Age sets a biological limit on women’s fecundity. The biological limit after which women cannot have more children is usually set around the age of 45. But women’s fecundity starts to fall long before that. Few women, for example, have children after they are 39 years old. This fact, together with the fact that women in the models of the likelihood of having third- and higher-order births on average are 39 years old at the end of the three-year period, makes it likely that at least the positive effect of generous dual-earner policies on the likelihood of women having third- and higher-order births can be interpreted as an effect on the quantum of fertility.

The women in the models of the likelihood of a first and a second birth are considerably younger than the women in the models of third- and higher-order births. It is thus possible for those women who have not had children at the end of the period to catch up on their sisters and have a first and a second child later in life, even though, for biological reasons, it is likely harder to catch up on a second than on a first child. Whether they actually do so is an open question. However, for each year they wait, their biological ability to have children decreases. Hence, it is likely that at least a part of the observed positive effect of generous dual-earner policies on fertility can be interpreted as an effect on the quantum of fertility.

The part of this positive effect that is dependent on the fact that generous dual-earner policies reduce the negative effect of union instability on fertility would not have been discovered if the study had not controlled for the stability of the unions women live in, and how that stability interacts with the generosity of dual-earner policies in shaping women’s fertility outcomes. As previous studies on the topic have not done so, it is fair to say that they have likely underestimated generous dual-earner policies’ positive effect on fertility. This conclusion is further strengthened by the finding that such policies’ positive effect on women’s likelihood of living in unions is likely to result in higher fertility.

In order to further validate the hypotheses tested and confirmed in the chapter, in the next chapter I investigate whether union instability and the
generosity of dual-earner policies can also explain women’s fertility intentions.
BEDROOM POLITICS
Union instability and women’s fertility plans

In the last chapter I showed that union instability reduces, and generous dual-earner policies increase, the likelihood of women having had a child in the three years prior to the year of their interview for the ESS. In this chapter I ask whether union instability and generous dual-earner policies have similar effects on women’s likelihood of planning to have a child in the three years after their interview for the ESS. The chapter starts with a repetition of the refined hypotheses concluding Chapter 8. Thereafter, I discuss how to test the hypotheses on women’s fertility intentions. Then follows an empirical study in which I test them. The chapter concludes with a discussion of the results and their implications.

Hypotheses

Chapter 8 ended with three conclusions. First, it was concluded that union instability has a negative effect on the likelihood of women having a first and (to a more limited extent) a second child within the three years prior to the year of their interview for the ESS. Second, it was concluded that generous dual-earner policies reduce the negative effect of union instability on the likelihood of women having a first and a second child. Third, it was concluded that generous dual-earner policies have a positive effect on women’s likelihood of having second- and higher-order children, with an increasing rate for every child a woman had at the start of the period. In this chapter I test whether it is possible to trace similar effects of union instability and the generosity of dual-earner policies on women’s intentions of having a(nother) child within three years after their interview for the ESS. In line with the
argument put forward in Chapter 4 and refined in Chapter 8, I test three hypotheses. First I ask whether,

**H1. Union instability reduces women’s likelihood of planning to have another child.**

Second I ask whether,

**H2. Generous dual-earner policies reduce the negative effect of union instability on women’s likelihood of planning to have another child.**

Third, I ask whether,

**H3. Generous dual-earner policies increase women’s likelihood of planning to have another child, with an increasing rate for every child that a woman already has.**

Thus, the main aim of this chapter is to test whether union instability and the generosity of dual-earner policies have the same effects on the likelihood of women planning on having children as they have on the likelihood of women having children.

A problem with the models presented in Chapter 8 is that they only measure women’s fertility during the three years prior to the year the women were interviewed for their participation in the ESS. Because of this, it is hard to conclude whether the observed effects are effects on the timing or the quantum of fertility. By also studying women’s fertility intentions it is possible to get a sense of women’s fertility behavior over a longer time period than the one investigated in the models presented in Chapter 8. Although this does not entirely solve the problem of how to disentangle effects on the timing of fertility from effects on the quantum of fertility, it makes it safer to talk about longer-term effects on the quantum of fertility.

In addition, the chapter aims to overcome two potential methodological traps identified in the models of women’s fertility presented in Chapter 8. The first of these is the lack of fully reliable retrospective information on women’s union histories. The consequence of this lack of information is that it is hard to tell whether the set of finer-grained operationalizations of union instability that is used in some of the models in Chapter 8 in all cases reliably measures the distinctions in union instability it is supposed to measure. This problem is solved by studying women’s fertility intentions, as the ESS provides reliable information on women’s union status at the time of their inter-
view. To the extent that union instability has an effect on women’s fertility intentions, it is thus possible to detect that effect with a higher degree of certainty than it is in the models in Chapter 8. This means that it is possible to test whether the effects of the set of finer distinctions of union instability used in Chapter 8 capture the real-world effects of union instability on fertility, by comparing them with the effects of union instability in the models of women’s likelihood of planning to have a(nother) child. If the effects of union instability are similar in both kinds of models, it is likely that the models in Chapter 8 capture real-world effects.\footnote{The fact that the ESS provides reliable information on women’s union status at the time of their interview also makes it possible to test whether the effect of the dual-earner index varies between the three types of unions according to how stable they are. The results (not shown; available on request) from such a test largely confirm the expectations. The dual-earner index has no effect among married women who have not cohabited (i.e. among women in the most stable type of union), a moderate positive effect among married women who have cohabited (i.e. among women in unions of moderate stability), and a strong positive effect among cohabiting women (i.e. among women in the least stable type of union). The difference in effect size between the two latter groups, however, is only significant at the 10-percent level in a one-sided t-test (a fact that probably has to do with the small sample size).}

The second problem with the models presented in Chapter 8 is the lack of reliable retrospective information on some of the individual-level control variables. This problem is especially acute in the cases of women’s labor market attachment. The consequence is that it is difficult to fully test how women’s individual earning opportunities in the labor market affect their likelihood of having a(nother) child. It is only possible to test what effect women’s general earning opportunities in the labor market have on individual women’s likelihood of having a(nother) child. The lack of reliable retrospective information on other control variables is easier to live with, but prevents causal interpretations of the coefficients. These problems are solved by studying women’s fertility intentions, as the ESS provides reliable data on women’s labor market attachment and all other control variables at the time of their interview for the ESS.\footnote{The ESS also contains data on other factors that could potentially affect women’s fertility decisions and that, because of endogeneity problems, could not be tested in Chapter 8. Although I do not include it in the models presented in this chapter, I have checked the robustness of my results for one such variable – namely, men’s contribution to household labor. Much research shows that gender equality in the household has a positive effect on (especially working) women’s fertility (see Olah 2011 for a summary; also see Neyer 2011 for a more critical view). The inclusion of a variable measuring how large a share of the total household labor respondents’ men contribute, however, does not affect the main results. The included variable is not significant. The coefficient does, however, go in the expected (positive) direction (results not shown; available from the author on request).}

To sum up, if union instability and the generosity of dual-earner policies affect women’s intention to have a(nother) child in the three years following their interview for the ESS in the same way as they affect the likelihood of
women having a(nother) child in the three years prior to the year they were interviewed, it would considerably strengthen the conclusions reached in Chapter 8. In other words, if the patterns discussed in Chapter 8 are revealed to be the outcome of conscious planning, it is more reasonable to assume women to actually act and reason in the way the presented hypotheses assumes them to. Women’s fertility intentions and the factors affecting them are also interesting in themselves.

Data and method

Below I present multilevel logistic regression models of the likelihood of women in unions planning on having a(nother) child within the three years after their interview for the European Social Survey.

The dependent variable

The dependent variable is constructed from a question from round 2 of the ESS, which asks the respondent if she is planning on having a child within the next three years after the interview. The respondent has four answers to choose from: “definitely not,” “probably not,” “probably yes,” and “definitely yes.” Women who are pregnant at the time of their interview are coded as belonging to the category “definitely yes.” I have used these categories of answers to construct two dependent variables. First, I have coded the dependent variable as 1 if women answer “probably yes” or “definitely yes” and as 0 if they answer “probably no” or “definitely no.” Second, I have coded the dependent variable as 1 if women answer “definitely yes” and as 0 if they answer “probably yes” or “probably no” or “definitely no.” The reason for constructing two alternative dependent variables is that it is of interest to distinguish between women who definitely plan to have a(nother) child and women who only tentatively plan to do so. It is reasonable to assume that women who definitely plan on having a(nother) child are more likely than women who only “probably” plan on having a(nother) child to realize their fertility plans. The second and more restrictive definition of the dependent variable, therefore, is likely to be a more reliable predictor of women’s future fertility behavior than the first and more inclusive definition. However, it is also likely that the more restrictive definition of the dependent variable risks underestimating women’s future fertility, as it does not count the plans of women who “probably” plan on having a child in the future as real. Although several of the women who say that they “probably” plan on having a child likely will not realize their plans, many of them will. The use of both definitions of the dependent variable, thus, risks biasing results, although in oppo-
site directions. Because of this, I have chosen to use both in the models presented below. I start with modeling the likelihood of women planning on having a child within the next three years with the more inclusive definition as the dependent variable. I then rerun the models with the more restrictive definition as the dependent variable. In that way it is possible to compare the results from the two different definitions. I also compare women’s fertility plans for the three years following their interview for the ESS with their achieved fertility in the three years prior to the year they were interviewed for the ESS, in order to estimate which of the definitions is closest to women’s realized fertility behavior.

The design of the study
The design of the study on women’s fertility intentions builds on the data on women’s fertility histories provided by the ESS. As was described in Chapter 8, the ESS provides full retrospective data on women’s fertility histories. The data makes it possible to know how many children a woman had at the time of her interview for the ESS as well as when she gave birth to the children she has. I use this information to distinguish between women with different numbers of children at the time of their interview. This data is used to run separate models of women who have no children or one child and women who have two or more children. In the models of women planning on having a first or a second child I also include a dummy variable for measuring whether women had no children or one child at the time of their interview. In the models of women planning on having a third- or higher-order child, I include a dummy variable for controlling for whether women had two or three or more children at the time of their interview.

In contrast to the study on women’s likelihood of having a(nother) child, the study on the likelihood of women planning on having a(nother) child is not a panel study, but a cross-sectional one. The focus is on how women’s individual and country-level characteristics at the time of their interview for the ESS are associated with their likelihood of planning on having another child within the three years following their interview. All individual-level variables are measured at the same time as the dependent variable. This, of course, makes it impossible to know what comes first – women’s fertility intentions or their other individual characteristics. However, it is more reasonable to assume that the effect goes from women’s other individual-level characteristics to their fertility intentions, rather than in the opposite direction. To the extent that women adapt their lives and values to their fertility intentions, the adaptation is likely to take place after they have realized their intentions and have had a(nother) child. Before they have realized their fertil-
ity plans they have little reason to adapt to them, as their lives will continue on as normal. Only after they have realized their plans must they adapt to them. This is true both for behavioral and value characteristics. A working woman who intends to have a(nother) child, for example, is not likely to leave her job until she has realized her intention and had the child. Women who adapt by becoming more religious when they have children are, similarly, likely to become so only after, and not before, the children have been born. Thus, it is fairly safe to say that the effect goes from the other individual-level characteristics to women’s fertility intentions and not in the opposite direction. Therefore, I below speak of “effects” when interpreting the regression coefficients.

**Individual-level independent variables**

All individual-level variables included in the models of the likelihood of women having a(nother) child in Chapter 8 and that are applicable are also included in the models of the likelihood of women planning on having a(nother) child. Age, age squared, women’s educational attainment, their partners’ educational attainment, women’s subjective religiousness, their frequency of church attendance, their denominational belonging, their area of residence, and dummies for their civil status are all included in the regressions. All are defined in the same way as in Chapter 8. The only real difference is that there is no need to use two sets of variables to measure union instability, as we know for certain what kind of unions women live in at the time of their interview. Therefore, I only measure union instability by distinguishing between i) women who cohabit, ii) women who are married and have previously experienced unmarried cohabitation, and iii) women who are married and have never experienced unmarried cohabitation.

In addition to the variables used in the models in Chapter 8 I have also included two dummy variables measuring whether a woman is studying or working in the labor market in the models of women’s fertility intentions. The reference category consists of women who, for various reasons, are outside the labor market.

**Country-level variables**

All except one of the country-level variables included in the models in Chapter 8 are also included in the models of the likelihood of women planning on having a(nother) child. The generosity of family policies is measured by the

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89 This means that all variables except those that measure how many years a woman has not lived with her current partner are included in the models.
dual-earner index, the benefits index, and the availability of part-time jobs. I have also included the unemployment rate and the percentage of women who live with their parents. The excluded variable is the female labor force participation rate, which in Chapter 8 functioned as a proxy for women’s earning opportunities in the labor market. The models presented in this chapter control for women’s individual-level earning opportunities in the labor market; it would be unnecessary to control for women’s overall earning opportunities when direct controls for their individual-level earning opportunities can be used.

Cross-level interactions
As in the models of women’s likelihood of having a(nother) child, the models of the likelihood of women planning on having a(nother) child include an interaction term between the dual-earner index and married women who have not experienced unmarried cohabitation, which allows for the effect of the dual-earner index to vary with the stability of women’s unions.

Sample restrictions
All models are restricted to include only women in unions who were between 18 and 42 years old at the time of their interview for the ESS. The reason for including only women who are younger than 43 years is that women’s biological ability to have children comes to an end somewhere in their mid-40s.

Statistical models
The models of women’s likelihood of planning on having a first or second child within three years following their interview for the ESS contain 2186 women from 20 countries. The models of women’s likelihood of planning on having third- and higher-order children within the three years following their interview for the ESS contain 2673 women from 20 countries. Formally, the first models measure the probability that individuals, i, nested within countries, j, plan on having a child, \( Y=1 \), given a number of covariates, \( X_1...X_n \) (below represented with their names) and an intercept \( B_0 \). The models of the likelihood of women planning to have a first and a second child also include a random intercept, \( U_{0j} \), which represents country-specific likelihoods of women planning on having a child within the three-year period, and a random coefficient, \( U_{1j} \), which allows for the effect of being married without having experienced unmarried cohabitation, to vary between countries.\(^{90}\)

\(^{90}\) Technical note: The models have been run with \texttt{glimmix} in Stata10 (see Rabe Hesketh, Skrondal & Pickles 2004; Rabe-Hesketh & Skrondal 2005).
log it \( \pi_{ij} \) = \( \beta_0 + \beta_1 \text{Age}_{ij} + \beta_2 \text{Age}^* \text{Age}_{ij} + \beta_3 \text{urban}_{ij} + \beta_4 \text{university}_{ij} \\
+ \beta_5 \text{Church \( \\text{1/} \) month}_{ij} + \beta_6 \text{religiosity}_{ij} + \beta_7 \text{Catholic}_{ij} + \beta_8 \text{Protestant}_{ij} \\
+ \beta_9 \text{Orthodox}_{ij} + \beta_{10} \text{Other denomination}_{ij} + \beta_{11} \text{Essround}_{ij} + \beta_{12} \text{Married (only)}_{ij} \\
+ \beta_{13} \text{Married (have cohabited)}_{ij} + \beta_{14} \text{In education}_{ij} + \beta_{15} \text{In paid work}_{ij} \\
+ \beta_{16} (\log) \text{Dual - earner index}_{ij} + \beta_{17} (\log) \text{Benefits index}_{ij} \\
+ \beta_{18} (\log) \text{Unemployment rate}_{ij} + \beta_{19} (\log) \text{Part time work}_{ij} \\
+ \beta_{20} (\log) \text{Living with parents(\%)}_{ij} + \beta_{21} \text{Married (only)}_{ij} (\log) \text{Dual - earner index}_{ij} \\
+ v_{ij} + u_{ij} \text{Married (only)}_{ij} \\
All units are weighted with design weights, but not with population weights for reasons similar to those discussed in previous chapters. Summary statistics of all variables are presented in the results section separately for the models of the likelihood of women planning on having a first and a second child and the models of the likelihood of women planning on having a third- and higher-order child. It should be noted that both the number of women (i.e., level-one units) and the number of countries (i.e., level-two units) included in the models are very small. No model contains more than 2673 women and 20 countries. In the case of the likelihood of women planning on having third- and higher-order children, the dependent variable is also extremely skewed, as no more than between 5 and 10 percent of the women have such plans. Especially in the case of third- and higher-order births, there is thus very little variation to explore. This makes it difficult to estimate the random part of the models, and especially the included random slope. It is fully possible that a significant variation in the effect of being married without having experienced unmarried cohabitation could go undetected in the random part of the models because of the small sample sizes. To include a random slope in the models is to stress the limits of the statistical analysis. Therefore, greater notice should be taken of the significance of the included variables than of the significance of the random parts of the models. However, the significance levels of individual variables also suffer from the small sample sizes involved. Large confidence intervals and low statistical power are unavoidable. The results presented below should therefore be interpreted with some caution. Null results could hide real effects that do not show up because of low statistical power. The problem is especially acute in the models of the likelihood of women definitely planning on having third- and higher-order children, but it affects all models.
The likelihood of women planning on having a first and a second child

Of the 2186 women in unions in the sample who had no children or one child at the time of their interview for the ESS, 53 percent say that they plan to probably have a(nother) child within three years of their interview. However, only half of them (i.e., 25 percent of all women in unions) say that they definitely plan to have a(nother) child within the designated time. If these percentages are contrasted with the 33 percent of the women in unions who had a first or a second child in the three years prior to their interview for the ESS, it appears that those who say that they probably will have a(nother) child overrate their future fertility. But it also appears that women’s future fertility would be underestimated if only the fertility plans of those women who definitely plan on having a(nother) child are counted as real.

At least some of the women who “probably” plan on having a(nother) child are likely to realize their plans and have a(nother) child. However, altogether it seems that the narrower definition of women’s fertility plans gives the most realistic picture of women’s future fertility, as its average diverges least from women’s average level of realized fertility in the three years prior to the year of their interview. Despite this, below I explore the effects of union instability and the generosity of family policies on both likelihoods. I start by exploring their effects if the dependent variable is constructed using the broader definition of women’s fertility plans.

Model 1.1 in Table 9.2, which includes only individual-level variables, only partially verifies that union instability has a negative effect on women’s likelihood of planning on having a(nother) child. Only married women who have experienced unmarried cohabitation are more likely than cohabiting women to plan on having a(nother) child. This is not the case with married women who have not cohabited. However, the random part of the model shows that both the effect of being married without having experienced unmarried cohabitation and women’s overall likelihood of planning on having a(nother) child vary considerably between countries. Thus, there is room for union instability to have the expected negative effect on women’s likelihood of planning on having a(nother) child.
### Table 9.1. Summation of variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Observations</th>
<th>Mean</th>
<th>Std. dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning on having a child (wide def.)</td>
<td>2186</td>
<td>.53</td>
<td>.50</td>
<td>0</td>
<td>1</td>
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<tr>
<td>Planning on having a child (narrow def.)</td>
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<td>.26</td>
<td>.44</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Age</td>
<td>2186</td>
<td>31.1</td>
<td>6.4</td>
<td>18</td>
<td>42</td>
</tr>
<tr>
<td>Age*age</td>
<td>2186</td>
<td>1005</td>
<td>403</td>
<td>324</td>
<td>1764</td>
</tr>
<tr>
<td>Rural residence (ref.)</td>
<td>2186</td>
<td>.33</td>
<td>.47</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Urban residence</td>
<td>2186</td>
<td>.67</td>
<td>.47</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Low education (ref.)</td>
<td>2186</td>
<td>.70</td>
<td>.46</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>High education</td>
<td>2186</td>
<td>.30</td>
<td>.46</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Partner low educations (ref.)</td>
<td>2186</td>
<td>.74</td>
<td>.44</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Partner high education</td>
<td>2186</td>
<td>.26</td>
<td>.44</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Not attending church (ref.)</td>
<td>2186</td>
<td>.78</td>
<td>.41</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Monthly church att.</td>
<td>2186</td>
<td>.22</td>
<td>.41</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Religiosity</td>
<td>2186</td>
<td>4.6</td>
<td>2.9</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Protestant</td>
<td>2186</td>
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<td>.38</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Catholic</td>
<td>2186</td>
<td>.34</td>
<td>.47</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Orthodox</td>
<td>2186</td>
<td>.06</td>
<td>.24</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Other</td>
<td>2186</td>
<td>.04</td>
<td>.20</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Not belonging to church (ref.)</td>
<td>2186</td>
<td>.39</td>
<td>.49</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Have no children</td>
<td>2186</td>
<td>.47</td>
<td>.50</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Have one child</td>
<td>2186</td>
<td>.53</td>
<td>.50</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Outside the labor market (ref.)</td>
<td>2186</td>
<td>.27</td>
<td>.45</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>In education</td>
<td>2186</td>
<td>.06</td>
<td>.25</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>In paid work</td>
<td>2186</td>
<td>.67</td>
<td>.47</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Cohabiting (ref.)</td>
<td>2186</td>
<td>.33</td>
<td>.47</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Married (cohabited)</td>
<td>2186</td>
<td>.26</td>
<td>.44</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Married (only)</td>
<td>2186</td>
<td>.41</td>
<td>.49</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>(log)Dual-earner index</td>
<td>2186</td>
<td>3.26</td>
<td>.59</td>
<td>2.30</td>
<td>4.46</td>
</tr>
<tr>
<td>(log)Benefits index</td>
<td>2186</td>
<td>1.79</td>
<td>.49</td>
<td>0</td>
<td>2.73</td>
</tr>
<tr>
<td>(log)Part-time employment</td>
<td>2186</td>
<td>2.56</td>
<td>.73</td>
<td>.74</td>
<td>3.82</td>
</tr>
<tr>
<td>(log)Unemployment rate</td>
<td>2186</td>
<td>1.76</td>
<td>.63</td>
<td>.64</td>
<td>2.94</td>
</tr>
<tr>
<td>(log)% Living with parents</td>
<td>2186</td>
<td>1.83</td>
<td>.59</td>
<td>.86</td>
<td>2.78</td>
</tr>
<tr>
<td>Married (only) x (log)Dual-earner index</td>
<td>2186</td>
<td>1.24</td>
<td>1.53</td>
<td>0</td>
<td>4.46</td>
</tr>
</tbody>
</table>

Comments: Unweighted means. Reference categories in italics. For construction of variables and sources of data: see Appendix C.
Table 9.2. Odds ratios of women in unions planning to have a first or second child

<table>
<thead>
<tr>
<th>Individual level</th>
<th>Model 1.1</th>
<th>Model 1.2</th>
<th>Model 2.1</th>
<th>Model 2.2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Probably + Definitely</td>
<td>Definitely</td>
<td>Probably + Definitely</td>
<td>Definitely</td>
</tr>
<tr>
<td>Age</td>
<td>2.91 (.37)*** 2.17 (.28)***</td>
<td>2.90 (.36)*** 2.19 (.29)***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age*Age</td>
<td>.98 (.00)*** .99 (.00)***</td>
<td>.98 (.00)*** .99 (.00)***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Living urban</td>
<td>.80 (.11) .79 (.07)*</td>
<td>.80 (.11) .80 (.08)*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>University education</td>
<td>1.63 (.23)*** 1.46 (.23)*</td>
<td>1.61 (.21)*** 1.46 (.23)*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Partner university edu.</td>
<td>1.59 (.29)** 1.42 (.21)*</td>
<td>1.61 (.29)* 1.42 (.21)*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monthly church</td>
<td>.94 (.18) .71 (.13)+</td>
<td>.95 (.18) .75 (.13)+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Religiosity</td>
<td>1.01 (.02) 1.04 (.03)</td>
<td>1.01 (.02) 1.04 (.02)+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protestant</td>
<td>1.85 (.38)* 1.30 (.33)</td>
<td>1.79 (.39)* 1.35 (.27)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Catholic</td>
<td>1.26 (.19) 1.22 (.23)</td>
<td>1.30 (.19)+ 1.28 (.25)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Orthodox</td>
<td>1.75 (.55)+ 1.18 (.37)</td>
<td>1.44 (.36) 1.46 (.48)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>1.18 (.29) 1.30 (.33)</td>
<td>1.23 (.29) 1.34 (.30)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>In education</td>
<td>28 (.07)** 28 (.08)***</td>
<td>28 (.06)*** 29 (.06)***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>In paid work</td>
<td>.80 (.10)+ .85 (.10)</td>
<td>.80 (.10)+ .84 (.11)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have no children</td>
<td>1.44 (.30)+ 1.37 (.27)</td>
<td>1.44 (.28)+ 1.40 (.28)+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married (cohab.)</td>
<td>1.40 (.22)* 1.79 (.30)***</td>
<td>1.42 (.23)* 1.87 (.34)***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married (only)</td>
<td>.88 (.22) 1.33 (.31)</td>
<td>7.60 (5.0)** 6.61 (4.66)**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married (only)* no child</td>
<td>1.56 (.47) 1.37 (.27)</td>
<td>1.53 (.46) 1.85 (.34)***</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Country level</th>
<th>(log)Dual-earner index</th>
<th>(log)Benefits index</th>
<th>(log)Part-time work</th>
<th>(log)Unemployment rate</th>
<th>(log)Living with parents</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.47 (.11)*** 1.49 (.17)***</td>
<td>.66 (.10)*** 1.10 (.23)</td>
<td>.68 (.08)*** .72 (.11)*</td>
<td>.64 (.09)*** .59 (.13)*</td>
<td>.85 (.13) .98 (.22)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cross-level inter.</th>
<th>(log)Dual-earner index</th>
<th>.51 (.10)*** .61 (.13)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Married (only)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Random part | Intercept level 2 | .22 (.10)* .35 (.13)** .04 (.06) .02 (.12) |
|-------------|------------------|------------------------|-----------------|----------------|
| Married (only) | .43 (.15)** .27 (.16)+ .07 (.10) .14 (.30) |

<table>
<thead>
<tr>
<th>Observations</th>
<th>Individuals</th>
<th>2186</th>
<th>2186</th>
<th>2186</th>
<th>2186</th>
</tr>
</thead>
<tbody>
<tr>
<td>Countries</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Log Likelihood</td>
<td>-1175.538</td>
<td>1076.262</td>
<td>-1164.831</td>
<td>1066.471</td>
<td></td>
</tr>
<tr>
<td>AIC</td>
<td>2393.076</td>
<td>2192.524</td>
<td>2383.661</td>
<td>2186.942</td>
<td></td>
</tr>
</tbody>
</table>

Standard errors in parentheses

* p < 0.1, ** p < 0.05, *** p < 0.01, **** p < 0.001
The pattern that appears when Model 1.1 is rerun with the narrower definition of women’s fertility plans as the dependent variable is similar to that which appears when the broader definition is used (see Model 1.2). Married women who have not experienced unmarried cohabitation are not less likely than cohabiting women to plan on having a(nother) child. However, the random part of the model, once again, shows that both the overall likelihood of women planning on having a(nother) child and the effect of being married without having cohabited on the same likelihood vary significantly between countries. The overall between-country variation is larger than in the model using the more inclusive definition of women’s fertility plans, whereas the variation in the effect of being married without having cohabited, in contrast, is somewhat smaller. The existing variation, however, allows for the effect of dual-earner policies and union instability on women’s fertility plans to vary in the expected way in both models.

When the dual-earner index and the interaction between the dual-earner index and being married without having cohabited are introduced along with the control variables in the model using the broader definition of women’s fertility plans, the expected pattern emerges (see Model 2.1). The variation in the effect of being married without having cohabited is reduced drastically and ceases to be significant. The coefficient of being married without having cohabited increases in magnitude and becomes highly significant and positively associated with the likelihood of women planning on having a(nother) child. At the same time, the dual-earner index, which now represents the effect of generous dual-earner policies among women who live in unstable unions, becomes significantly positively associated with the same likelihood. Also, the interaction term is significant and strongly negatively associated with women’s plans to have a(nother) child.

Together, these observations mean that union instability has the expected negative effect on women’s likelihood of planning on having a(nother) child in countries that do not implement generous dual-earner policies. They also mean that generous dual-earner policies, as expected, reduce the negative effect of union instability on women’s fertility plans. The reason why union instability does not have a significant negative effect on women’s fertility plans in Model 1 is that generous dual-earner policies conceal the negative effect. The introduced variables also reduce the between-country variations in the likelihood of women planning on having a first and a second child.

However, several of the country-level control variables measuring the generosity of family policies are, surprisingly, negatively associated with

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8 For a graphic display and discussion of the size and significance of the interactions effect, see Appendix B. Overall, the results presented in the appendix confirm the findings discussed above.
women’s fertility plans. It is not surprising that the average age on leaving the parental home and the unemployment rate are negatively associated with women’s fertility plans. However, it is surprising that the availability of part-time jobs and the generosity of the benefits index are also negatively associated with women’s fertility plans. If anything, we should expect a positive association between the latter two variables and the likelihood of women planning on having children.

The fact that the signs of the two control variables diverge from the expected theoretical pattern indicates either that something is wrong with the theoretical expectations or that women who say that they “probably” will have a(nother) child within three years of their interview miscalculate their future fertility in a systematic way. Given that the more inclusive definition of the dependent variable seems to overestimate women’s future fertility radically, the latter option is probably the best explanation for the diverging results. The narrower definition would likely yield results more in line with the theoretical expectations. To test whether this is the case, I rerun Model 2.1 with the narrower definition of women’s fertility plans, which includes only women who definitely plan on having a(nother) child, as the dependent variable. The results are presented in Model 2.2.

As expected, the results from the model using the narrower definition of women’s fertility plans are much more similar to the results presented in Chapter 8 than are the results from the model using the broader definition of women’s fertility plans.

All main variables are significant and go in the expected directions. The combined effects of union instability and the generosity of dual-earner policies on women’s likelihood of definitely planning on having a first child are illustrated in Figure 9.1. The figure clearly confirms hypothesis H1, that union instability has a negative effect on women’s likelihood of definitely planning on having a first child. It also confirms hypothesis H2, that generous dual-earner policies reduce the negative effect of union instability on women’s definite fertility plans.
Comments. Builds on Model 2.2 in Table 9.3. The graph shows the effect of union status and the generosity of the dual-earner index on the likelihood of women definitely planning on having a first child when all other variables are held at the sample mean. The shaded areas show the 83-percent confidence intervals. This means that confidence intervals that do not overlap show likelihoods that are significantly different from each other at the 5-percent level.

In the country with the lowest score on the dual-earner index, only 12 percent of the women who live in the least stable type of union (i.e., women who cohabit) are predicted to definitely plan on having a first child within three years of their interview. This should be compared to the finding that 20 percent of the married women who have cohabited and 35 percent of the married women who have not cohabited are predicted to do so. Women who are living in the most stable type of union are, thus, three times as likely as women who live in the least stable type of union to plan on having a first child in the country with the lowest score on the dual-earner index, and they are almost twice as likely to do so as women who live in unions of average stability.

However, in countries that score above 3 on the log of the dual-earner index, married women who have not cohabited cease to be significantly more likely than married women who have cohabited to plan on having a first child. In countries that score above 4 on the log of the dual-earner index, cohabiting women also cease to be significantly less likely than married
women who have not cohabited to plan on having a first child. This means that generous dual-earner policies can potentially reduce all of the negative effect of union instability on women’s definite plans to have a first child. In other words, the positive effect of generous dual-earner policies on the fertility plans of women who are living in unstable unions is so strong that it increases their likelihood of planning on having a first child by over 80 percent. However, the effect is not strong enough to significantly raise the predicted probability of women who are living in unstable unions above that of women who live in more stable unions. Thus, generous dual-earner policies do not have a significant positive effect on women’s definite plans to have a first child in addition to the indirect positive effect they have by reducing the negative effect of union instability on women’s fertility plans.

Overall, the associations between union instability, the generosity of dual-earner policies, and women’s likelihood of definitely planning on having a first child follow a pattern that is almost identical to the one found in Chapter 8. Women’s achieved fertility in the three years prior to their interview for the ESS almost perfectly mirrors their definite fertility plans for the three years after their interview. There is only one minor exception to the pattern discussed in Chapter 8, and that is that generous dual-earner policies reduce all of the negative effect of cohabiting women’s union instability on their likelihood of planning on having a first child, whereas they only reduce a part of the negative effect of cohabiting women’s union instability on their likelihood of actually having a first child. Although this could mean that union instability does have a somewhat less accentuated negative effect on women’s fertility than the models in Chapter 8 indicate, there is another, more likely, explanation: that the low statistical power of the models of women’s likelihood of planning to have children results in large confidence intervals that hide the real effects. A larger N would likely have resulted in a significant difference between the two groups even in countries with very generous dual-earner policies. The set of finer distinctions between different degrees of union instability used in Chapter 8, thus, likely reflects real-world distinctions of union stability quite well, even though they do not measure women’s union status until the end of the three-year period. Overall, the results from the models of the likelihood of women planning on having children, thus, confirm the findings from Chapter 8 regarding the effect of union instability on fertility.
Figure 9.2. The likelihood of women in unions definitely planning on having a second child

Comments. Builds on Model 2.2 in Table 9.3. The graph shows the effect of union status and the generosity of the dual-earner index on the likelihood of women definitely planning on having a second child when all other variables are held at the sample mean. The shaded areas show the 83-percent confidence intervals. This means that confidence intervals that do not overlap show likelihoods that are significantly different from each other at the 5-percent level.

Also, in the case of women’s likelihood of planning on having a second child, the pattern has similarities to the pattern found in Chapter 8. However, as is illustrated in Figure 9.2, there are also more accentuated divergences.

The most notable divergence is that cohabiting women only have a lower predicted probability of planning on having a second child than married women who have not cohabited in the country with the least generous dual-earner policies. In other countries, they are not less likely to plan on having a second child. The most likely reason for this is, once again, the small N and the resulting large confidence intervals. It is probable that a larger N would have resulted in a similar pattern to that in the models of women having a second child presented in Chapter 8. Cohabiting women, however, are less likely than married women who have cohabited to plan to have a second child in all countries in the sample. Strictly statistically speaking, union instability nevertheless has an even more limited effect in the models of women’s likelihood of planning on having a second child than in the models of
women’s likelihood of having a second child. Thus, H1 finds somewhat less support in the models of the likelihood of women planning on having a second child.

The other notable divergence is the fact that all women have much lower predicted probabilities of planning on having a second child than they have on actually having a second child. This can likely be explained by the fact that women’s definite fertility plans underestimate their future fertility. However, it is somewhat strange that the underestimation sets in first in the case of second births, whereas women do not seem to underestimate their first births to the same degree. This could be interpreted as evidence that women plan their first births more meticulously than their second births.

Generous dual-earner policies, nonetheless, exert a strong positive effect on the likelihood of women in unstable unions definitely planning on having a second child, as such women are almost twice as likely to do so in the country with the most generous dual-earner policies as they are in the country with the least generous dual-earner policies. Each log-unit change on the dual-earner index, in other words, increases the predicted probability of women in unstable unions planning on having a second child by about 45 percent. Less than 10 percent of the cohabiting women in the country with the least generous dual-earner policies are predicted to definitely plan on having a second child, whereas almost 20 percent of the cohabiting women in the country with the most generous dual-earner policies are predicted to do so.

The fact that generous dual-earner policies increase the likelihood of women in unstable unions planning on having a second child, whereas union instability has only a marginally negative effect on the same likelihood, can be taken as a partial confirmation of H3, that generous dual-earner policies have a direct positive effect on the likelihood of women planning on having a second child. However, precisely as in the models of women’s likelihood of having a second child presented in the last chapter, H3 is only partially verified. Married women who have not cohabited are, for some reason, not positively affected by generous dual-earner policies in their definite fertility plans.

The associations between individual-level control variables and women’s definite fertility plans diverge in some important respects from the pattern found in Chapter 8. The behavior of age, women’s subjective religiousness, and denominational membership is similar. However, women’s and their partners’ education and women’s church attendance behave quite differently.

In contrast to all theoretical expectations, women’s educational attainment is significantly positively associated with their likelihood of definitely plan-
ning on having a(nother) child. Their partners’ educational attainment is, also. This finding contrasts starkly with the null associations found in the models in Chapter 8. For some reason education seems to have a more accentuated effect on women’s fertility plans than it has on their actual fertility behavior. The fact that the partner’s education increases women’s likelihood of planning on having children is only to be expected given the positive income effect on the demand for children that comes with a raise in men’s income. But the fact that women’s educational attainment is positively associated with the same likelihood is harder to explain, as an increase in women’s income increases not only the demand for children but also the opportunity costs of children. A possible explanation for the changing impact of education could be that highly educated men and women are more likely to plan their children in advance than are less educated men and women. If that is the case, and if less educated men and women have more unplanned children than highly educated men and women, the changing impact of education between the models of women’s realized fertility and their fertility plans can readily be explained.

The other divergence from the models of women’s realized fertility is that women’s church attendance does not have a positive effect in the models of women’s likelihood of planning to have children. Women who attend church regularly are even significantly less likely than women who do not attend church regularly to definitely plan on having a(nother) child. This could be seen as evidence that the positive association between women’s church attendance and their likelihood of having a first and a second child, found in Chapter 8, can be explained by the fact that women who have children adapt by becoming more religious. However, church attendance could influence women’s fertility in more ways than affecting their fertility plans. For example, religiousness has been argued to decrease the likelihood that women will use contraceptives and have abortions. None of these latter ways in which religiousness could affect fertility influence women’s likelihood of planning to have children. Therefore, it is hard to say with certainty why the results diverge so much between the models of women’s achieved and planned fertility.

In addition to the individual-level control variables included in the models presented in Chapter 8, the models of women’s likelihood of planning on having a first and a second child also include two variables controlling for women’s labor market attachment. They show that women who are students are significantly less likely than both working women and women who are outside the labor market to plan to have children. Working women, however, are not significantly less likely than women outside the labor market to plan
to have children, although they are close to being so. The theoretical expectation of a negative association between women’s labor market attachment and their fertility plans is, thus, only partially confirmed.

Two of the country-level control variables are significantly negatively associated with women’s definite fertility plans: the unemployment rate and the availability of part-time jobs. The fact that the overall level of unemployment strongly reduces women’s likelihood of definitely planning on having children is in line with the theoretical expectations, as well as previous findings of a negative association between the unemployment rate and women’s fertility (Adserà 2004) and the results from the models of the likelihood of women in unions having a first and a second child. In times of economic uncertainty, women seem to abstain from plans to have children.

However, the negative association between the availability of part-time jobs and women’s definite fertility plans is more surprising and goes in the opposite direction of the expected pattern. There is no obvious reason why women in countries in which part-time jobs are widely available should be less likely to plan on having children than women in countries in which part-time jobs are scarce. If anything, the availability of part-time jobs should reduce the opportunity costs of having children, and thus raise the incentives to have them. The found negative association also contrasts with the, admittedly statistically weaker, positive association found in the models of women’s likelihood of actually having a first and a second child.

Apart from this obscurity, the conclusion must be that the observed patterns largely confirm the main findings from Chapter 8. Union instability reduces women’s likelihood of planning to have a first and, to some degree, a second child, and generous dual-earner policies reduce this negative effect of union instability on women’s fertility plans. Finally, generous dual-earner policies have a limited positive effect on women’s likelihood of planning to have a second child. The results also indicate that union instability is a better predictor of women’s fertility plans than is labor market status. Only the coefficients of the control variables measuring women’s religiousness and education differ from those found in Chapter 8. Overall, the divergences do, however, have reasonable explanations.
The likelihood of women planning on having third- and higher-order children

Depending on the definition used, between 4 and 9 percent of the women in unions who had two or more children at the time of their interview for the ESS plan on having another child within three years.

Table 9.3. Summation of variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Observations</th>
<th>Mean</th>
<th>Std. dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning on having a child (wide def.)</td>
<td>2673</td>
<td>.09</td>
<td>.29</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Planning on having a child (narrow def.)</td>
<td>2673</td>
<td>.04</td>
<td>.20</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Age</td>
<td>2673</td>
<td>36.2</td>
<td>4.8</td>
<td>19</td>
<td>42</td>
</tr>
<tr>
<td>Age*age</td>
<td>2673</td>
<td>1337</td>
<td>335</td>
<td>361</td>
<td>1764</td>
</tr>
<tr>
<td>Rural residence (ref.)</td>
<td>2673</td>
<td>.45</td>
<td>.50</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Urban residence</td>
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<td>.50</td>
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<td>1</td>
</tr>
<tr>
<td>Low education (ref.)</td>
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<td>.41</td>
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<tr>
<td>High education</td>
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<td>.41</td>
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<td>1</td>
</tr>
<tr>
<td>Partner low educations (ref.)</td>
<td>2673</td>
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<td>.40</td>
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<td>1</td>
</tr>
<tr>
<td>Partner high education</td>
<td>2673</td>
<td>.20</td>
<td>.40</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Monthly church att.</td>
<td>2673</td>
<td>.34</td>
<td>.47</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Not attending church (ref.)</td>
<td>2673</td>
<td>.66</td>
<td>.47</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Religiosity</td>
<td>2673</td>
<td>5.3</td>
<td>2.8</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Protestant</td>
<td>2673</td>
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<td>.38</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Catholic</td>
<td>2673</td>
<td>.41</td>
<td>.49</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Orthodox</td>
<td>2673</td>
<td>.07</td>
<td>.25</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Other</td>
<td>2673</td>
<td>.04</td>
<td>.20</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Not belonging to church (ref.)</td>
<td>2673</td>
<td>.30</td>
<td>.46</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Have two children</td>
<td>2673</td>
<td>.65</td>
<td>.48</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Have three children or more</td>
<td>2673</td>
<td>.35</td>
<td>.48</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Outside the labor market (ref.)</td>
<td>2673</td>
<td>.42</td>
<td>.49</td>
<td>0</td>
<td>1</td>
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<tr>
<td>In education</td>
<td>2673</td>
<td>.02</td>
<td>.13</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>In paid work</td>
<td>2673</td>
<td>.56</td>
<td>.50</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Cohabiting (ref.)</td>
<td>2673</td>
<td>.09</td>
<td>.29</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Married (cohabited)</td>
<td>2673</td>
<td>.31</td>
<td>.46</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Married (only)</td>
<td>2673</td>
<td>.60</td>
<td>.49</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>(log)Dual-earner index</td>
<td>2673</td>
<td>3.26</td>
<td>.58</td>
<td>2.30</td>
<td>4.46</td>
</tr>
<tr>
<td>(log)Benefits index</td>
<td>2673</td>
<td>1.83</td>
<td>.49</td>
<td>0</td>
<td>2.73</td>
</tr>
<tr>
<td>(log)Part-time employment</td>
<td>2673</td>
<td>2.54</td>
<td>.77</td>
<td>.74</td>
<td>3.82</td>
</tr>
<tr>
<td>(log)Unemployment rate</td>
<td>2673</td>
<td>1.75</td>
<td>.63</td>
<td>.64</td>
<td>2.94</td>
</tr>
<tr>
<td>(log)% Living with parents</td>
<td>2673</td>
<td>1.80</td>
<td>.58</td>
<td>.86</td>
<td>2.78</td>
</tr>
</tbody>
</table>

Comments: Unweighted averages. Reference categories in italics. For construction of variables and sources of data: see Appendix C.
If this is compared to the 10 percent of the women who actually had a third- or higher-order child in the three years prior to the year of their interview, it becomes obvious that the broader definition of women’s fertility plans seems to be a better indicator of women’s future fertility than the narrower definition. This observation is in line with the observation that women’s definite fertility plans reliably predict the percentage of women who have a first child, but underestimates the percentage of women who have a second child. In short, women’s probable fertility plans seem to be a more reliable predictor of their future fertility after women have had their first child. There are several good reasons for believing that this should be the case. First, women should reasonably have a more realistic view of what it means to have a child after they have had one. Second, the leap from being childless to becoming the mother of a child involves a greater change in lifestyle than going from being the mother of one child to becoming the mother of two children.

These assumptions should make us take the fertility plans of women who already have children more seriously than the fertility plans of childless women. It is uncertain whether childless women will pursue their fertility plans to the end when they start to realize what a child would actually mean for them and their life. Women who already have children are in all probability more likely to follow through on their plans. There is also a third reason for taking the fertility plans of women with children more seriously than those of childless women, which is that women who have had a child with their partner can likely make a more realistic judgment of their partner’s fertility preferences and adjust their fertility plans accordingly. Together, these assumptions could explain why the narrower definition of women’s fertility plans seems to predict women’s first births better than the broader definition, whereas the broader definition seems to predict women’s higher-order births better than the narrow definition. Nonetheless, below, I present models based on both definitions.

Model 3.1, which uses the broader definition of women’s fertility plans and which includes only individual-level variables, shows that union instability, surprisingly, has a positive effect on the likelihood of women planning on having third- and higher-order children. Cohabiting women are significantly more likely than married women who have cohabited to plan on having third- and higher-order children, and married women who have cohabited are, in turn, significantly (t-test is not shown; available from the author on request) more likely than married women who have not cohabited to plan on having another child. This means that the empirical pattern goes in the opposite direction of the theoretically expected pattern. Although it was only to be expected that the negative effect of union instability, as it is operationalized
in this study, on fertility should decrease for each child a woman has, it is not easy to explain why union instability has a positive effect on women’s plans to have third- and higher-order children.

Table 9.4. Odds ratios of women in unions planning to have a third- or higher-parity child

<table>
<thead>
<tr>
<th>Individual level</th>
<th>Model 3.1</th>
<th>Model 3.2</th>
<th>Model 4.1</th>
<th>Model 4.2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Probably + Definitely</td>
<td>Definitely</td>
<td>Probably + Definitely</td>
<td>Definitely</td>
</tr>
<tr>
<td>Age</td>
<td>1.58 (.42)*</td>
<td>1.11 (.33)*</td>
<td>1.58 (.41)*</td>
<td>1.11 (.34)*</td>
</tr>
<tr>
<td>Age*Age</td>
<td>.99 (.00)*</td>
<td>.99 (.00)*</td>
<td>.99 (.00)*</td>
<td>.99 (.00)*</td>
</tr>
<tr>
<td>Living urban</td>
<td>.84 (.11)</td>
<td>.75 (.16)</td>
<td>.85 (.11)</td>
<td>.77 (.17)</td>
</tr>
<tr>
<td>University education</td>
<td>2.11 (.69)*</td>
<td>.99 (.27)</td>
<td>2.05 (.68)*</td>
<td>.91 (.25)</td>
</tr>
<tr>
<td>Partner university edu.</td>
<td>1.74 (.38)*</td>
<td>2.00 (.50)**</td>
<td>1.70 (.37)*</td>
<td>1.89 (.46)**</td>
</tr>
<tr>
<td>Monthly church</td>
<td>1.36 (.32)</td>
<td>1.02 (.32)</td>
<td>1.37 (.33)</td>
<td>1.09 (.35)</td>
</tr>
<tr>
<td>Religiosity</td>
<td>1.00 (.03)</td>
<td>1.05 (.04)</td>
<td>1.00 (.03)</td>
<td>1.04 (.04)</td>
</tr>
<tr>
<td>Protestant</td>
<td>.94 (.30)</td>
<td>.87 (.21)</td>
<td>1.01 (.34)</td>
<td>.84 (.22)</td>
</tr>
<tr>
<td>Catholic</td>
<td>.94 (.19)</td>
<td>.95 (.20)</td>
<td>1.00 (.23)</td>
<td>1.03 (.23)</td>
</tr>
<tr>
<td>Orthodox</td>
<td>.70 (.23)</td>
<td>.66 (.25)</td>
<td>.80 (.32)</td>
<td>1.14 (.51)</td>
</tr>
<tr>
<td>Other</td>
<td>2.37 (.07)*</td>
<td>2.18 (.99)</td>
<td>2.28 (.102)*</td>
<td>1.92 (.91)</td>
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<tr>
<td>In education</td>
<td>.56 (.28)</td>
<td>.85 (.65)</td>
<td>.56 (.28)</td>
<td>.72 (.53)</td>
</tr>
<tr>
<td>In paid work</td>
<td>.75 (.19)</td>
<td>.68 (.24)</td>
<td>.75 (.19)</td>
<td>.64 (.23)</td>
</tr>
<tr>
<td>Have three children</td>
<td>.71 (.13)*</td>
<td>.78 (.16)</td>
<td>.71 (.13)*</td>
<td>.75 (.15)</td>
</tr>
<tr>
<td>Married (cohab.)</td>
<td>.54 (.14)*</td>
<td>.59 (.17)*</td>
<td>.56 (.14)*</td>
<td>.64 (.19)</td>
</tr>
<tr>
<td>Married (only)</td>
<td>.33 (.09)**</td>
<td>.29 (.10)**</td>
<td>.35 (.09)**</td>
<td>.36 (.13)**</td>
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<td>Country level</td>
<td>(log)Dual-earner index</td>
<td>1.44 (.19)**</td>
<td>1.45 (.25)**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(log)Benefits index</td>
<td>.62 (.17)*</td>
<td>1.03 (.27)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(log)Part-time work</td>
<td>1.08 (.26)</td>
<td>1.25 (.33)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(log)Unemployment rate</td>
<td>.59 (.15)*</td>
<td>.83 (.16)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(log)Living with parents</td>
<td>1.33 (.53)</td>
<td>1.50 (.34)</td>
<td></td>
</tr>
</tbody>
</table>

| Random part               | Intercept level 2 | .44 (.12)** | .00 (.00) | .29 (.13)* | .00 (.00) |

<table>
<thead>
<tr>
<th>Observations</th>
<th>Individuals</th>
<th>2673</th>
<th>2673</th>
<th>2673</th>
<th>2673</th>
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<td>Countries</td>
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<td>20</td>
<td>20</td>
<td>20</td>
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<tr>
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<td>-392.5308</td>
<td>-656.3658</td>
<td>-389.4428</td>
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<tr>
<td>AIC</td>
<td>1358.19</td>
<td>821.0615</td>
<td>1358.732</td>
<td>824.8856</td>
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</table>

Standard errors in parentheses
* p < 0.1, ** p < 0.05, *** p < 0.001

The selection process that can explain why the negative effect of union instability decreases for each child a woman has cannot as readily explain why the effect turns positive after a woman has had two children. The only readily
available explanation is that cohabiting women, because they progress more slowly to their first births, must proceed faster than women in more stable unions to realize their fertility plans before it is too late for them to have children. In any case, hypothesis H1, that union instability should reduce women’s likelihood of planning to have third- and higher-order children, is not verified. This also means that it is not applicable to test whether generous dual-earner policies reduce the negative effect of union instability on women’s fertility plans.

The random part of the model does, however, leave room for hypothesis H3, that generous family policies should have a general positive effect on women’s fertility plans, to be true. The overall likelihood of women planning on having third- and higher-order children does vary significantly and considerably between countries.

When Model 3.1 is rerun using the narrower definition of women’s fertility plans (results presented in Model 3.2), a similar pattern appears, but with one major exception: the overall likelihood of women planning on having third- and higher-order children does not vary significantly between countries. As noted in the methods section, this likely has to do with the low number of women definitely planning on having third- and higher-order children. Despite the found null variation, I therefore do not abstain from running the full model using the narrower definition of women’s fertility plans.

When the country-level variables are introduced to test whether generous family policies have a positive effect on women’s fertility plans, the expected pattern appears (results presented in Models 4.1 and 4.2 in Table 9.4). The generosity of dual-earner policies becomes significantly positively associated with women’s fertility plans in both the model using the broader definition of women’s fertility plans and the model using the narrower definition. Most individual-level variables behave similarly to how they behave in the models excluding the country-level variables. The exception is that the positive effect of union instability decreases, so that the only difference in fertility plans remaining significant at the 5-percent level is that between married women who have not cohabited and cohabiting women. The effect of the generosity of dual-earner policies and women’s union status on the likelihood of women definitely planning on having a third child is illustrated in Figure 9.3.
Figure 9.3. The likelihood of women in unions planning on having a third child

Comments: Builds on Model 4.2 in Table 9.3. The graph shows the effect of union status and the generosity of dual-earner policies on the likelihood of women definitely planning on having a third child when all other variables are held at the sample mean. Confidence intervals are not shown for illustrative reasons. Only the difference in predicted probabilities between married women who have not cohabited and women who cohabit is significant at the 5-percent level. All other differences in predicted probabilities between women with different union statuses are not significant.

The figure shows that generous dual-earner policies have a strong positive effect on women’s likelihood of definitely planning on having a third child. Women in the country with the most generous dual-earner policies are more than twice as likely as women in the country with the least generous dual-earner policies to plan on having a third child. Each log-unit change on the dual-earner index, thus, increases the predicted probability of a woman planning on having a third child by more than 45 percent.

It is also interesting to note the strong positive effect of union instability (or rather cohabitation) on the same likelihood. Cohabiting women are more than twice as likely as married women who have not cohabited to plan on having a third child. The difference between cohabiting women and married women who have not cohabited is also large, but not significant. Given the positive association that exists between generous dual-earner policies and the likelihood of women in unions cohabiting, this means that generous dual-
earner policies are actually more strongly positively associated with women’s likelihood of planning to have third- and higher-order children than the coefficients of the dual-earner index in Models 4.1 and 4.2 indicate. If the models are rerun without controls for women’s union status, the effect of the dual-earner index increases considerably (results are not shown; available from the author on request).

Apart from the main variables, only one individual-level control variable, other than age, is significantly associated with women’s definite likelihood of planning to have third- and higher-order children at the 5-percent level in both models, namely, their partner’s educational attainment. Women whose partners have a university education are considerably more likely to plan on having a third- or higher-order child than women whose partners have lower levels of education. This finding is consistent with the hypothesis that men’s incomes should have a positive effect on women’s fertility. In the model based on women’s more inclusive fertility plans, women’s educational attainment is also positively associated with their likelihood to plan on having a higher-order child.

No country-level control variables are significantly associated with women’s likelihood of definitely planning on having third- and higher-order children. The benefits index and the unemployment rate, however, are negatively associated with women’s looser plans about having higher-order children. The fact that the unemployment rate is so associated is to be expected, and the result is also in line with the findings from the models of women’s likelihood of planning to have a first and a second child. The negative association between generous family benefits and women’s more loosely defined fertility plans is more surprising. The found association, however, is significant only at the 10-percent level.

Overall, the models are plagued by low statistical power. This is evident in that none of the full models show an improvement of the model fit in comparison with the models containing only individual-level variables. This is probably due to the models’ low N, in combination with the fact that so few women plan to have third- and higher-order children. This makes the interpretation of the results problematic. However, to the extent that it is possible to trust the results, they largely confirm the findings from the models presented in Chapter 8. Generous dual-earner policies not only seem to have a positive effect on women’s realized third- and higher-order births, but also seem to positively affect women’s willingness to plan to have third- and higher-order children. The only really surprising finding is that part of the effect seems to go via the positive effect generous dual-earner policies have on women’s likelihood of cohabiting.
It should also be noted that women’s labor market status does not significantly affect their likelihood of planning to have third- and higher-order children. The signs of the coefficients do, however, go in the expected directions, and the null result could as well reflect the low statistical power of the models as a real null association.

Concluding discussion

The main aim of this chapter has been to test whether union instability and the generosity of dual-earner policies have the same effects on the likelihood of women planning on having children as they have on the likelihood of women having children. The results largely confirm that union instability and the generosity of dual-earner policies have a uniform effect on women’s realized and planned fertility (the results are summarized in Table 9.5).

Table 9.5. Summation of the empirical findings

<table>
<thead>
<tr>
<th>Hypotheses</th>
<th>Likelihood of women having a first child</th>
<th>Likelihood of women having a second child</th>
<th>Likelihood of women having third- and higher-order children</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1: Union instability should reduce fertility</td>
<td>Verified</td>
<td>Partially verified</td>
<td>Not verified</td>
</tr>
<tr>
<td>H2: Generous dual-earner policies should reduce the negative effect of</td>
<td>Verified</td>
<td>Verified/Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>union instability on fertility</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H3: Generous family policies should increase fertility</td>
<td>Not verified</td>
<td>Partially verified</td>
<td>Verified</td>
</tr>
</tbody>
</table>

The fact that the results are so similar to each other strengthens their reliability. It is fairly certain that union instability and the generosity of dual-earner policies have the expected effects – at least on women’s planned and realized timing of fertility. But the similarity also makes it likelier that the effects will not dissipate as time goes by; that is, it makes it likelier that the observed effects represent not only effects on the timing, but also the quantum, of fertility. The total time covered by the models of women having a child in the three years before their interview for the ESS and the models of women planning to have a child in the three years after their interview is, after all, six years.
This chapter has also aimed to test how the methodological problems disturbing the models in Chapter 8 affect the results. The main finding emanating from this test is that the set of finer distinctions of union instability used in Chapter 8 seems to capture real-world distinctions rather well. In all, the distinctions seem to behave similarly to the corresponding distinctions in this chapter. This observation makes the results in Chapter 8 more believable. When it comes to the control variables, one finding stands out, namely, that the effect of religiousness on fertility might be more ambiguous than the models in Chapter 8 suggest. Although women’s participation in organized religion, in the form of church attendance and denominational belonging, has a positive effect on their achieved fertility, it does not affect their planned fertility. This could mean that women become more religious after they have had children and that their participation in organized religion does not have an independent effect on fertility. However, an equally valid interpretation of the results is that women’s participation in organized religion increases their chances of having unplanned children, for example by reducing their likelihood of using contraceptives and having abortions. Thus, the test neither confirms nor disconfirms the assumed positive association between women’s participation in organized religion and their likelihood of having children. But the models do confirm that women’s self-estimated religiousness seems to have a positive effect on both their planned and realized fertility.

Equally interesting from a substantial point of view is the finding of a positive association between the experience of cohabitation and the likelihood of women planning on having third- and higher-order children. Also, in the models of women’s achieved fertility, a similar tendency can be found, although it is not nearly as strong as that found for women’s fertility plans. The most likely explanation for this finding is that cohabiting women, because they progress more slowly to their first births, must proceed faster than women in more stable unions to realize their fertility plans before it is too late for them to have children. Another potential explanation could be that cohabiting women who have two or more children in most countries constitute a very select group of women with a strong desire to have children. The fact that they have had two children despite their relatively high risk of union disruption reveals a willingness to pay a relatively high price for having children – especially in countries that lack generous dual-earner policies. Nonetheless, the finding that cohabiting women are more likely to plan to have and – also to a degree – to have third- and higher-order children consti-

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92 It should also be noted that the set of finer distinctions of union instability that were used in Chapter 8 seem to capture real-world distinctions quite well, even though they are measured after the three-year period prior to their interview for the ESS.
tutes evidence that generous dual-earner policies not only have a direct positive effect on women’s likelihood to plan to have, and to actually have, third- and higher-order children. They also have an indirect positive effect on the same likelihood, via the positive effect they have on women’s likelihood of cohabiting, and cohabiting women’s likelihood of having a first and a second child. This finding only emphasizes the impression that generous dual-earner policies have a strong positive effect on the likelihood of women in unions having many children.

To sum up, the fertility outcomes observed in Chapter 8 mirror the fertility plans found in this chapter. This close proximity between women’s fertility plans and their actual fertility behavior constitutes good evidence that women plan their children’s births in advance and with the risk of union disruption and its economic consequences in mind. In short, children do seem to be the planned results of rational decisions. This means that women’s fertility plans can be a good proxy for predicting their actual fertility behavior.

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Nonetheless, the finding that cohabiting women are more likely to plan to have and – also to a degree – to have third- and higher-order children constitutes evidence that generous dual-earner policies not only have a direct positive effect on women’s likelihood to plan to have, and to actually have, third- and higher-order children. They also have an indirect positive effect on the same likelihood, via the positive effect they have on women’s likelihood of cohabiting, and cohabiting women’s likelihood of having a first and a second child. This finding only emphasizes the impression that generous dual-earner policies have a strong positive effect on the likelihood of women in unions having many children.

To sum up, the fertility outcomes observed in Chapter 8 mirror the fertility plans found in this chapter. This close proximity between women’s fertility plans and their actual fertility behavior constitutes good evidence that women plan their children’s births in advance and with the risk of union disruption and its economic consequences in mind. In short, children do seem to be the planned results of rational decisions. This means that women’s
fertility plans can be a good proxy for predicting their actual fertility behavior.
Concluding discussion

This study started out in the debate on whether generous family policies can raise the low fertility rates Europe is presently experiencing. Arguing that they can do so, the study is clearly critical of researchers who argue that low fertility is an inevitable consequence of the cultural change Europe has undergone in recent decades. Thus, it agrees with the economists who argue that the ultimate source of low fertility is the increased costs of reproduction that have followed in the wake of women’s expanded opportunities in the labor market – and that policies can raise fertility by reducing these costs. However, the study’s main message is that those scholars who are optimistic about policies’ ability to raise fertility have also underestimated their capacity to do so, because they have failed to fully acknowledge the individualized nature of many fertility decisions.

Hitherto, most research on policies’ ability to affect fertility has been based on the new home economics assumption that fertility decisions are primarily taken within unions, by partners who altruistically share the burdens and benefits of reproductive investments with each other. In line with this tenet, researchers have primarily focused on how policies that reduce altruistic partners’ costs of reproduction affect within-union fertility. Although such a focus undoubtedly has its merits, this study has argued that it is too narrow to capture all of policies’ effect on fertility. The reason is that fertility decisions are often taken in situations in which the new home economics assumption of family altruism is unlikely to hold, and where individuals’ costs of reproduction do not necessarily coincide with families’ overall costs of reproduction. More specifically, I have argued that there are two such types of situations. The first is situations where two individuals who do not know each other well consider whether it would be a good idea to form a union together. The second is situations where individuals live in unstable unions. Individuals in such situations cannot be certain that their partners will altruistically share the burdens of raising potential children with them. As a
consequence, they are not likely to care about how policies affect altruistic spouses’ costs of reproduction. Rather, they should be concerned about how policies affect their costs of reproduction in the event they end up pregnant without an altruistic spouse to support them. Hence, the best way to increase their incentives to have children is to implement policies that compensate them individually for their costs of reproduction, so that they do not need to rely on their partners’ economic support.

The only policies that can do so are paid parental leaves with high replacement rates and subsidized child care. Such dual-earner policies should have a positive effect on individuals’ incentives to form unions and have children in unstable unions. The empirical analysis also illustrates that there is a positive link between generous dual-earner policies on one side and women’s likelihood of living in unions and having children in unstable unions on the other. The corresponding link between policies that only reduce families’ costs of reproduction and these likelihoods is considerably weaker. This suggests that policies’ ability to reduce individuals’ costs of reproduction is of greater importance for understanding their potential to raise fertility than is their ability to reduce altruistic partners’ costs of reproduction.

Because of its focus on how policies that affect altruistic partners’ incentives to have children affect within-union fertility, the previous research has missed both this and the fact that policies can affect women’s likelihood of forming unions and having children in unstable unions. Insofar as it has focused on individual-level fertility patterns, it has therefore underestimated policies’, and especially dual-earner policies’, impact on fertility. This can explain why previous studies based on individual-level fertility data have found it more difficult than studies based on aggregate-level fertility data to find a positive effect of generous dual-earner policies on fertility. Thus, the optimistic message conveyed by this study is that policy changes can be a more effective means for raising Europe’s low fertility rates than has been hitherto acknowledged even by researchers who are optimistic about policies’ ability to raise fertility.

In this concluding chapter I discuss the broader implications of my argument and findings. I begin by reviewing my empirical findings in more detail and discussing what they mean for the debate on policies’ ability to raise fertility. I then go on to reflect on how my findings can inform culturally oriented theories of fertility decline. Thereafter, I consider my study’s broader implications for the debate between different economic analyses of the family. Then, I discuss implications for the research on union formation and union dissolution. Finally, I discuss where to go from here.
Main findings

The analyses and findings presented in this study reveal how much of family policies’ effect on fertility in fact goes via their effect on women’s incentives to form unions and have children in unstable unions. No study using individual-level fertility data is likely to accurately answer whether, or how, generous family policies can increase fertility without recognizing these causal paths in which policies can affect fertility. On a more practical level, the findings show that the most effective way to increase women’s incentives to enter unions and have children in unstable unions – and, thus, raise fertility – is to implement generous dual-earner policies.

More specifically, Chapter 6 showed that women’s earning opportunities are negatively associated with their likelihood of living in unions. The chapter also showed that generous family policies are positively associated with women’s likelihood of living in unions, and that the positive association can be ascribed to the fact that relatively many women with high earning opportunities live with partners in countries with generous family policies. Thus, it seems that women’s earning opportunities reduce their incentives to enter unions (H4), but that generous family policies can mediate this effect (H6) and in that way increase women’s likelihood of living in unions (H5). In short, generous family policies seem able to increase women’s incentives to enter unions, and it is especially true for women who have high earning potentials. Because a union increases a woman’s likelihood of having children, it is probable that previous studies based on individual-level fertility data have underestimated the positive effect on fertility of generous family policies when they have concentrated on studying policies’ effect on within-union fertility. The sizes of the found effects further imply that family policies’ impact on women’s union formation patterns is of a considerable magnitude, and therefore, the underestimation is likely to be relatively large. For example, more than 30 percent more working women live in unions in the country with the most generous dual-earner policies than in the country with the least generous dual-earner policies.

Chapter 7 found generous dual-earner policies to be positively associated with women’s likelihood of living in unstable unions (H8) (i.e., cohabiting) and that much, although not all, of the positive association can be ascribed to the fact that relatively many women with high earning opportunities live with partners in countries with generous dual-earner policies (H7). In fact, the chapter shows that all of generous dual-earner policies positive effect on women’s likelihood of living in unions can be ascribed to the fact that such policies’ increase women’s likelihood of cohabiting.
Table 10.1 Main findings: Family policies and union formation

<table>
<thead>
<tr>
<th>Hypotheses</th>
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</thead>
<tbody>
<tr>
<td>H4. Good earning opportunities for women should reduce their likelihood of living in unions</td>
<td>Verified</td>
</tr>
<tr>
<td>H5. Generous family policies should increase the likelihood of women living in unions...</td>
<td>Verified</td>
</tr>
<tr>
<td>H6. ...by increasing the likelihood of women with good earning opportuni-ties living in unions</td>
<td>Verified</td>
</tr>
<tr>
<td>H7. Women with good earning opportunities should be more likely to live in unstable unions</td>
<td>Verified</td>
</tr>
<tr>
<td>H8. Generous dual-earner policies should increase the likelihood of women living in unstable unions</td>
<td>Verified</td>
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</table>

So far the data confirms the overall argument, as well as the specific hypotheses following from it. The evidence on union instability’s and family policies’ effect on women’s fertility decisions, which were presented in Chapter 8, offers a slightly more complicated picture. Hypothesis H1, that women who live in unstable unions have an incentive to self-insure against a union disruption by avoid having children, and that union instability should therefore reduce fertility, is partially verified. Union instability has a strong negative effect on women’s likelihood of having a first child, but only a limited negative effect on women’s likelihood of having a second child, and it has no effect at all on women’s likelihood of having a third child.

Insofar as it is applicable, hypothesis H2, that generous dual-earner policies, because they reduce women’s negative incentives to have children in unstable unions, should reduce the negative effect of union instability on fertility, is verified. In two out of three cases the mediating effect is strong enough to reduce all of union instability’s negative effect, and in the third case it halves it.

Hypothesis H3, that generous family policies, because they reduce the costs of reproduction for all families, should increase fertility, is partially verified. Generous dual-earner policies do not affect women’s likelihood of having a first child (above reducing the negative effect of union instability on the same likelihood). But they do have a limited positive effect on women’s likelihood of having a second child, and a strong positive effect on women’s...
likelihood of having a third child. In contrast, the generosity of other family policies does not seem to have an effect on within-union fertility.

The results from Chapter 9, on women’s fertility plans, largely confirm the findings from Chapter 8. With some minor exceptions, the independent variables have a similar effect on women’s likelihood of planning to have a child within three years after their interview for the ESS as they have on women’s likelihood of having had a child within the three years prior to the year of their interview for the ESS. This close proximity between women’s fertility plans and their actual fertility behavior constitutes evidence that women plan their children’s births with the risk of union disruption and its economic consequences in mind.

Thus, the findings largely verify the expectations. Union instability has a negative effect on fertility, even though the effect is confined to first and second births. Generous dual-earner policies reduce most of this effect, and in that way increase the fertility of women who are living in unstable unions. In addition, generous dual-earner policies have a positive effect on the fertility of all women, even if it is limited to second and, especially, higher-order births. Because of this it can be safely concluded that previous individual-level studies, to the extent that they have not controlled for the higher level of union instability in countries with generous dual-earner policies, have underestimated the positive effect of dual-earner policies on fertility. This can explain why it has been more difficult to prove the effectiveness of dual-earner policies at raising fertility with individual-level fertility data than with aggregate-level fertility data.

To sum up, the empirical evidence seems to support the study’s main argument. Generous family policies’ – and especially generous dual-earner

<table>
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<tr>
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<tbody>
<tr>
<td>H1: Union instability should reduce fertility</td>
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<td>Partially verified</td>
<td>Not verified</td>
</tr>
<tr>
<td>H2: Generous dual-earner policies should reduce the negative effect of union instability on fertility</td>
<td>Verified</td>
<td>Verified/Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>H3: Generous family policies should increase fertility</td>
<td>Not verified</td>
<td>Partially verified</td>
<td>Verified</td>
</tr>
</tbody>
</table>

Table 10.2. Main findings: Family policies and fertility
policies’ – positive effect on fertility appears much clearer with individual-level data when the intimate relationship between fertility decisions and decisions about union formation and union dissolution is accounted for. Further, generous dual-earner policies have a much more positive effect than more traditionally oriented family policies on women’s fertility decisions in situations in which the new home economics assumption of family altruism is unlikely to hold. As such situations make up a significant part of all fertility decisions, it seems that the implementation of generous dual-earner policies is a relatively cost-effective means to increase Europe’s low fertility rates.

Implications for the policy vs. culture debate

This study started with the debate between economically and culturally oriented explanations of fertility decline and its implications for policies’ ability to raise fertility. By now it should be obvious how the study places itself in this debate. The clear message is that economic incentives trump culture: policy changes can raise Europe’s low fertility rates even though the continent has undergone drastic cultural changes in recent years. The most important reason for this conclusion is the argument and the evidence that have been presented so far. However, the study also provides direct evidence of another sort that fertility decline is not an inevitable consequence of cultural change. As discussed in Chapter 5, my operationalization of union instability is largely based on the demographic footprints of the Second Demographic Transition. Because of this my study can also, with some modifications, be read as a study on how the SDT interacts with family policies in shaping fertility outcomes in Europe, and such a reading makes it obvious that policies can reduce cultural changes’ negative effect on fertility.

In a recent article, Ron Lesthaeghe – who co-founded the theory of the SDT together with Dirk J. van de Kaa – points out that the theory over the years has been criticized for having “overemphasized the link between the transformation in family relationships (especially cohabitation) and [low fertility]” and for not being able to “account for the great variety in fertility levels [found in the developed world]” (Lesthaeghe 2010). For example, the theory seems unable to explain the reversal in the cross-country correlation between the cohabitation rate and the total fertility rate that took place in the late twentieth century (see Chapter 2).

However, my study shows that there is little need to doubt the core of the theory of the SDT because of this criticism. The fact that fertility rates today are higher in countries where cohabitation is widespread than in countries where cohabitation is almost unheard of does not constitute evidence against
the theory. My study shows a clear negative correlation between cohabitation and past experience of cohabitation and achieved and planned fertility at the individual level. Thus, the founders of the theory of the SDT were not mistaken in assuming that values associated with cohabitation and past experience of cohabitation have a negative effect on fertility. They just did not take into account policies’ ability to reduce these values’ negative effect on fertility.

Because they did not do so, we have every reason to look to the future with more hope than the founders of the theory of the SDT originally did, even from a cultural perspective. It does not seem that the rise in post-materialist values Europe is currently experiencing must inevitably result in below-replacement fertility. If only states adopt policies that help people balance their needs for self-fulfillment and parenthood, people will go on having children. The fact that women in countries such as Sweden and France, on average, come close to having two children each during their lifetimes indicates that it is possible to achieve replacement fertility even in countries in which the SDT has advanced very far. It suffices that the adopted policies are generous and of the right type. In other words, the SDT only seems to have affected people’s fertility preferences to a minor degree. Insofar as it is responsible at all for Europe’s declining fertility rates, it has at least not affected people’s fertility preferences. Rather, it seems to have affected other aspects of people’s family lives, aspects whose negative effects on fertility seem relatively easy to meet with policy changes. I would argue that if the SDT is responsible for Europe’s low fertility it is because it has brought about greater union instability. But the data remains open to other interpretations. Nonetheless, my study shows that whatever aspect of value change it is that causes women to cohabit, it seems possible to reduce its negative impact on fertility by implementing generous dual-earner policies. So even if value change is responsible for Europe’s low fertility rates, there is no need to be pessimistic about policies’ ability to raise fertility.

Thus far, my findings do not threaten, but are actually compatible with, the SDT’s explanation of fertility decline. However, the positive correlation between generous dual-earner policies and women’s likelihood of cohabiting, which was discussed in Chapter 7, risks undermining the theory of the SDT. This is because it indicates that the rising generosity of dual-earner policies is a more likely explanation than value change for the spread of cohabitation in Europe. Most evidence points to the whole of Europe having undergone rapid value change in recent years. Despite this, there has only been a drastic rise in cohabitation in North-West Europe. No corresponding rise has taken place in Southern Europe and large parts of Central Europe. Thus, it does not seem
that a lack of ideational willingness prevents women in Southern and Central Europe from cohabiting. What really seems to prevent them from cohabiting is the lack of an institutional framework that reduces the economic risks of having children in unstable unions. At least, women’s willingness to cohabit varies more consistently with the institutional support states offer working mothers than with people’s value orientations. In other words, if my interpretation of the evidence is correct, the demographic footprints of the SDT might to a large extent be the demographic footprints of generous dual-earner policies.

This is not to say that value change has had no effect at all on women’s demographic behavior. The strong negative correlation between women’s religiousness and their likelihood of cohabiting, discussed in Chapter 7, sends a clear message. But it is to say that economic incentives are more important for shaping people’s demographic behavior than the founders of the SDT once assumed. Although it might provide a part of the picture, it is unlikely that the theory can provide the whole explanation for why demographic behavior has changed.94

Implications for the debate between different economic models of the family

Up until now, most studies on policies’ effect on fertility have focused on how policies that reduce altruistic partners’ costs of reproduction affect within-union fertility. One of the fundamental contributions of this study has been to point to the shortcomings of this narrow focus. However, my findings do not mean that the new home economics assumption of family altruism must necessarily be wrong, and that game-theoretic bargaining models are always better suited for analyzing the family. Rather, the study shows that families are more heterogeneous, both in their internal workings and in their responses to policies, than any of the two models assume. In some situations, family

94 Although they might not be directly related to demographic change, the SDT and other theories of value change might play a role in explaining states’ varying willingness to adopt the policies driving demographic change. States and municipalities that have a high proportion of elected women politicians have been shown to be more willing than states with few elected women politicians to adopt generous dual-earner policies and, then especially generous child care subsidies (Bratton & Ray 2002; Schwindt-Bayer & Mishler 2005; Svaleryd 2009). One reason for this might be that women politicians differ from their male colleagues both in their values and their priorities in that they value gender equity higher (see for example Wängnerud 2000). Thus, the feminist movement might have contributed to demographic change indirectly by making states adopt more “women friendly” policies. To what degree the feminist movement has influenced the adoption of dual-earner policies is, however, a question that goes beyond the topic of this study.
CONCLUDING DISCUSSION

altruism seems a warranted assumption, whereas game-theoretic bargaining models seem to describe other situations better. Below, I discuss in more detail my study’s implications for the debate between different economic models of the family.

As such, the finding that policies that reduce the costs of reproduction increase women’s likelihood of living in unions has no obvious implications for the debate between different economic models of the family. In essence, it only says that policies that increase the relative payoff from household production (in this case, having and raising children) increase people’s incentives to enter unions. Although this makes it likely that the previous research has missed much of policies’ effect on fertility when it has neglected to study policies’ effect on union formation, the finding does not threaten the previous research’s theoretical underpinnings. A focus on within-union fertility does not automatically follow from the new home economics assumptions. Rather, the theory has inspired ample research on how factors affecting the value of household production affect people’s willingness to engage in marriage. It is just that the insights from this research have not spilled over to the research on family policies’ effect on fertility. Thus, my finding of policies’ effect on women’s union formation is fully compatible with the new home economics analysis of the family.

In isolation it could even be interpreted as indirect support for the new home economics analysis, as it indicates that what primarily matters for people’s union formation decisions is families’ overall cost of reproduction, and not the intra-family distribution of said cost. If people were sensitive to how the costs of reproduction are distributed within the family they would likely be more affected by the generosity of dual-earner policies than by the generosity of more traditional family policies in their union formation decisions. Therefore, the finding that generous policies of both types have a positive effect on women’s likelihood of living in unions can be interpreted as a sign that women expect their individual payoffs from starting a union to coincide with their potential families’ overall costs of reproduction. That is, it could be interpreted as a sign that women assume their potential unions to be characterized by family altruism. This conclusion is further strengthened by the fact that many of the unions that result from generous benefits for families with children seem to be rather stable (i.e., marriages in which the woman has not cohabited before the marriage).

However, the fact that most of generous dual-earner policies’ positive effect on women’s likelihood of living in unions can be ascribed to such policies’ positive effect on women’s likelihood of cohabiting complicates matters. As previously mentioned, unions built on cohabitation are not equivalent
to unions built on marriage. They are neither as stable nor do they signal the same degree of commitment as marriages. In many countries they even function as a kind of trial marriage, in which partners try to find out how compatible they are before deciding whether it is worth marrying for life. With this in mind, it is implausible to interpret unions built on cohabitation as signaling the degree of stability that should reasonably distinguish unions characterized by family altruism. Partners who do not know how well they get along together, or whether they will stay together for life (or at least a longer time period), can hardly guarantee that they will act altruistically and compensate each other for investments that may have repercussions for their incomes and productivity for the rest of their lives. This makes it difficult to interpret dual-earner policies’ effect on women’s likelihood of living in unions as evidence that women expect their future unions to be characterized by family altruism. It would only be reasonable to do so if the outcome were stable unions. Now, it is not. Therefore, it is more reasonable to interpret the found effect as evidence that countries that implement policies that are sensitive to the distribution of the costs of reproduction increase women’s incentives to engage in household production without seeking guarantees that their partners will behave altruistically toward them. Thus, it would be wrong to assume all unions in countries with generous dual-earner policies to be characterized by family altruism. Dual-earner policies’ effect on women’s likelihood of living in unions can therefore be interpreted as evidence that game-theoretic bargaining theories are more suitable for describing at least a share of the fertility decisions taken in countries with generous dual-earner policies. It should be emphasized that this does not mean that all unions in such countries function according to game-theoretic bargaining models – the remaining large number of stable unions could still be modeled according to the new home economics model of the family. Rather, it means that unions in countries with generous dual-earner policies are too different from each other to be described by a single economic model of the family.

To sum up, a reasonable interpretation of the evidence is that generous family policies, depending on their structure, can both increase women’s incentives to form unions that are, and unions that are not, characterized by family altruism. It also seems that at least unions in countries that implement generous dual-earner policies are too heterogeneous to be captured by a single model of the family.

The impression that families are too heterogeneous to be captured by a single economic model of the family is further strengthened by the finding that women in stable and unstable unions respond differently to the incentives to have children that accompany generous dual-earner policies. The fact
that only women in unstable unions respond to such incentives by having more children – mainly up to the point where they become as likely as women in stable unions to have children – is telling. It is hard not to interpret this as evidence that the intra-family distribution of the costs of reproduction only matters for women who live in unstable unions. Women who live in stable unions do not seem to be sensitive to how the income under their personal control and their opportunities outside the family are affected by having children. It is difficult to attribute this difference in behavior to the two groups that have different socioeconomic characteristics, for example, different degrees of labor market attachment, as the difference persists even after controlling for such factors. The most reasonable alternative explanation is that women in the two groups have different horizons for their fertility decisions. Women in stable unions seem to expect their individual payoffs from having children to coincide with their families’ overall costs of reproduction, whereas women in unstable unions seem to see their payoffs as dependent on how their personal incomes and labor market opportunities are affected by the arrival of a(nother) child. In other words, stable unions seem to be characterized by family altruism, whereas unstable unions seem to be characterized by game-theoretic bargaining between partners. This means that researchers should not stick to only one model of the family when analyzing policies’ effectiveness at raising fertility – or other aspects of family behavior, for that matter: Both the new home economics model and game-theoretic bargaining models of the family can contribute important insights into how individuals are likely to respond to policy incentives of various sorts. The theory of the SDT thus seems right in assuming families to differ in that members in some families are more individualistically oriented than members in others.

Policy makers concerned with low fertility ought to bear this in mind: Policies aimed at increasing fertility should minimize the costs of reproduction for individuals in all kinds of family constellations. They should do so both for individuals who live in unions characterized by family altruism and for individuals who live in unions characterized by game-theoretic bargaining. Neither should singles be forgotten.

Thus, although the conclusion is that families work in heterogeneous ways and that policies should account for this, the trend undoubtedly seems to go toward more individualized fertility decisions. Union instability is on the rise in almost all of Europe and has been so for several decades. Also, the numbers of singles are increasing, especially in countries in which union instability is still low. As has been pointed out throughout the study, only subsidized child care and paid parental leave with high replacement rates can guarantee singles and people who live in unstable unions low costs of repro-
duction in the long term. All policy strategies that aim at achieving replacement fertility in today’s world must, therefore, build on a core of generous child-care subsidies and paid parental leaves with high replacement rates. Those that do not will in all likelihood fail to live up to their intentions. If people do not want to live in nuclear families for their entire lives, politicians must adapt to the situation and design policies that will help them to have and raise children in other family constellations. Otherwise, the risk is that people will choose not to have children. To continue relying on policies that reduce the costs of reproduction only for members in families characterized by family altruism is not a viable option in a world characterized by rising heterogeneity in family patterns. However, the dual-earner policies that are needed to help people to have and raise children in such a world come at a price.

Family policies and union formation

One of my study’s most profound findings is that family policies affect not only women’s willingness to have children, but also their willingness to enter stable and unstable unions. The extent of the effect is, moreover, quite drastic; if my models are correct, much of the variation in family arrangements in Europe can be explained by countries implementing different family policies. Below, I discuss this finding’s implications.

Although it has long been an established truth that union formation decisions are intimately related to fertility decisions, the literature on policies’ effect on fertility has largely neglected the possibility that policies that affect the costs of reproduction could affect people’s family arrangements. There is, however, one notable exception to this rule: the literature on lone motherhood. In this literature, several researchers have argued that welfare benefits targeted to reduce poverty among lone mothers as a side effect might increase the likelihood of women with low income prospects and poor prospects in the marriage market finding it attractive to become lone mothers (Moffitt 1994, 2000; Hoynes 1997; Rosenzweig 1999; Becker 1991; Blau et al. 2004; Neal 2004; González 2006; Anderberg 2008). In other words, if policy makers introduce welfare benefits to lone mothers, there is a greater chance that more women will become lone mothers. The analogy with my argument that generous dual-earner policies increase women’s incentives to enter unstable unions is obvious. The difference is that my argument does not only apply to potential welfare recipients, but also to women with relatively good earning opportunities.

It is hard to see why “ordinary” women’s family formation – and especially cohabitation – decisions have not been analyzed with a logic similar to
that applied to potential welfare recipients’ family formation decisions. There are no principal differences between the two groups warranting different treatments of their family formation decisions. Also, women with relatively good earning prospects can, if the policy incentives are benign, afford to have children with a partner who is willing to assist with the conception, even if it is uncertain whether he will remain a partner for life. The main difference between the two groups is that the latter is likely to be affected mainly by the generosity of dual-earner policies, whereas the former is likely to be more sensitive to the generosity of welfare benefits. However, there is little principal difference between the two kinds of subsidies that are relevant to the decision of whether it is worth risking lone motherhood; both improve lone mothers’ welfare, although they do so for groups with different socioeconomic characteristics. However, one difference is that dual-earner policies, in contrast to welfare benefits to lone mothers, also reduce the costs of reproduction for women who live with partners. This can explain why such policies increase the likelihood of women in unstable unions becoming mothers, and not only their likelihood of becoming single mothers. Dual-earner policies are neutral with respect to whether women form unions or remain single, whereas welfare benefits to lone mothers provide women with direct incentives to not form unions (because they lose their welfare benefits if they do so). Yet, the profound message is the same in both cases: family policies affect women’s family formation decisions regardless of the women’s social status. The additional finding that more traditional family policies affect women’s likelihood of forming stable unions only emphasizes the message. “Ordinary” women do not function differently from women on welfare benefits.

Also, other factors than family policies, such as difficulties with finding adequate housing, or with finding work, have been found to affect people’s family formation decisions. However, this study makes it seem likely that previous research on union formation have not given family policies the attention they deserve. Thus, the study not only contributes to informing the literature on policies’ effect on fertility, it also contributes with important insights to the literature on union formation. This literature has focused predominantly either on the formation of marriages or the formation of cohabiting unions. Only rarely have the two types of unions been analyzed together within a single framework. Although, this study confirms the different natures of marriages and unions built on cohabitation, it also shows that they have one thing in common: the prevalence of both kinds of unions stands in a direct relation to how affordable it is to have children within them. This could be interpreted as evidence that a main, if not the main, purpose of both is the
production of children. Therefore, it is not only warranted, but necessary, to analyze them together in a single framework. Attempts to analyze them in isolation from each other risk leading to wrong and counterintuitive conclusions. If one does not consider that marriages and unions built on cohabitation can function as substitutes, for example, it is difficult to understand why the correlation between the marriage rate and the fertility rate was reversed in late 1980s at the same time as the correlation between the cohabitation rate and the fertility rate turned positive. Having said that, the two types of unions do not seem to be perfect substitutes. They also attract people with rather different characteristics in countries where it is economically feasible to have children in both types of unions. Therefore, it is warranted to treat them separately in some respects. They are, at least partially, the product of different economic incentives and different ideational motivations, and they likely function according to different logics. They also have different consequences for the people who live, and grow up, in them. Yet, they fulfill a similar role for the groups of people who are attracted to them, however different they are. They give partners the economic opportunity to engage in the joint production and rearing of children.

This conclusion makes it clear that the distinction between the literatures on people’s union formation and policies’ effect on fertility is largely artificial. Fertility and union formation decisions are so intertwined that it is difficult to study one phenomenon in isolation from the other. In the same way as – at least at the individual level – it is difficult to establish policies’ effect on fertility without considering policies’ effect on union formation, it would be misleading to study union formation without considering family policies’ effect on the costs of reproduction. Both strategies risk leading to wrong conclusions. Only an integrated framework that takes the close interrelatedness between fertility and union formation decisions seriously seems able to fully appreciate policies’ effect on fertility and fully explain women’s incentives to form different types of unions. Future studies on both topics should consider this.

Policies’ ability to alter people’s incentives to form unions might at first glance seem a welcome gift for policy makers concerned with low fertility. However, the found policy effects might not entirely be those that policy makers would wish for. Although generous family policies’ positive effect on women’s overall likelihood of living in unions might be perceived as indisputably positive, dual-earner policies’ positive effect on women’s likelihood of forming unstable unions might be perceived as a more mixed blessing. It does not only mean that more children will be born in countries with generous dual-earner policies, it also means that more children will experience
stressful union dissolutions and grow up with lone parents in such countries. As has been pointed out above, children who grow up in the context of a union dissolution often (but not always) fare worse in various respects than children who grow up under more stable conditions. Children who grow up in the context of a union dissolution will of course suffer less economically in countries that have implemented generous dual-earner policies, but even though they will fare relatively well economically vis-à-vis children in similar situations in countries that lack generous dual-earner policies, they will not fare as well economically as children in their own countries who grow up in stable families. In addition, they will still suffer emotionally from the mental stress that comes with a union dissolution. This can be perceived as a negative side effect of generous dual-earner policies. The fact that such policies seem to be the key to all successful policy strategies aimed at increasing fertility, therefore, presents policy makers with a dilemma. Either they can have high fertility and high union instability, or they can have low fertility and low union instability. They cannot have both high fertility and low union instability at the same time. At least that is what my findings indicate. Thus, my study does not offer an easy solution to the problem of low fertility. On the contrary, it indicates that countries with low and lowest low fertility rates must accept a minor revolution in family arrangements if they want to raise fertility. It does not suffice that they accept the dual-earner family policy model; such countries must also accept the Nordic family model, entailing high cohabitation rates, low marriage rates, high extramarital fertility rates, and high union dissolution rates.

Although some policy makers might disapprove of this, it is not certain that all of those most immediately concerned would do so to the same extent. After all, it seems that people prefer to cohabit and divorce their partners instead of marrying for life if they have the economic opportunity to do so. Generous dual-earner policies do not force people to enter unstable unions and divorce their partners. Also, people in countries with very generous subsidies for child care and highly paid parental leave must pay a high economic price for leaving their partners. People, thus, seem willing to pay a rather high price for the union instability that some policy makers might perceive as a negative side effect of generous dual-earner policies. Many women seem to value their independence so much that they are ready to abstain from having children if the only alternative is to marry for life and become economically dependent on a husband.95

95 Women policy makers seem to acknowledge how important dual-earner policies are for women’s ability to balance work and family life and live autonomous lives. There is, for example, evidence that the proportion of
Moreover, from a child’s perspective it is hard to complain about being born into an unstable union, when the alternative would be not to have been born. One thing this study has shown is that the main alternative to forming an unstable union and having children is to refrain from forming a union and having children. It is not to form a stable union and have children. The children who are born into unstable unions in countries with generous dual-earner policies would likely not have been born if said countries had lacked generous dual-earner policies. Therefore, they have little to complain about to their parents.

Prospects

As pointed out in the design chapter, the available data does not allow for flawless tests of my hypotheses. It is possible that future studies will find other explanations for the empirical patterns found in this study. Nonetheless, my arguments have enough evidence speaking in their favor to merit further attention. In particular, they should be tested in more detailed studies on how changes in the generosity of family policies affect union formation and fertility patterns within countries over time. Data availability on the generosity of family policies is better for individual countries. It is also possible to find the longitudinal data that is needed to rigorously test my arguments’ causality assumptions regarding policies’ effect on women’s union formation decisions for individual countries. Therefore, the natural next step would be to test my arguments on data from one or more countries that in recent years have significantly altered their family policies’ generosity. Although it has been pointed out that family policy regimes have been rather stable over the years, some noticeable changes have recently started to take place. In 2002, the European Commission took the initiative of inviting member states to “remove disincentives to female labor force participation and strive, taking into account the demand for childcare facilities and in line with national patterns of provision, to provide childcare by 2010 to at least 90% of children between 3 years old and the mandatory school age and at least 33% of children under 3 years of age” (Plantenga & Siegel 2004). Although not all member states have lived up to this challenge, several have increased support for working mothers in recent years. Some states have even, on their own initiative, adopted generous dual-earner policies that are far more ambitious than the aims set up by the European Commission. The most striking example is Germany, which in 2007 adopted wage-dependent parental leave benefits.

women elected representatives has a positive effect on child care coverage in Norwegian and Swedish municipalities (Bratton & Ray 2002; Svaleryd 2009).
similar to those in Nordic countries (Spiess & Wrohlich 2008). Germany still has a long way to go before the combined generosity of the state’s family policies reaches the level of support Nordic states offer working mothers, but the trend is clear. More and more states have shifted their family policies closer to the Nordic family policy model. If the arguments presented in this study are correct, we could expect this shift to be followed by a shift toward Nordic family patterns – that is, high cohabitation rates, high divorce rates, and, above all, relatively high fertility rates. Family policies seem to have a fundamental impact both on what people do in their bedrooms and with whom they do it. It is time policy makers concerned with low fertility take this potential for “bedroom politics” seriously.
BEDROOM POLITICS
Appendix A

Several studies have shown generous dual-earner policies, and especially generous subsidies for child care, increase women’s labor market attachment (for overviews of the research see Gornick & Meyers 2003 and Jaumotte 2003). It is often argued that this effect is dependent on the ability of dual-earner policies to reduce the work-family conflict for mothers with small children. If this argument is correct, there is a simple solution to the problem of double causality, which threatens the estimation of the association between the generosity of dual-earner policies and the likelihood of working women living in unions. It suffices to exclude women with small children from the regressions to arrive at an unbiased estimation of generous dual-earner policies’ effect on women’s likelihood of union formation. It is reasonable to assume that children’s negative effect on their mothers’ labor force participation is reduced drastically when the children reach school age (i.e., when they are six to seven years old), as children who attend school during weekdays do not hinder their mothers from working. To test whether this is the case in the data used for this study, I run multilevel logistic regression models of the likelihood of women working. All variables are defined in the same way as those used in the models of the likelihood of women living in unions presented in Chapter 6. The results are presented in Models 1 to 3 in Table A.1, below.

Model 1 shows that women who have children under the age of six have 60 percent lower odds of working than women who do not have children under the age of six. The random part of the model also shows that the odds of women with children under the age of six working vary significantly and widely between countries (with .54 standard deviations).

When the dual-earner index is introduced in Model 2, it becomes significant, albeit only at the 10-percent level. The coefficient shows that each log-unit change on the dual-earner index is associated with an 11 percent increase in the odds of a woman working. This means that a woman in the country with the highest score on the dual-earner index is approximately 25 percent more likely to work than one in the country with the lowest score on the dual-earner index.
To test whether the association between the dual-earner index and the likelihood of women working is stronger among women with children under the age of six, an interaction term between the dual-earner index and said group is introduced in Model 3.

Table A.1. Odds ratios of women (aged 18 to 45) working

<table>
<thead>
<tr>
<th>Individual-level variables</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
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<tbody>
<tr>
<td>Age</td>
<td>1.73 .04***</td>
<td>1.72 .04***</td>
<td>1.72 .04***</td>
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<tr>
<td>Age*Age</td>
<td>.99 .00***</td>
<td>.99 .00***</td>
<td>.99 .00***</td>
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<tr>
<td>Living in urban area</td>
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<td>1.07 .04+</td>
<td>1.07 .04+</td>
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<td>University education</td>
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<td>2.07 .99***</td>
<td>2.07 .99***</td>
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<td>Attending church 1/month</td>
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<td>.81 .04***</td>
<td>.81 .04***</td>
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<td>Religiosity</td>
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<td>.99 .01</td>
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<tr>
<td>Children under 6</td>
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<td>.05 .03***</td>
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<th>Country-level variables</th>
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<td>Benefits index</td>
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<td>Unemployment rate</td>
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<th>Cross-level interactions</th>
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<td>Dual-earner index * children under 6</td>
<td>1.82 .30***</td>
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<td>Intercept level 2</td>
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<td>.04 .02*</td>
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<td>Children under 6</td>
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<td>.54 .09***</td>
<td>.40 .07***</td>
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<td>Countries</td>
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<td>-8822.6779</td>
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</table>

Standard errors in parentheses

* p < 0.1, ** p < 0.05, *** p < 0.01, **** p < 0.001

The interaction term enters highly significant and positive. Together with the coefficient of the dual-earner index, it shows that each log unit change on the dual-earner index is associated with an 82 percent increase in the odds of
women with children under the age of six working. At the same time, having children under the age of six now reduces a woman’s odds of working by 95 percent. The conclusion is obvious. Generous dual-earner policies have a strong positive effect on the likelihood of women with children below school age working (see Figure A.1). Actually, women with small children are more than twice as likely to work in the country with the most generous dual-earner policies compared to in the country with the least generous dual-earner policies.

Figure A.1. The likelihood of women (aged 18 to 45) working

In contrast, the generosity of dual-earner policies is not associated with the odds of women who do not have children below school age working. This means that the risk of confounding dual-earner policies’ effect on the likelihood of working women living in unions with dual-earner policies’ effect on the likelihood of women working is minimal in the case of women who do not have children under the age of six. Dual-causality is only a problem among women who have children below school age.
BEDROOM POLITICS
Appendix B

Interaction effects in logit cannot be interpreted directly from the regression output. The size, the sign, and the standard error of the interaction effect can differ from those of the interaction term (Ai & Norton 2003). Moreover, effect sizes and standard errors can differ between observations. To verify that the interaction effect, between union stability and the generosity of the dual-earner index (which was found in Chapters 8 and 9) really exists, I have checked the size, strength, and significance of the interaction effect for each individual observation in the data with the help of the command Inteff (Norton, Wang & Ai 2004). The results from these checks are presented below.

Figure B.1 shows that the interaction term in the regressions on women’s likelihood of having a first and second child, which were presented in Chapter 8 (below labeled “incorrect marginal effect”), closely tracks the correct interaction effect revealed by Inteff. Although the effect differs somewhat between the individual observations, the deviations are evenly spread between over- and underestimations.

The average effect size in the sample (−.11) does not differ drastically from the size of the interaction term found in the regressions presented in Chapter 8. It is therefore warranted to say that the results presented in the chapter closely mirror the true strength of the interaction effect(s).

Further, Figure B.1 shows that the interaction effect(s) also is significant at the 5-percent level for all but a few (less than 5 percent) of the observations. The few observations for which the effect is not significant reflect women who have a predicted probability of having a(nother) birth that is extremely low (close to 0). In other words, their predicted probability cannot be reduced much, and therefore the absence of a significant negative interaction effect is not surprising. The average standard error in the sample is −3.15.
Figure B.1. Correct and incorrect interaction effects and standard errors of the correct interaction effect

Comment: The graphs build on Model 4 in Table 8.3 in Chapter 8.
The test of the interaction effect found in the robustness checks in Chapter 8 shows that the true interaction effect(s) deviates somewhat from the effect presented in the regression output (see Figure B.2). The dispersion of the strength of the effect is relatively large and it is not evenly spread between over- and underestimations. Overall, the interaction term presented in the regression output seems to overestimate the strength of the interaction effect somewhat. In particular, it does so for women whose predicted probability of having a(nother) child is higher than .3. This finding indicates that the difference in the effect of the dual-earner index between women who are living in stable unions and other women is somewhat weaker than indicated by the graphs in Chapter 8. In practice, this means that the slight negative correlation between the likelihood of women in stable unions having a(nother) birth and high scores on the dual-earner index that is visible in the graphs most likely does not exist. However, the general pattern is not changed much: there is still a considerable difference in the effect of the dual-earner index between the two groups even if it is somewhat weaker for women whose predicted probability of having a(nother) child is over .3. The strength of the average interaction effect in the sample is −.08.

Figure B.2 also shows that the interaction effect is significant at the 5-percent level for almost all – and significant at the 10-percent for all – observations. The average standard error in the sample is −3.24.

To sum up, the checks carried out with Inteff largely confirm the findings of Chapter 8. There is a strong and significant interaction effect between women’s union status and the generosity of dual-earner policies.
Figure B.2. Correct and incorrect interaction effects and standard errors of the correct interaction effect.

Comment: The graphs build on Model 4 in Table 8.3 in Chapter 8.
Figure B.3 shows that the interaction term in the regressions on women’s likelihood of definitively planning on having a first or a second child, which were presented in Chapter 9, closely tracks the correct interaction effects. Although the effect differs somewhat between the individual observations, the deviations are evenly spread between over- and underestimations. The average strength of the interaction effects in the sample is –.08. Thus, the findings presented in Chapter 9 are confirmed.

As could be expected, given the low number of observations used in the regressions in Chapter 9, the interaction effects are bordering on being significant. Figure B.3 shows that only about half of the observations in the regression are significant at the 5-percent level in a two-sided t-test, and the standard error of the average interaction effect in the data is a mere –1.94. The lack of significance is especially an issue for women who have a predicted probability of .2 of definitely planning on having a(nother) child. However, a one-sided t-test yields a significant interaction effect at the 5-percent level for a large majority of the observations in the sample.

Figure B.4 shows that the incorrect and correct interaction effects also track each other closely in the models using the broader definition of women’s fertility plans, and the deviations from the mean are evenly spread between over- and underestimations. The average interaction effect in the sample is –.12. This means that the results presented in Chapter 9 are reliable with respect to the strength of the interaction effect.

In addition, Figure B.4 shows that almost all observed interaction effects in the sample are significant at the 5-percent level and all are significant at the 10-percent level in a two-sided t-test. The mean standard error in the sample is –2.69. Thus, the standard errors presented in Chapter 9 is also reliable.

To sum up, the findings largely confirm the findings from Chapter 9.
Figure B.3. Correct and incorrect interaction effects for definitely planning on having another child and standard errors of the correct interaction effect.

Comment: The graphs build on Model 2.2 in Table 9.2 in Chapter 9.
Figure B.4. Correct and incorrect interaction effects and standard errors of the correct interaction effects. 

Comment: The graphs build on Model 2.2 in Table 9.2 in Chapter 9.
## Table C1. Country level variables description

<table>
<thead>
<tr>
<th>Variable</th>
<th>Time period</th>
<th>Source of data</th>
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<tr>
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<td></td>
</tr>
<tr>
<td></td>
<td>ESS3: 2005</td>
<td>ESS3: OECD family database</td>
</tr>
<tr>
<td>Cost of child care</td>
<td>2005</td>
<td>OECD family database</td>
</tr>
<tr>
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<td>ESS3: 2002-2005</td>
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<tr>
<td>Benefits index</td>
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<tr>
<td></td>
<td>ESS2: 2000-2003</td>
<td>OECD’s tax-benefits calculator</td>
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<tr>
<td></td>
<td>ESS3: 2002-2005</td>
<td></td>
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<tr>
<td>Availability of part-time work (as a percentage of the total workforce)</td>
<td>ESS2: 2000-2003</td>
<td>Eurostat</td>
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<tr>
<td></td>
<td>ESS3: 2002-2005</td>
<td></td>
</tr>
<tr>
<td>Female labor force participation rate (as a percentage of the total workforce)</td>
<td>ESS2: 2000-2003</td>
<td>Eurostat</td>
</tr>
<tr>
<td></td>
<td>ESS3: 2002-2005</td>
<td></td>
</tr>
<tr>
<td>Percentage of women (aged 18-44) living with parents</td>
<td>Average of 2004 and 2006</td>
<td>European Social Survey (Aggregate of questions F1 and F4)</td>
</tr>
<tr>
<td>Unemployment rate (as a percentage of the total workforce)</td>
<td>ESS2: 2000-2003</td>
<td>Eurostat (all countries except Iceland and Switzerland), CIA World Fact book (Iceland and Switzerland)</td>
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<tr>
<td></td>
<td>ESS3: 2002-2005</td>
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Table C2. Individual level variables

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<thead>
<tr>
<th>Variable</th>
<th>Questions used</th>
<th>Scale</th>
<th>Coding</th>
</tr>
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<tbody>
<tr>
<td>Living in a union</td>
<td>F62: Current legal status?</td>
<td>0-1</td>
<td>Coded as 1 if F62=Married=1 or F65=Yes</td>
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<tr>
<td></td>
<td>F65: Are you currently living with a partner? – only asked to women who are not married</td>
<td></td>
<td>Coded as 0 if F62=Separated/Divorced/Widowed/Never married and F65=No</td>
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<tr>
<td>Cohabiting</td>
<td>F65: Are you currently living with a partner? – only asked to women who are not married</td>
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<td>Coded as 1 if F65=Yes</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Coded as 0 if F65=No</td>
</tr>
<tr>
<td>Married (has cohabited)</td>
<td>F62: Current legal status? F66: Have you ever lived with a partner without being married to them?</td>
<td>0-1</td>
<td>Coded as 1 if F62=Married and F66=Yes</td>
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<tr>
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<td></td>
<td>Coded as 0 if F62=Separated/Divorced/Widowed/Never married or if F62=Married and F66=No</td>
</tr>
<tr>
<td>Married (has not cohabited)</td>
<td>F62: Current legal status? F66: Have you ever lived with a partner without being married to them?</td>
<td>0-1</td>
<td>Coded as 1 if F62=Married and F66=No</td>
</tr>
<tr>
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<td>Coded as 0 if F62=Separated/Divorced/Widowed/Never married or if F62=Married and F66=Yes</td>
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<tr>
<td>Single (has lived with a partner)</td>
<td>F62: Current legal status? F65: Are you currently living with a partner? – only asked to women who are not married F66: Have you ever lived with a partner without being married to them?</td>
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<td>Coded as 1 if Living in a union=0 and F62=Separated/Divorced/Widowed and/or F66=Yes</td>
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<tr>
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<td></td>
<td>Coded as 0 if Living in a union=1 or if Living in a union=0, F62=Never married and F66=No</td>
</tr>
<tr>
<td>Single (has not lived with a partner)</td>
<td>F62: Current legal status? F65: Are you currently living with a partner? – only asked to women who are not married F66: Have you ever lived with a partner without being married to them?</td>
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<td>Coded as 1 if Living in a union=1, F62=Never married and F66=No</td>
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<td>Coded as 0 if Living in a union=1 or if Living in a union=0 and F62=Separated/Divorced/Widowed and/or F66=Yes</td>
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### Table C2. Individual level variables - continued

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<th>Variable Description</th>
<th>Codes</th>
<th>Code Description</th>
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<tbody>
<tr>
<td><strong>Number of children (ch. 8)</strong></td>
<td>ESS2: F1, F3, F4, G4, G49, G50, G51 ESS3: F1, F3, F4, D8, D9, D10, D11</td>
<td>Coded as the sum of all children the respondent had three years before the year preceding her interview</td>
</tr>
<tr>
<td><strong>Number of children (ch. 9)</strong></td>
<td>ESS2: F1, F3, F4, G4, G49, G50, G51 ESS3: F1, F3, F4, D8, D9, D10, D11</td>
<td>Coded as the sum of all children the respondent had a the time of her interview</td>
</tr>
<tr>
<td><strong>Experienced a birth</strong></td>
<td>ESS2: F1, F3, F4, G4, G49, G50, G51 ESS3: F1, F3, F4, D8, D9, D10, D11</td>
<td>Coded as 1 if year a child was born &gt; the year preceding the respondent’s interview took place – 3, otherwise coded as 0</td>
</tr>
<tr>
<td><strong>Definitely planning on having another child</strong></td>
<td>G58: Do you plan to have a child within the next three years?</td>
<td>Coded as 1 if G58=Definitely yes Coded as 0 if G58=Definitely not/Probably not/Probably yes</td>
</tr>
<tr>
<td><strong>Probably planning on having another child</strong></td>
<td>G58: Do you plan to have a child within the next three years?</td>
<td>Coded as 1 if G58=Definitely yes/Probably yes Coded as 0 if G58=Definitely not/Probably not</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td>F3: In which year were you born?</td>
<td>18-44 Year interview took place-F3</td>
</tr>
<tr>
<td><strong>Urban Residence</strong></td>
<td>F5: Which best describes the area where you live?</td>
<td>Coded as 1 if F5=A big city/Suburbs of a big city/A town or small city Coded as 0 if F5=A country village/The countryside</td>
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<tr>
<td><strong>High education</strong></td>
<td>F6: What is your highest level of education?</td>
<td>Coded as 1 if F6=First stage tertiary education/Second stage tertiary education Coded as 0 if F6=Not completed primary education/Primary education/Lower level secondary education/Upper secondary education/Post-secondary, non tertiary education</td>
</tr>
<tr>
<td><strong>Outside the labor market</strong></td>
<td>F8: Which of these descriptions best applies to what you have been doing the last 7 days?</td>
<td>Coded as 1 if F8=Unemployed/Permanently sick or disabled/Retired/In community or military service/Doing housework, looking after children or other persons/Other Coded as 0 if F8=In paid work/in education</td>
</tr>
<tr>
<td><strong>In education</strong></td>
<td>F8: Which of these descriptions best applies to what you have been doing the last 7 days?</td>
<td>Coded as 1 if F8=In education Coded as 0 if F8=In paid work/Unemployed/Permanently sick or disabled/Retired/In community or military service/Doing housework, looking after children or other persons/Other</td>
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<tr>
<td><strong>In paid work</strong></td>
<td>F8: Which of these descriptions best applies to what you have been doing the last 7 days?</td>
<td>Coded as 1 if F8=In paid work Coded as 0 if F8=In education/Unemployed/Permanently sick or disabled/Retired/In community or military service/Doing housework, looking after children or other persons/Other</td>
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</table>
### Table C2. Individual level variables - continued

<table>
<thead>
<tr>
<th>Variable</th>
<th>Questions used</th>
<th>Scale</th>
<th>Coding</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Partner high education</strong></td>
<td>F36: What is the highest level of education your husband/partner has achieved?</td>
<td>0-1</td>
<td>Coded as 1 if F6=First stage tertiary education/Second stage tertiary education</td>
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<tr>
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<td></td>
<td></td>
<td>Coded as 0 if F6=Not completed primary education/Primary education/Lower level secondary education/Upper secondary education/Post-secondary, non tertiary education</td>
</tr>
<tr>
<td>Religiosity</td>
<td>C13/C21: How religious would you say you are?</td>
<td>0-10</td>
<td>0=Not at all religious, 10=Very religious</td>
</tr>
<tr>
<td>Protestant</td>
<td>C9/C17: Do you consider yourself as belonging to any particular religion or denomination? C10/C18: Which one?</td>
<td>0-1</td>
<td>Coded as 1 if C10/C18=Protestant/Anglican/Baptist/Methodist/Presbyterian/Congregational/Free Presbyterian/Brethren/Other Protestant</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Coded as 0 if C9/C17=No or if C10/C18=Christian – no denomination/Roman Catholic/Greek or Russian Orthodox/Hindu/Sikh/Buddhist/Jewish/Islam/Other</td>
</tr>
<tr>
<td>Catholic</td>
<td>C9/C17: Do you consider yourself as belonging to any particular religion or denomination? C10/C18: Which one?</td>
<td>0-1</td>
<td>Coded as 1 if C10/C18=Roman Catholic</td>
</tr>
<tr>
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<td>Coded as 0 if C9/C17=No or if Protestant=1 or if C10/C18=Christian – no denomination/Greek or Russian Orthodox/Hindu/Sikh/Buddhist/Jewish/Islam/Other</td>
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<tr>
<td>Orthodox</td>
<td>C9/C17: Do you consider yourself as belonging to any particular religion or denomination? C10/C18: Which one?</td>
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<td>Coded as 1 if C10/C18=Greek or Russian Orthodox</td>
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<td>Coded as 0 if C9/C17=No or if Protestant=1 or if C10/C18=Christian – no denomination/Hindu/Sikh/Buddhist/Jewish/Islam/Other</td>
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<tr>
<td>Other</td>
<td>C9/C17: Do you consider yourself as belonging to any particular religion or denomination? C10/C18: Which one?</td>
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<td>Coded as 1 if C10/C18=Christian – no denomination/ Hindu/Sikh/Buddhist/Jewish/Islam/Other</td>
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<td>Coded as 0 if C9/C17=No or if Protestant=1 or if C10/C18=Christian – no denomination/Hindu/Sikh/Buddhist/Jewish/Islam/Other</td>
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<tr>
<td>Not belonging to church</td>
<td>C9/C17: Do you consider yourself as belonging to any particular religion or denomination?</td>
<td>0-1</td>
<td>Coded as 1 if C9/C17=No</td>
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<td>Coded as 0 if C9/C17=Yes</td>
</tr>
<tr>
<td>Attending church 1/month</td>
<td>C14/C22: Apart from special occasions such as weddings and funerals, about how often do you attend religious services nowadays?</td>
<td>0-1</td>
<td>Coded as 1 if C14/C22=Every day/More than once a week/Once a week/At least once a month</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Coded as 0 if C14/C22=Only on special holy days/Less often/Never</td>
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</table>
Table C3. Summation of country level variables: ESS2

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<tr>
<th>Country</th>
<th>Dual-earner index</th>
<th>Benefits index</th>
<th>Part-time employment</th>
<th>Unemployment rate</th>
<th>Living with parents</th>
<th>Female labor force participation rate</th>
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<tbody>
<tr>
<td>Austria</td>
<td>3.0</td>
<td>2.1</td>
<td>2.9</td>
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Comment: All variables are presented with their natural logarithm
<table>
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<tr>
<th>Country</th>
<th>Dual-earner index</th>
<th>Benefits index</th>
<th>Part-time employment</th>
<th>Unemployment rate</th>
<th>Living with parents</th>
<th>Female labor force participation rate</th>
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<td>1.6</td>
<td>3.1</td>
<td>4.2</td>
</tr>
</tbody>
</table>

Comment: All variables are presented with their natural logarithm
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