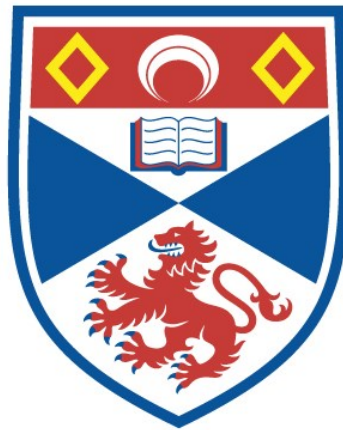# FAMILY FORMATION IN SCOTLAND:
THE ROLE OF SOCIAL NORMS, HOUSING AND PARTNERSHIP

Annemarie Ernsten

A Thesis Submitted for the Degree of PhD
at the
University of St Andrews

2016

Family formation in Scotland:

The role of social norms, housing and partnership

Annemarie Ernsten
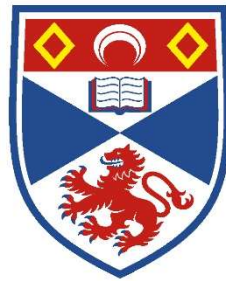
University of
St Andrews

This thesis is submitted in partial fulfilment for the degree of PhD

at the

University of St Andrews

May 2016

Abstract

This thesis examines family formation in Scotland, with a focus on having a first birth. I argue that fertility behaviour must be researched as part of a process of family formation across the life course and informed by the conceptual framework of the Theory of Planned Behaviour. Starting from geographical patterns in fertility rates, housing and partnership, I establish relationships between shared social attitudes, partnership, housing, and family formation behaviour.

I use cross-sectional and panel data from the Scottish Social Attitude Survey, the Scottish Census, the Scottish Longitudinal Study and the British Household Panel Study. The methodological contribution lies in the use of a Latent Class Analysis to identify shared social attitudes groups, which are then incorporated in more generic models predicting fertility intentions and first birth outcomes.

The findings indicate that social attitudes and norms are important for family formation. While the Second Demographic Transition Theory argued that social norms are being replaced by more independent choices, more recent fertility literature has called for *more* attention to social norms. The current thesis thus supports these recent calls by showing how social norms might be (indirectly) measured in quantitative research.

A key focus is on relationships between housing and family formation, especially normative ideas of 'proper' family housing. I demonstrate that family housing is a significant predictor of first births, at least for women. The gendered nature of family formation is also demonstrated by the different indicators found to predict men's and women's fertility intentions and realisations.

I conclude that improved understanding of fertility behaviour requires longitudinal research that goes beyond the usual fertility indicators such as partnership and recognises the importance of gender differences, housing, shared social attitudes, and, above all, the continuing relevance of social norms in the family formation process.

To Adriaan and Ina

always my biggest supporters

Acknowledgements

I applied for my PhD position in St. Andrews because I sought to be challenged, and challenged I was. Looking back at some great, sometimes rocky but certainly inspiring, educational years, there are many people who in one way or another contributed to this experience.

My first and special thanks goes to my main supervisor Prof. Elspeth Graham, for her continuous guidance and support, especially in moments that I did not see the light anymore. Thank you for reading draft, after draft, after draft and commenting on all of them. Also, a special thank you to Dr. Zhiqiang Feng, who agreed to be my second supervisor two years ago. Thank you for your always friendly comments on my analysis and chapters.

Besides hard work, there was also time for relaxation. I would like to thank my 'Peerproject'-friends, especially Beata. You always were my family in Scotland. Thanks for all the support, for the dinners, the hikes and the holidays. It all helped me to start fresh the next day.

Thanks also to all the 'inhabitants' of the CPC and SLS offices from the past years, especially to Francesca. You have made my PhD experience to be the great experience it was, with advice, chats, and lunch discussions.

And a big thank you to Ben. Sometimes, I wonder if you knew what you were getting into. Thank you, for all the support, for putting up with me especially these last months, and for all the help with formatting and lots of nitty gritty things.

Declarations

Candidate's declarations:

I, Annemarie Ernsten, hereby certify that this thesis, which is approximately 79500 words in length, has been written by me, and that it is the record of work carried out by me, or principally by myself in collaboration with others as acknowledged, and that it has not been submitted in any previous application for a higher degree.

I was admitted as a research student in January, 2011 and as a candidate for the degree of PhD in January, 2011; the higher study for which this is a record was carried out in the University of St Andrews between 2011 and 2016.

I, Annemarie Ernsten, received assistance in the writing of this thesis in respect of language, grammar, spelling and syntax, which was provided by Miriam Hills

Date   signature of candidate

Supervisor's declaration:

I hereby certify that the candidate has fulfilled the conditions of the Resolution and Regulations appropriate for the degree of PhD in the University of St Andrews and that the candidate is qualified to submit this thesis in application for that degree.

Date   signature of supervisor

Permission for publication:

In submitting this thesis to the University of St Andrews I understand that I am giving permission for it to be made available for use in accordance with the regulations of the University Library for the time being in force, subject to any copyright vested in the work not being affected thereby. I also understand that the title and the abstract will be published, and that a copy of the work may be made and supplied to any bona fide library or research worker, that my thesis will be electronically accessible for personal or research use unless exempt by award of an embargo as requested below, and that the library has the right to migrate my thesis into new electronic forms as required to ensure continued access to the thesis. I have obtained any third-party copyright permissions that may be required in order to allow such access and migration, or have requested the appropriate embargo below.

The following is an agreed, and approved, request by candidate and supervisor regarding the publication of this thesis:

Embargo on all of print and electronic copies for a period of two years on the following ground: Publication would preclude future publication

Date   signature of candidate

Date   signature of supervisor

Contents

List of Tables

Table of Figures

Acronyms

2 DT	Second Demographic Transition theory
AIC	Akaike information criterion
BHPS	British Household Panel Study
BIC	Bayesian information criterion
ESRC	Economic and Social Research Council
GROS	General Records of Scotland
LCA	Latent Class Analysis
NRS	National Records of Scotland
NS-SEC	National Social Economic Classifications
OLS	Ordinary Least Square
SLS	Scottish Longitudinal Study
SSAS	Scottish Social Attitude Survey
TFR	period total fertility rate
TPB	Theory of Planned Behaviour

1. Introduction: A Changing Population

1.1. Introduction

Fertility is one of the three major components of population change. Understanding fertility trends at a national scale is especially important in the early 21st century, as the decline in fertility across Europe in recent decades has implications for the future age structure of European populations. Decreasing fertility rates and higher life expectancies mean that fewer children are being born at the same time as people are living longer. As a result of these trends, dependency ratios are increasing all over Europe. During the baby boom that followed the end of the Second World War in Europe, fertility rates were relatively high. Thus, for a long time the working population was larger than the number of people outside of employment age. However, since the baby boom birth-rates have decreased and additionally the post war baby boomers have begun to retire from the labour force; and this small inflow and large outflow of people in the labour force has in turn put demands on health and social services. Low fertility is thus a major issue for many European governments. In Scotland, over several decades, these problems were less prominent due to relatively low life expectancy. However, currently Scotland has the lowest fertility rate in the UK and due to the small natural increase Scotland is predicted to have a proportion of people aged 65 and over making up about 25 per cent of the population by 2035 (Widmer and Ritschard 2009), which is a serious concern because of the expected increased pressure on the welfare system. In this context, it is important to examine the main drivers of fertility behaviour and develop a better understanding of family formation in Scotland.

Billari (2015) has recently argued that in order to explain population changes like shift to low fertility, we have to acknowledge that human actions and interactions drive demographic events. Thus, in order to understand macro-level trends, we need to examine fertility behaviour at the micro level as well. Specifically, we need to examine the decision-making process involved in the fertility behaviour of individuals. Therefore, this thesis examines the process of family formation - specifically the relationship between family formation, social norms, partnership and housing in Scotland. In the current research I have chosen to use the life course approach, which enables me to take into account not only the different phases in an individual's life, but also how the person's life course is embedded in time and space. In this study family formation encompasses finding a partner, starting a household, having children, with emphasis placed on the circumstances related to having a first child. Past research has tended to focus on a narrow

set of drivers of fertility. However, there is for example research which found evidence of an association between the purchase of a house and having a child. Social norms have also been mentioned as possible influences in the process of family formation, although there is very little empirical research on the relationship between social norms and fertility. My initial hypothesis is that there is an interrelationship between social norms, housing and family formation in Scotland. The use of the life course approach will allow me to consider these interrelationships, as well as possible additional factors that may influence fertility outcomes, and thus to present a more holistic view of the family formation process that extends the scope of analysis in the extant literature.

The current study is one of the few recent studies conducted on Scotland and in addition to recognising the demographic importance of fertility as a major driver of population change at the macro level, this thesis is inspired by ideas from outside demography that may be relevant for understanding fertility at the micro level. in particular, my reading of a paper linking housing tenure and perceptions of 'proper motherhood' in the United States (Lauster 2010) led me to think about the possibility that potential mothers, especially middle-class women, may feel that in order to be a good mother they have to live in a certain type of 'family' house. It appears that current social norms may influence perceptions about 'proper' housing, and may lead women to postpone having children until they have a suitable home. Other social norms related to the appropriate situation for having a child, such as the appropriate partnership situation, have changed a great deal in recent decades. Whereas being married was one of the main prerequisites for having children in the past, it is less important today. Currently, having proper housing may be the main prerequisite for having children, at least for some couples. These ideas are rarely investigated in the empirical literature on fertility behaviour. Thus, this thesis contributes to the micro-level understanding of fertility by placing childbirth within the dynamic process of family formation, and extends the current literature by investigating the roles of social norms and housing, as well as of partnership, using a life course approach.

1.2.   Family Formation in Scotland.

To understand the process of family formation, we have to focus on micro-level research on individual fertility behaviour. In this research, I take one geographical area in the UK—namely, Scotland—as the context for my empirical investigations. Scotland is interesting for several reasons. First, as was mentioned above, the population of Scotland is ageing rapidly; and more rapidly than the population of England and Wales (Widmer and Ritschard 2009). In response to

this problem, and to ensure continuing population growth, in 2007 the Scottish government took the unusual step of setting a population target: i.e., that the population growth rate in Scotland should match the average growth rate in Europe by 2017 (Ní Bhrolcháin, Beaujouan and Berrington 2010). As in other parts of the UK, in Scotland nearly all of the population growth in the last decade resulted from positive net migration, and not from natural population growth (i.e., from a higher number of births than of deaths). Indeed, the annual number of deaths exceeded the annual number of births in the first half of the 2000s, and a small positive balance has only recently emerged (NRS 2015). In addition to having a different demographic trajectory than the rest of the UK, Scotland is also interesting for another reason: its housing history. Compared to the other constituent countries of the UK, Scotland has long had a relatively large stock of social housing, although the share of the population living in social housing has been declining significantly since the beginning of the 1980s.

Scotland has a small population relative to most European countries. Limited population growth since the 1950s has kept the population relatively stable, at slightly over five million inhabitants. The population reached 5.24 million in 1974, but had fallen to 5.06 million by 2001 (Lutz, Testa and Penn 2006, GROS 2009). Since then, the Scottish population has again increased, reaching 5.31 million by 2012 (Lesthaeghe and Van De Kaa 1986). However, the main source of population growth has been positive net migration, and not natural population growth. The Scottish period total fertility rate (TFR) has gradually decreased since the 1970s, from above replacement level (TFR =2.1 children per woman) in 1973 to 1.49 children per woman in 2001. More recently, there has been a slight increase in the TFR to 1.69 children per woman in 2011, although fertility appears to have declined slightly in the past few years (National Records of Scotland 2014). Therefore, despite the supposed prevalence of the two-child norm in the UK (Pinelli, Hoffman-Nowotny and Fux 2002), the average number of children per woman has remained below two for four decades.

Although Scotland has long had the lowest TFR in the UK, compared with the rest of Europe the Scottish TFR is around the average. For example, the total fertility rate in Scotland in 2008 (TFR = 1.77 children per woman) was comparable to the fertility rates in the Netherlands and Belgium (Ní Bhrolcháin et al. 2010), two countries with much larger populations than Scotland. Most children in Scotland are born to parents living in a partnership, but the proportion who are born outside of marriage has been increasing steadily, from 43.3 per cent in 2001 to 51.0 per cent in 2011 (National Records of Scotland 2014). The number of children born to cohabiting parents

has also been rising in the rest of the UK (Berrington and Stone 2015) and across Europe (Kiernan 2004). The UK is around average among Europe countries in terms of the percentage of all births that are to cohabiting parents. Whereas in the Scandinavian countries the majority of children are born to cohabiting parents, in countries like the UK or the Netherlands the share is close to 50 per cent (Kiernan 2003).

In the past, unmarried cohabitation was considered taboo and marriage was seen as a prerequisite for having children; today, by contrast, it is the norm for most couples to live together before marriage (Berrington and Stone 2015). Nevertheless, cohabitation has not completely replaced marriage: if the relationship continues for a longer period of time, most couples eventually get married (Kiernan 2003). Sometimes differences between cohabitation and married partnerships are taken to reflect relationship stability, with marriage being seen as the more stable partnership. However, making direct comparisons between cohabiters and married couples can be problematic. For example, cohabiting couples tend to be younger and less educated than married couples. Furthermore, in the UK context married couples are more likely to be homeowners, whereas close to one-third of cohabiting couples live in social housing (Berrington and Stone 2015).

While the general opinion in Britain seems to be that it is desirable to own a home before starting a family, there is a lack of recent research on whether and, if so, how these attitudes influence decisions about family formation. The results of research conducted in the early 1980s indicated that potential buyers in the UK postponed having children until they became homeowners (Ineichen 1981). Moreover, a study on the United States (US) found evidence of a difference between actual and perceived housing requirements in the context of family formation, which the author attributed to social norms (Hughes 2003). In Europe there might also be a general association between fertility and housing tenure, as TFRs are higher in countries where more people are homeowners and lower in counties where homeownership is less prevalent (Mulder and Billari 2010). However, in the UK there has been no detailed research on this topic.

Buying a house is the biggest purchase most people will make in their life. For many people, and especially for those in an insecure employment situation, it is not easy to accrue enough money to pay the deposit on a mortgage. In the two decades before the economic crisis of 2008, people in the UK became more affluent, which meant that more people were able to become

homeowners. The UK government responded to this trend by implementing the 'Right to Buy' scheme. This legislation, which was introduced in 1980, gave sitting council tenants the right to buy their house at a large discount. In Scotland, many tenants bought their council house, thereby reducing the share of the total housing stock that was social housing from around 40 per cent to less than 25 per cent. This trend in turn led to the residualisation of the social housing stock, because most of the homes that were bought were the more desirable units. Thus, the inhabitants of social housing became increasingly stigmatised (Beer and Faulkner 2011). After the Scottish government was established in 1999, the law was adjusted to make buying social rented accommodation less easy and less advantageous (Berrington 2015). However, by that time the Scottish social housing market had undergone a major change due to the effects of the Right to Buy scheme. In recent decades, owning a house has become a much more important precondition for starting a family than it was in the past. In comparison, living in rented housing, and especially in private rented accommodation, is seen as less secure than owning one's own home (Gurney 1999), and is thus less favoured as a context in which to start a family. Of course, owning a home is regarded as a precondition for starting a family only by people who 'plan' their family; for those individuals who do not plan the timing of births such a precondition may be entirely irrelevant. Even so, these changes in the Scottish housing market might have (had) an influence on the fertility behaviour of potential parents, especially as having access to reliable contraception now gives individuals and couples reliable control over their own fertility. In the current research, I examine for the first time the themes of housing and social norms in relation to processes of family formation in Scotland.

1.3. Outline of the Study

In this thesis, I investigate the trends, patterns, and perceptions that underlie the complicated process of family formation, of which fertility is a part. In Chapter 2, I review the extensive literature on fertility and family formation. Based on the knowledge gained from this literature, I develop a conceptual model of family formation to guide the empirical analyses, and derive the main research questions that I will address in this study. In this thesis, I draw upon some valuable and under-used Scottish data sources. In Chapter 3, I describe these data sources and discuss their relative advantages and disadvantages. In this chapter I also introduce the data sources and methods I will use to answer the four main research questions of the thesis. In Chapters 4 to 7 I then address each of these questions in turn.

In Chapter 4 I first provide an overview of fertility, partnership, and housing tenure in Scotland by examining the geographical variations in all three trends across Scotland. Next, I use data from the Scottish Longitudinal Study (SLS) to place birth events at the individual level within a life course perspective. In Chapter 5 I employ a unique but relatively little used fertility module in the Scottish Social Attitude Survey (SSAS) to examine the relationships between housing tenure, shared social attitudes, and fertility expectations, which might point towards behaviour based on social norms. I establish shared attitudes by using a latent class approach, which has rarely been used in demography. In Chapter 6 I continue to explore the effects of shared and gender-specific attitudes by examining fertility intentions using data from the British Household Panel Survey (BHPS). Drawing on the longitudinal character of the BHPS in the final empirical chapter, I investigate in Chapter 7 the connection between fertility intentions and fertility behaviour, as well as the effects of shared social attitudes and social norms, especially in relation to 'family' housing.

In the concluding chapter of the thesis, Chapter 8, I summarise my empirical findings, answering my four research questions in the process. I also show how my findings contribute new knowledge that enhances our understanding of fertility behaviour. In addition, I offer critical reflections on the limitations of the research, make suggestions for future work on family formation, and discuss the policy implications of the main findings.

The brief summary above represents an outline of the structure of the thesis. I now provide the background for my research in a review of the published literature on fertility and family formation.

2. Understanding Family Formation: A Literature Review

2.1.   Introduction

In this chapter I review the extensive and complex literature on fertility and family formation in the developed world, especially the United Kingdom. The focus of this review is on the studies that seek to explain fertility variations and the links between partnership and family formation in contemporary Europe, and especially in the United Kingdom. In this review, I will offer insights into the main sociological and demographic theories that touch upon the process of family formation. My aim is to 1) provide an overview of current research foci, 2) discuss and evaluate the main debates, 3) and identify where there are still gaps in fertility research in order to 4) design a conceptual model to explain fertility behaviour within a process of family formation. At the start of this review, one of the key questions is how fertility and family formation can be conceptualised within this study. In the first part of the review, I will attempt to answer this question. I will therefore evaluate the literature in relation to its contribution to explaining family formation as a process.

A key aspect of contemporary family formation in Europe is diversity. As Billari and Liefbroer (2010) have pointed out, in contrast to the traditional family formation model, in which a young woman would leave her parents' home to get married and have children; people today tend to have children later in life, and transitions to adulthood and family life are less strictly defined and more diverse than they were in the past. The timing of transitions, like forming a partnership or having children, can also vary, as more so-called 'routes' through the life course are now socially acceptable, and these life course transitions can happen at different points during an individual's life course. Nevertheless, certain life course transitions happen to nearly everyone who eventually becomes a parent (although not always in the same order). Individuals are young and grow up, then most of them leave the parental home, usually for either educational reasons or reasons of autonomy (Billari, Philipov and Baizán 2001). If they are not already partnered, they might find a partner. The next step is living together while either married or unmarried. After a period of time, the majority of those young adults become parents (Galland 2000, Stone, Berrington and Falkingham 2011). Only a small minority of individuals become parents while not living with a partner (Anderson 1999, Brien, Lillard and Waite 1999, Lichter 2012).

Since the paths that lead to childbearing are diverse and are influenced by many different factors, studying family formation using a life course approach could help us gain a better

understanding of this complex topic. Giele and Elder (1998) identified the main ingredients of the life course paradigm as follows: human agency, social integration, location in time and place, and the intersection of time and age. The precise timing and sequence of the steps that eventually lead to fertility behaviour on the micro level can vary depending on, for example, a person's education and upbringing, where the person lives, and the opportunities (employment, housing, personal) available to him or her (Stone, Berrington and Falkingham 2013). Therefore, I argue that investigating family formation using a life course approach that incorporates those factors and allows for possible feedback effects can make the decision-making process around fertility behaviour comprehensible.

The above-mentioned shift from uniformity to diversity in life paths is also reflected in a shift from macro-level to micro-level approaches in research fields that touch upon family formation. There are several research fields that investigate fertility. There is the obvious field of demography, of which fertility is a main research area. When questions about the space and place where a new family lives arise, the topic of family formation is also relevant to the field of geography. Moreover, investigations of the decision-making process and behaviour surrounding family formation behaviour are undertaken in the fields of economics, sociology, and social psychology. We see in the literature a shift from the use of more classical approaches that treat fertility as birth events, to the conceptualisation of birth events as situated within the process of family formation. Changes in the research approaches and methods used, as well as the widening scope of the research, make it difficult to present a structured and coherent picture of the research literature related to family formation. Nevertheless, in this chapter I will seek to elucidate the contemporary process of family formation as it is represented in findings from the extant literature, with the aim of taking a holistic approach to explaining family formation behaviour.

The chapter is divided into eight sections. First, by way of background, I discuss how attitudes and social values concerning having children have changed over time and how past societal changes have had a wide-ranging influence on the current family formation process. Then, to explain some basic trends in family formation, I review some of the studies that have identified major determinants of fertility, but have not adopted a life course perspective. In the third section, I elaborate on research that has explored normative family formation behaviour. As in this section I consider the Theory of Planned Behaviour, I provide a more dynamic view of family formation. In the next sections I discuss the literature on a variety of social norms that can

influence fertility behaviour. In the fourth section I review partnership and family formation; I also consider gender differences in fertility, and especially the small body of work on men's fertility. In the fifth section I discuss geographical variations in fertility and the literature on fertility and housing. In the sixth section I elaborate on studies that have investigated the connections between fertility intentions and fertility behaviour. In the penultimate section, I describe how the process of family formation fits within a life course perspective. In the final section of the chapter, I conclude by identifying the main limitations of the current literature and present the research questions that will be addressed in the rest of the thesis, as well as a conceptual model that provides the framework for my research.

Approaches to understanding fertility

Whereas in the older literature on fertility approaches to fertility research that might be considered more classical generally used individual characteristics (such as demographic, economic, or social characteristics) to explain fluctuations in fertility over time, more recent fertility research has moved towards incorporating either characteristics related to the research context (such as the impact of shared social norms or location) to explain the process of family formation, or characteristics that are a combination of both individual and contextual characteristics. In order to explore fertility fluctuations over time, I focus in this section on the relevant theory and research, and on the shift from theories at the macro level towards approaches and theories that explain fertility behaviour at the micro level.

Fertility rates in Britain and in many other European countries are relatively low: the number of births per woman has dropped below the level required to replace the current generation (replacement level). In the United Kingdom fertility rates started to decline around the end of the 19th century; the change started in the cities before spreading to rural areas (Teitelbaum 1984). Particularly in the last 50 years, the total fertility rate (TFR) has declined. Furthermore, women are now giving birth later in their life course (i.e., at older ages); a trend that has been observed all over Europe (Van de Kaa 1987). According to the 2011 census, the period total fertility rate in Britain was 1.84, but geographical variations in fertility rates were also apparent (ONS 2014). In 2011, the period total fertility rate in Scotland was 1.69 (NRS 2014).

In the literature, a variety of explanations for why fertility has declined have been advanced, ranging from economic factors, and especially the costs of childrearing; to psychological factors, such as personal feelings about having children. Over time the factor of personal choice has been

increasingly emphasised, as today most people in high-income countries like the UK are able to decide for themselves whether and when they start a family. Having children has become more of a conscious choice for the potential parents, rather than the almost inevitable result of a (married) partnership. Just a century ago very few individuals were able to decide whether they wanted to have children, as family planning methods were neither widely available nor commonly accepted by society. Subsequently, the ability to make an individual choice about childbearing became more widespread, especially after the introduction of the contraceptive pill in the 1960s (Murphy 1993). At first this choice was mostly about the number of children a woman would have. Today, by contrast, people are increasingly deciding whether they want to have any children at all. In other words, the 'value' of having a child has changed. Fairly recent, but still fairly traditional fertility studies have observed that parenthood is associated with a certain status (Becker, Duesenberry and Okun 1960, Becker and Lewis 1974, Easterlin 1987). Even in more recent studies, having a child was represented as a source of emotional fulfilment (Ariès 1980, Van de Kaa 1987). Thus, from the perspective of the old age security hypothesis, the value of having a child changed from representing an investment in 'social security' to representing a (much debated) quantifiable status symbol and the fulfilment of psychological needs. In addition, it can be argued that the status and emotional fulfilment needs are not for the same for every potential parent. This development meant that the decision to have a child was conceptualised as a trade-off, with people weighing the pros and cons of parenthood (Becker and Lewis 1974, Easterlin 1987, Joshi 1998), and sometimes choosing to have fewer children or to have no children at all.

Overall, researchers agree that having children has become less of an economic necessity (Caldwell 1976), and that as birth control methods have become more accessible, fertility has been declining (Knodel and Walle 1979, Murphy 1993). Across most of Europe, the current fertility rates are below replacement level. According to Ariès (1980), at the beginning of the 20th century (the end of the 19th century for France) couples had fewer children mainly because of family planning. However, he reasoned—probably rightly—that a widespread change in thinking occurred after the post-World War II baby boom. At that time, there was a shift away from the concept of the 'happy family', in which couples had fewer children but were wealthier and able to give their children a good start in life (i.e., a choice driven by economic reasoning); towards the perception that having a child was the 'icing on the cake' (i.e., a choice driven by the need for emotional self-fulfilment). This process has been insightfully described as a move

away from the king-child with parents (Ariès 1980) and towards the king-pair with child (Van de Kaa 1987). This shift in thinking about the role and the value of children can also be seen as a shift away from a more 'norm driven', altruistic reasoning process about family formation; and towards a more 'ego driven', individualistic reasoning process about having children. As individuals are increasingly encouraged to make their own life choices, the choice of whether to have children may be seen as representing a trade-off between free time and emotional fulfilment, or costs and fulfilment. However, within this change in the value of children there might also be a change in the social norms that influence the behaviour of a potential parent. Which of these norms are the most influential and how these norms affect fertility are questions I will return to later in this chapter.

2.2. Economic Theories

Economic theories of fertility were highly influential in the 1960s and 1970s. These theories conceptualise children and their impact on everyday life as quantifiable, and take a micro-economic approach to explaining the decrease in the TFR in the last 50 years (Becker et al. 1960, Becker 1965, Becker and Lewis 1974, Barro and Becker 1989). Becker and his colleagues have subsequently been criticised for misguidedly asserting that people's decisions about the number of children they have could be almost completely explained within micro-economic models of financial trade-offs (Cochrane 1975). According to Becker, fertility choices are determined by the income of the potential parent(s), the consumption of (other) consumer durables, and the costs of raising children. While it has some explanatory value, this approach ignores the wider context of the decision-making process. It implies that potential parents in similar financial situations always make the same decision, and fails to take other factors into account, such as different contextual situations (Graham et al. 2007, Kulu and Boyle 2009).

Another explanation that focuses on the cost of raising children attributes the decline in fertility rates in the 20th century to the trade-offs associated with having a child. The financial and time costs of having a child are weighed against the emotional benefits. This explanation has been supported by Easterlin (1987), who argued that the more children there are, the less 'value' they have; and, more indirectly, by Joshi (1998), who asserted that having children involves making trade-offs between personal opportunity costs and emotional fulfilment for the father as well as for the mother. Both Easterlin and Joshi equated having a child with gaining or losing something with a specific, quantifiable value; while seemingly failing to acknowledge that

parents might be seeking emotional fulfilment, while also keeping their opportunity costs as low as possible.

Although there is some theoretical evidence to support these economic explanations, they seem to be rather limited given the assumptions that underpin them. The most problematic assumption is that potential parents choose between having a few 'high quality' children or more 'low quality' children. Moreover, a number of scholars have raised objections to this economised view of the relationship between parents and their children. Four main counterarguments have been made. It is likely that potential parents try to maximise their living conditions as well as the 'quality' of their children, rather than choosing one over the other (Cochrane 1975). The question of what is actually meant by the 'quality' of a child has also been raised (Robinson 1997). Moreover, it has been pointed out that this theory appears to be completely focused on the number of children, and the possibility that a person might have no children is hardly mentioned (Robinson 1997). Other scholars have observed that because potential parents are unlikely to be able to foresee the long-term 'costs' of having children, it is difficult for them calculate what trade-offs might be involved (Blake 1968). However, Becker and his critics all seem to agree that choice and decision-making are useful concepts in fertility research (Becker et al. 1960, Blake 1968, Cochrane 1975). How many children a parent will have has become a matter of personal choice. However, the extent to which potential parents can actually incorporate the financial and personal costs of having children into their decision-making process is unclear, as they cannot know what it means to have a child until they have had one. Thus, the economic theories that posit that potential parents make certain kinds of trade-offs appear to have some validity. Implicitly, this means that most parents actively decide to have a child. Thus, the concept of choice is a valuable aspect of these theories. I argue that it is the potential parent who decides to start a family, and that this choice is likely related to his or her relationship status and other social and economic circumstances.

While it is generally recognised that having a child is a choice, and that financial and other costs play a role in the decision-making process, a number of researchers seeking to explain fertility-related choices have put far greater emphasis on emotion and self-realisation, and in some cases on compliance with social norms and expectations (Ariès 1980, Van de Kaa 1987). In the remainder of this section, I will elaborate on theories that attempt to explain this decision-making process from a non-economic perspective.

2.3.   Demographic Theories

As having a family increasingly became an active rather than a passive choice, social norms and values started to play a major role in the process of deciding whether to have children. Thus, a theoretical approach that recognised the importance of the concepts of choice, norms, and values was needed. In this section, I describe how some existing theories use these concepts, and how they apply to my thesis.

The Second Demographic Transition theory (2DT) attributes the decrease in the TFR in European countries to changes in values and norms. Changes in the reasons for having children combined with changes in the value associated with being married and being in a family are the basic concepts of the 2DT (Van de Kaa 1987, Lesthaeghe 1995). According to the 2DT, potential parents moved away from making family formation choices based on economic reasons towards making these decisions based on their feelings and desires.

The 2DT builds on the first transition theory, and both theories assume that we can predict demographic developments everywhere in the world based on past demographic changes in Europe (Alter 1992, Lee and Reher 2011). Both theories have linked socio-economic innovations to demographic changes (Lesthaeghe and Neels 2002). The (First) Demographic Transition theory explained population growth in five stages. The starting point is a small population with high birth and death rates (stage 1). As both birth and death rates decline, the population grows (stages 2, 3, and 4). After a certain period of time, some kind of equilibrium is reached (stage 5) (Kirk 1996). In the United Kingdom, the onset of the (First) Demographic Transition is usually dated to the mid-19th century (Woods 2000). To explain the further demographic developments after the Second World War (in most countries population growth was decreasing or was even negative), Van de Kaa (1987) and Lesthaeghe (1995) developed the 2DT. This theory was different from the first in that it claimed that the total fertility rate would stabilise around or below replacement level. In addition, compared to the first theory, it focuses more on social and ideational change than on economic change. As the value of marriage changes, new forms of partnership arise. Cohabitation not only becomes the norm, but as the breakup of partnerships becomes more widely accepted, new families are formed out of the relationships that have dissolved (Pinelli et al. 2002). The focus of the 2DT on changes in social norms and values makes it useful for the current research.

As a description of past developments in fertility and family formation, the 2DT is interesting because by connecting family formation to changing norms and values in society, it managed to provide a comprehensible description of a process that was happening all over Europe, albeit at different speeds in each country. Although the 2DT is very valuable for explaining how societal changes were influencing changes in family formation in the recent past, the theory does have some limitations. Some scholars have argued that because the 2DT theory is based on developments in north-western Europe, it is applicable to those countries only. Graham (2014) pointed out that the demographic transition theories are highly generalised, and could therefore easily overlook potentially important details. Another criticism was that because the transitions the theory describes have no clear start and end stages, the theory lacks predictive power (Lesthaeghe and Neels 2002). Lesthaeghe (2010) also recently acknowledged that the Second Demographic Transition theory almost completely overlooks migration. This is a significant problem, as migration, together with fertility and mortality, is among the pillars of demography. For the current research, not all of these critiques have the same importance. For example, while the claim that the 2DT is exclusively based on western European developments might be true, since the focus of the current research is on this part of Europe, the theory could still be relevant for my analyses. Furthermore, in addition to being informative for studying family formation in the recent past, the theory is highly influential in contemporary research (Billari and Kohler 2004, Kalmijn 2007, Murphy 2011, Sobotka, Skirbekk and Philipov 2011). Thus, the 2DT may be assumed to be of interest for the current thesis.

The demographic transition theories conceptualise a very broad pattern of changes in societal norms and values related to family formation behaviour, which is helpful for understanding general developments in this field. Furthermore, the theory is very useful in that it acknowledges the influence of social norms on family formation. Nevertheless, a constraint on the applicability of the theory is that it operates at the macro level, whereas a process such as family formation might be better explained at the meso or the micro level. The model of proximate determinants of fertility (Bongaarts 1978, Bongaarts 1982) and the Theory of Planned Behaviour (Ajzen 1991), which I will comment on in greater detail in the next section of this chapter, are less focused on the macro level. As these theories account for more individual differences, they are likely more applicable in the current research.

The model of proximate determinants of fertility is a two-stage model, based on the pioneering work of Davis and Blake (1956). They produced an analytical framework to research the social

structure of fertility in which they explained fertility differences between industrialised and pre-industrialised societies, and argued that it is important to account for explanatory variables at different levels, and not only for their direct influence on fertility (Davis and Blake 1956). Bongaarts incorporated this idea of different stages into his model, and defined them as direct (or proximate) and indirect determinants. He posited that there are four direct factors that influence fertility (i.e., marriage, contraception, induced abortion, and post-partum infecundability), and through which all other (indirect) factors operate (1978, 1982). Subsequent research investigated Bongaarts' proximate determinants, and added to the model (see, for instance, Stover (1998) who replaced 'marriage' with 'sexually active' to account for the changes in social norms regarding premarital sex). During the last 30 years the model has been widely used to examine fertility, although much current fertility research has focused more on the determinants Bongaarts has called 'indirect'. However, it is not easy to distinguish between direct and indirect determinants while attempting to model fertility, as there might be additional determinants that influence other indirect determinants, which would greatly expand a potential model. In addition, Reinis (1992) has argued that the framework does not adequately account for potential parents who adopt certain family formation/limiting strategies, such as using contraceptives. Moreover, Morgan and Taylor (2006), in their review of different theories and frameworks that were used to explain fertility in the 21st century, have argued convincingly that the model is not complete, as it neglects factors related to the context of the fertility event. Finally, the quantitative or demographic fertility literature approached fertility as an event, and not as imbedded in a process of family formation. As a result, many past studies have missed more subtle or more complicated explanations for high or low fertility, such as personal choice and changes in societal norms or values.

Following Bongaarts' model, it should be possible to explain fertility with socio-economic, cultural, and environmental variables (indirect factors); and with partnership status (direct factor). Empirical research on fertility is in agreement that age, education, employment, partnership status, and religion are among the important determinants of fertility; although there are debates about the precise effects of education and employment. Generally, it has been observed that women with a higher level of education have children later in life than women with lower levels of education or no education. Having a higher level of education is also associated with having fewer children (Rindfuss, Brewster and Kavee 1996, Ralston 2012), at least for women. There is a debate about the different effects that having a higher level of

education has on men's fertility behaviour. This debate about gender differences extends to the association between employment and fertility. For example, some research has found evidence that a woman may postpone having children because becoming a mother would have negative effects on her working career. However, for men this process seems to be the other way around, as a man with a higher status job generally has a greater chance of having a child than a man with a lower status job (Aassve et al. 2002, Simpson 2009). Relationship status has also been identified as a fertility determinant, since most children are born to parents in a union (Kiernan 2004). When not living with a partner, men are generally found to have a very low risk of fathering a child (Aassve et al. 2006, Hobcraft 2008, Keizer, Dykstra and Poortman 2010, Beaujouan and Bhrolcháin 2011).

In some past studies, religion has been found to be a determinant of fertility (Philipov and Berghammer 2007, Dey and Wasoff 2010). While many researchers have incorporated a variable for religion in their models, the appropriateness of this strategy for modelling fertility in current, more secular societies, in which norms and values have changed, may be questioned. Thus, it is not surprising that some studies fail to find an association between religion and fertility (Simpson 2009). According to the 2DT, this lack of association could be attributable to secularisation (Lesthaeghe and Van De Kaa 1986, Van de Kaa 1987). In their study of the relationship between religion and fertility in Europe, Philipov and Berghammer (2007) found that in Europe religiosity was often linked to both higher fertility ideals and higher actual fertility. However, Inglehart and Baker (2000) claimed that differences between individuals other than the level of religiosity are more influential in explaining fertility behaviour.

The frameworks developed by Bongaarts (1978, 1982) and by Davis and Blake (1956) presented direct and indirect determinants of fertility, with the indirect determinants working through the direct determinants. However, fertility researchers who model fertility as an outcome measure often fail to distinguish between direct and indirect determinants, and enter all explanatory variables in the same way, thus giving them equal importance. An example of how indirect factors influence fertility through direct factors is the way in which education has been found to influence fertility through relationship status. As was mentioned above, being partnered increases the chances of having a child (Kiernan 2004), and having a higher level of education lowers the chances of marriage and divorce, but not of separation after cohabitation (Steele et al. 2006). This implies that the indirect effect of education is unclear. Additionally, the framework of proximate determinants has been used in numerous studies that compare

population groups (Stover 1998), although within-group differences have been largely neglected. Finally, although the distinction between men and women seems fairly important, the great majority of studies focus on women only. Bongaarts (1978) asserted that nearly anything could be explained within the framework because everything works through the direct indicators. A problem with this claim is that Bongaarts failed to recognise that some 'indirect' indicators do work on other indirect indicators. Thus, there are several disadvantages to using the framework of proximate determinants as a basis for fertility research. Nevertheless, it is important to learn from the idea that one indicator could work through another, and to take this possibility into consideration in a theoretical approach to researching family formation behaviour, especially when incorporating the concepts of norms, values, and choice.

2.4. Family Formation Behaviour.

A theoretical approach that seems to be especially appropriate for researching family formation behaviour precisely because it incorporates several of the abovementioned concepts, and is premised on the notion of one indicator working throughout another, is the Theory of Planned Behaviour (Fishbein and Ajzen 1975, Ajzen 1991). In addition to operating on a micro level, this theory incorporates the idea that factors can influence family formation both directly and indirectly, and it accounts for social norms. However, unlike the 2DT, it operates at the individual level rather than the macro level. A model of how the different concepts in the TPB fit together is shown in Figure 2.1.

The TPB is based on the earlier theory of reasoned action (Fishbein and Ajzen 1975) and is widely used to explain deliberate behaviour via intentions to perform the behaviour; which, as can be seen in Figure 2.1, depends in turn on attitudes regarding the behaviour, subjective norms, and perceived behavioural control (Ajzen 1991). Furthermore, the model is used to explain the achievement of goals (Ajzen and Fishbein 2005), and specifically of fertility goals (Ajzen and Klobas 2013), because fertility can be seen as both a goal and as a behaviour. *Attitudes towards certain behaviour* involve an individual's positive or negative assessment of that behaviour, and these attitudes in turn depend on the expected (subjective) outcome related to that behaviour (Ajzen and Fishbein 2005). *Subjective norms* are a person's perceptions of the social pressure that members of their close social circle place on them either to engage in a certain behaviour or to achieve certain goals, or both. *Perceived behavioural control* refers to the perceived difficulty or ease of doing something or of achieving the goal (this relates to an individual's

perceptions or beliefs about a situation) (Ajzen 1991). (According to Ajzen, for the implementation of the theory, it does not matter whether these barriers are real or perceived.)
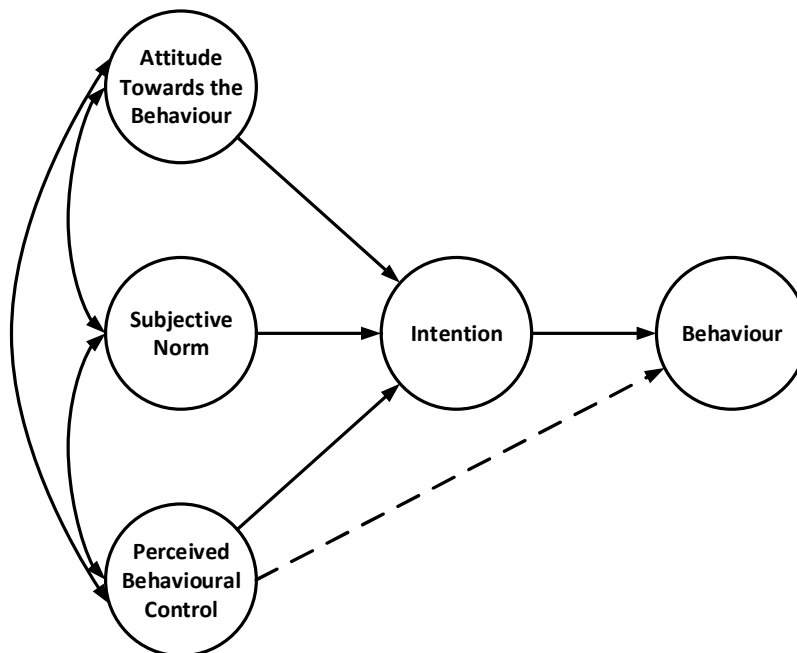
Figure 2.1 The Theory of Planned Behaviour in a conceptual model (Ajzen 1991 p.182)

In the TPB, the demographic variables (such as education and relationship status) that are generally used to explain fertility behaviour in the literature, are referred to as background factors or external factors because they are outside of the cognitive structure that is associated with making the decision; as is pictured in Figure 2.1 (Ajzen 2005). Some of those variables will be reflected (more or less) in perceived behavioural controls; however, these variables can also be barriers, such as a lack of childcare. The assumption that these demographic factors are outside of the decision-making process implies that those background characteristics do not affect the behaviour directly. More recently this explanation has been rendered slightly more nuanced by Ajzen and Klobas (2013). In testing the TPB for fertility behaviour, they stressed the theoretical difference between perceived control and actual control, while also arguing that for fertility research, perceived control is a good proxy for actual behavioural control. Dommermuth et al. (2011) suggested that the different background characteristics can create different contexts in which the effects of the TPB factors work; which means that different subgroups have different perceived behavioural controls. This hypothesis seems plausible, as Kandori (1992) observed a similar phenomenon: i.e., that different norms form within different groups, and that these norms vary depending on the context.

In Figure 2.1, we can see that according to the TPB, social norms indirectly influence fertility intentions and fertility behaviour. Social norms are worthy of special attention because based on the Second Demographic Transition theory, it is possible to conclude that earlier social norms regarding family formation (such as norms against cohabitation and having children out of wedlock) have now been superseded. However, several researchers (i.e., Kohler 2000, Kohler 2001, Billari, Philipov and Testa 2009, and Liefbroer and Billari 2010) have argued that even in the current, more individualistic societal context, it is still important for family research to consider social norms, but on the individual rather than on the societal level, as in the 2DT. These slightly conflicting opinions raise the question of what is meant by a 'social norm'.

Social norms stem from social values, which in turn indicate approved behaviour and attitudes in a social group or society. In sociology, norms are generally defined as 'rules or expectations that groups live by' (O'Donnell 1981, Szreter 1996, Horne 2013). Ajzen (1991 p. 188) describes social norms as *'perceived social pressure to perform or not to perform certain behaviour',* which is in line with the sociological definition. However, others give definitions like: 'Shared understandings about actions that are obligatory, permitted, or forbidden' (Crawford and Ostrom 1995); '"The specification of desirable behaviour together with sanction rules in a community' (Kandori 1992); and 'ideas about proper behaviour shared by a group of people' (Liefbroer and Billari 2010). In sum, these definitions are in agreement that social norms exist within certain groups, and can make a difference within that group. Subjective norms are the rules that make individuals feel more secure about performing certain behaviour, because they see this behaviour all around them (Casterline 2001, Ostrom 2014). Furthermore, subjective norms can be the reason for people's behaviour (McDonald 2006) especially as they are based on social values, which are conceptions of how desirable or undesirable a certain behaviour is (O'Donnell 1981).

These social norms and values existing within society influence an individual's behaviour, even when this person is not aware of it. Therefore, it is likely that an individual's fertility preferences are also shaped by the norms of his or her society or neighbourhood (Van de Kaa 1996, Hakim 2003). For instance, Bernardi et al. (2007) found that social interactions and informal conversations with family and peers have an important impact on family formation in Germany. A second example is the research by Billari et al. (2009) into social age deadlines. They found that if individuals wish to become a parent at some stage, these potential parents perceive that they need to have a child before a certain age, although there is no biological need to set such

a limit. However, although they found that this phenomenon was widespread, their results indicated that the age limits differed by social group. Because of the influence of social interactions in a group, Rossier and Bernardi (2009) argued that the TPB should be extended with social network theory. However, as social norms already account for attitudes about proper behaviour, this extension might be unnecessary. A last example of how social norms could influence fertility is the research of Lauster (2010), who found that among middle-class women in the US, there is a strong idea of what specific kind of house a woman needs to have before she can become a mother. The possible normative ideas around housing and family formation will be explored later in this chapter.

It is therefore apparent that there is some ambiguity among researchers about the role of social norms in fertility. Moreover, a number of criticisms of the Theory of Planned Behaviour have been made. One criticism is that intentions are good predictors of behaviour for the near future only (Friedman, Hechter and Kanazawa 1994). For instance, Monnier (1989) found in his research that women tend to overestimate their future fertility. More recently, Billari, Philipov, and Testa (2009) used the model in their research, in which they tried to explain fertility intentions using the TPB framework. They concluded that intentions could be explained using Ajzen's concepts: i.e., 'attitudes', 'subjective norms', and 'perceived behavioural control' (Billari et al. (2009). More recently, Ajzen and Klobas (2013) conducted further research in which they applied the TPB to fertility. In this study they observed that while the TPB is still very useful for explaining fertility behaviour, the longer the period of time between the intention and the behaviour, the greater the chances are that 'life' will interfere with the realisation of the intention. This suggests that the time frame of such an investigation should to be kept reasonably short.

A third issue with the TPB is that it is based on the assumption that having a child is always a deliberate choice, given that in modern western societies contraception is widely available (Ajzen and Klobas 2013). However, Monnier (1989), for instance, encountered in his research women who did not plan a birth, yet did not actively prevent a pregnancy. The context and the time period in which the research was conducted may have played a role in his findings, which might be different today than they were in the 1980s. Moreover, ideas about what it means to 'plan' a pregnancy can differ. Generally, women tend to be very specific when they talk about a planned pregnancy. This may be the case because the decision to have a child may consist not only of a conscious choice to stop using contraception, but other considerations as well, such as

the opinions and attitudes of the partner (Anderson et al. 2007); I will discuss this possibility in greater detail in the next section of this chapter. Barret and Wellings (2002) researched what is actually meant by the terms 'intended' and 'planned' pregnancy among women in Britain. They concluded that women do not agree completely on what constitutes a planned pregnancy, but they do seem to agree that if a pregnancy is deliberately not prevented then the pregnancy is likely intentional (Barrett and Wellings 2002). This last finding seems to be a reasonable way of approaching fertility behaviour when researching family formation.

Despite these criticisms, the TPB does seem to serve as a useful framework for researching fertility. The framework highlights that social norms are enormously important in any research on decision-making behaviour. Some fertility researchers have acknowledged the role played by social norms, and have hinted that these norms could help to explain their research findings. However, few researchers have attempted to integrate social norms into their research on fertility behaviour. In the next sections, I will not only examine the significance of partnership, gender, and housing in the family formation process; I will also seek to explain how these factors are related to social norms.

2.5.   Family Formation, Partnership, and Gender.

Family formation, partnership, and gender all have a social norm component. Having a stable partner relationship is generally perceived as the first step in becoming a parent (Hewlett 2004, Jamieson et al. 2010). In the past, being married was considered a norm for family formation. Today, a diversification in partnership forms is evident in the trends towards cohabitation and new relationship formation after breakups. The emergence of these diverse routes to entering into the kind of partnership in which a person considers having children have complicated fertility research. Over the past 50 years in Britain, partnership formation trends have changed. Cohabitation (before marriage) has become the norm, marriage (and other forms of partner relationships) is increasingly postponed until later in life (Hutteman et al. 2013), and divorce rates have increased (Chan and Halpin 2003). Like having children, getting married has become a choice. The decision to marry seems to have evolved from being primarily an economic choice to being mainly an emotional choice (Chan and Halpin 2003). Today, most people in the United Kingdom see cohabitation as the norm for a partnership.

Although cohabitation has become widely accepted as an appropriate stage before marriage, it has not become a complete alternative (Haskey 2001, Beaujouan and Bhrolcháin 2011), as the

2DT predicted. Even though it is not a necessity to be married when having a child, many cohabiters still choose to get married when they are expecting a child; however, even in these cases a downward trend has been observed (Steele et al. 2006). Thus, having children while not being married is becoming more 'normal' (Kiernan 2004). But while the normative acceptance of cohabitation as a real partner relationship can be perceived as a positive development, a current disadvantage of not being married for cohabiting couples, and especially for those with children, is the lack of legal protections. Because of the legal implications of marriage, it is easier to split up when cohabiting than to divorce when married (Hoem and Hoem 1992). The awareness of the legal protections associated with marriage might be one of the reasons why most children are currently still born to married parents; even though nearly 45 per cent of marriages end in divorce (Wilson and Smallwood 2008).

Rising divorce rates have been attributed not just to the normative acceptance of divorce, but to other reasons as well, including having children, marrying (too) young, and an unfair division of household tasks (Chan and Halpin 2003). On the other hand, a number of studies have found that children can be 'marriage stabilizers' (Waite and Lillard 1991, Manning 2004). Children are perceived as being both supportive of and threatening to a partnership, but decisions about whether and when to have children are generally made with the involvement of both partners. In this negotiation of preferences, the associations between personality, expectations, intentions, and behaviour have been shown to be highly important (Hutteman et al. 2013). The results of a study of the association between relationship quality and the decision to have (more) children by Rijken and Liefbroer generated contradictory results: they found that positive as well as negative communication between the two partners in a relationship had a postponement effect on having a child, regardless of whether it was the couple's first child or a higher order birth. In seeking to explain why positive communication might lead to postponement, they speculated that having a(nother) child could be viewed as a threat to a good relationship. They also pointed out that couples tend to postpone having a(nother) child until both partners agree (Miller and Pasta 1995, Thomson 1997, Rijken and Liefbroer 2009). This last argument was also brought up by Testa (2012), who found that, especially when deciding whether to have a first child, couples tend to postpone having the child until they are in agreement. It may be the case that a consensus within the partnership before trying to conceive a child has become the new norm after the weakening of the expectation that children are a normative outcome of a partnership.

In the process of deciding whether to have a child, two partners are involved. However, the core literature on fertility research scarcely refers to the role of men within the fertility process. Keizer et al. (2010) recognised this research gap and examined the impact of childlessness on men's health; they did not find a strong effect. Berrington et al. (2004) also tried to fill this gap by researching the fertility intentions of couples, including those of men. In line with the findings of Miller and Pasta, (1995), Thomson (1997), and Rijken and Liefbroer (2009); Berrington et al. (2004) concluded that couples are mostly in agreement about their fertility intentions, but that the more children a couple have, the greater the chances are that the male partner will say he does not want to have more children. It may be the case that more traditional families tend to have larger numbers of children than less traditional families, and that these traditional families tend to have a more specialised gender role division within the household. If the male partner is the main breadwinner, he is likely to be aware that having more children would mean providing for more family members. Thus, while being in a partnership is well-established as a determinant of fertility, it is important to note that the relationship between partnership and fertility may differ for men and women.

2.6. Gender Role Behaviour

The ways in which gender differences influence family formation are complex. While women might have a greater chance of having a child because they are biologically able to give birth, men can wait until later in life to have a child (Dunson, Colombo and Baird 2002). Furthermore, expectations about becoming a mother remain relatively high when a woman is younger, and drop as a woman approaches the age of menopause (Berrington 2004); whereas for men, fertility expectations decline more gradually over a longer time frame. In empirical studies in which the sample has been split according to gender, different outcomes for men and women have generally been found (Aassve et al. 2006, Rijken and Liefbroer 2009, Simpson 2009, Dey and Wasoff 2010, Jamieson et al. 2010). In this section, I give a brief overview of the literature on gender role behaviour, while recognising that gender studies is an extensive field of research that I can only touch upon due to limitations of space.

Gender role behaviour in the family home tends to be normatively prescribed. Gender role expectations regarding family formation are still fairly traditional in Scotland (Dey and Wasoff 2010, Jamieson et al. 2010), as they are throughout Britain, where just under half of people surveyed say they believe that a woman should stay home when there are preschool children in the household (Crompton 2006). Furthermore, there seems to be some debate about whether

gender equality is positive or negative for fertility rates. According to McDonald (2000), the current low fertility levels in many western European countries can be attributed in part to traditional role expectations regarding family formation, even in societies that are otherwise oriented towards gender equity. He argued—probably rightly—that the double burden of motherhood and work for women in a partnership leads women to have fewer children. McDonald also asserted that in low fertility countries improvements in levels of gender equity will eventually result in increasing birth rates, as fathers take on their share of the childrearing (McDonald 2000). This implies that increasing levels of gender equity can initially lead to lower fertility because of the opportunity costs of childbearing for women, but can later result in higher fertility as gender equity extends to relationships within the household; i.e., when men take on a bigger role in family care. Neyer et al. (2013) came to a similar conclusion, but were unwilling to make such a strong statement. However, the findings of both of these studies seem to conflict with the results of research by Thomson (1997), who examined couples' childbearing desires, intentions, and births, and found that the patterns of fertility intentions were the same for couples, regardless of whether they had more or less traditional gender role attitudes. Yet while it may be the case that both types of couples have positive fertility intentions, it is less clear whether both types of couples have the same fertility behaviour.

Gender roles have changed in the previous century. McDonald (2000) argued that the shift in gender roles was the main reason why fertility fell during the 20th century. He thus expressed his disagreement with the Second Demographic Transition theory; whereas the demographic transition theories are based on the assumption that fertility declines because of individual birth prevention actions, McDonald (2000) characterised changes in gender equity levels as societal changes. Bernhardt (2004) seems to agree with this position to some extent, as she argued that the lack of a gender perspective is one of the main shortcomings of the 2DT. Irwin (2000), however, asserted that individual actions are influenced by social norms; and thus appears to support the 2DT to a greater degree. She argued that although it is possible that there is a direct relationship between gender equality in the labour market and fertility decline, this explanation is too easy. She did, however, relate fertility to greater female autonomy and to the changing earning patterns of both young men and women (Irwin 2000). This seems reasonable, as social norms could steer fertility behaviour in a direction related to the conventional division of gender roles. Seeing having a child as simply a matter of female autonomous choice, while failing to take into account the partner's desires, again assumes that the decision about whether to have

children is a matter of affordability (i.e., having a child becomes the cherry on the cake). According to this perspective, people may choose to remain childless for financial reasons, or because they choose to pursue another path in life (Bloemen and Kalwij 2001). Sobotka et al. (2011), however, appear to agree with McDonald, as they presented evidence that when women have a more equal role in the labour force, fertility rates eventually start to rise. Yet Kalmijn (2007) took the opposite view, arguing that the *"less specialization in the economic roles of men and women the weaker marriage would be in this society" (p.245).* Thus, there is no clear consensus on how the relationship between gender role behaviour and fertility trends should be interpreted.

Although there is no consensus on the precise reasons why fertility has declined markedly in the past 50 years, what is clear is that social norms and gendered roles in family and society have also changed over this period. It is likely that these phenomena are related. In assessing the abovementioned scholarship, I tend to agree with Coltrane and Ishii-Kuntz (1992), who researched the division of household tasks in relation to fertility, and concluded that gender role patterns differ by age and by socio-economic status. As gender roles are likely to differ depending on the time and the place, it might be worthwhile to investigate the specific life courses of men and women. So far, men's fertility has been referred to only marginally in the core literature on fertility behaviour and decision-making. This failure to take men's fertility into account may lead us to conclude that men are of lesser importance in fertility research. As this conclusion may be premature, in the present study I will attempt to address the gap in the literature by including men as well as women in the research. The inclusion of both sexes should allow me to tease out the possible gendered dimensions of family formation behaviour.

2.7. Family Formation, Location, and Housing

Location

In addition to social norms about partnership relations and gender role behaviour, there may also be social norms about family formation related to location and housing. Several researchers have argued that location is an important and under-researched determinant of differences in fertility (Chesnais 1992, Mulder and Hooimeijer 1999, Boyle 2003), based on the observation that fertility differences are often found in certain spatial patterns (Boyle, Graham and Feng 2007a, Kulu, Boyle and Andersson 2009). However, 'location' can be studied at different scales. Studies have, for example, compared fertility outcomes between countries, between regions

within countries, and between cities, neighbourhoods, and even at housing level. In the next section I will focus mainly on location at the neighbourhood and housing level.

Individuals live in and interact with a certain neighbourhood, and scholars have argued that what is happening in the surrounding environment always has an influence on a person (McNicoll 1994, De Bruijn 2006). Fertility preferences are also likely to be shaped by norms and commonalities in a neighbourhood (Kohler 2001, Hakim 2003). Bernardi (2003) found evidence to support this idea as it relates to family formation. She interviewed women in Italy, and found that informal conversations and observations influenced women's fertility decisions. These findings implicitly mean that even if a woman does not raise fertility-related issues in conversation, she can be party to conversations on this theme, and can be influenced by the people around her. Bernardi and her colleagues (2007) also found that the attitudes of peers and of people of the same age tend to have a relatively strong influence on an individual woman's fertility decisions, as the woman will identify more strongly with people of her own age. Another study by Van Bavel (2002) found evidence that the neighbourhood in which people live tends to have a strong effect on their fertility behaviour. He studied fertility patterns in Belgium's Jewish communities in the 19th century, and found that Jewish families who were living in neighbourhoods with more social diversification were more likely to adopt the fertility behaviour of the other groups than Jewish to families living in rather homogeneous (Jewish) neighbourhoods. Thus, it seems that there is some empirical evidence suggesting that individuals are sensitive to perceptions of 'normal' behaviour in their surroundings, and that these norms might influence their fertility decisions, which could in turn lead to the spatial patterning of fertility rates.

A research project that investigated the geography of fertility was conducted by Boyle, Graham, and Feng (2007a). They examined fertility in small geographical areas throughout Scotland, and when testing the residuals of their models they found significant clusters of unexplained high and low fertility in the largest Scottish cities. They also found unexplained high fertility clusters in the peri-urban areas and low fertility clusters in the central areas. Moreover, these spatial patterns tended to become more pronounced over time. While these results are very interesting, determining why these fertility differences between urban areas exist is more challenging. One explanation of particular interest here is that the spatial patterning of fertility may be related to perceptions of 'proper' family housing (Mulder and Hooimeijer 1999, Lauster 2010). Couples who are planning to have a child may move to areas perceived as being child-

friendly, while childless individuals could be attracted to other areas by neighbourhood features more associated with child-free life styles. The suburbs are generally perceived as being favourable for starting a family because compared to urban areas, the suburbs have larger, better quality houses, and offer an environment that is better suited for raising children (Mulder and Hooimeijer 1999, Mulder and Billari 2010). Moving to an environment that is normatively perceived as being suitable for families with children would thus imply moving to the suburbs.

The assumption that couples tend to move to city suburbs around the time they are planning to have a child aligns with the findings of Kulu, Boyle, and Anderson (2009), who examined fertility in the city suburbs in four northern European countries. They found evidence that couples tend to move from the city centre to the suburbs and have a child around the same time, and speculated that existing social norms could explain this pattern (Kulu et al. 2009). If the same pattern is found for Scotland, this could again be an explanation for locational differences in fertility. Moreover, if couples who intend to start a family move to the suburbs, it may be assumed that the people who have not (yet) started a family will be left in the city centres, which could explain the clusters of low fertility found by Boyle, Graham, and Feng (2007). Furthermore, childless people could favour living in the 'lively' city centre rather than in a suburb populated mainly by families with children. Kulu and Boyle (2009) investigated these assumptions further in the context of Finland. They found that higher fertility rates in these areas could not have been attributable to migration to the suburbs alone, as the number of people who were migrating was far too low to have been the sole cause of the high TFR in the suburbs. However, Kulu, Boyle, and Anderson (2009) also found evidence for Scandinavia that couples tend to move to the suburbs and have a child around the same time. Subsequently, Kulu (Kulu 2013) suggested that qualitative research might be a better way to prove the relationship between fertility with social norms and neighbourhood effects. As we can see, a number of studies have investigated spatial variations in fertility, but have yet to provide any clear explanations for these variations. I hope that the current research can offer further insights into the existing tentative explanations.

Housing

In addition to the neighbourhood, housing is linked to location, and a relationship between fertility and housing has been demonstrated by numerous researchers (Murphy and Sullivan 1985, Mulder and Hooimeijer 1999, Feijten and Mulder 2002, Sato 2007, Rindfuss and Brauner-Otto 2008, Kulu et al. 2009, Simon and Tamura 2009, Vignoli, Rinesi and Mussino 2011, Kulu

2013). This relationship might be the result of, for example, economic considerations (Sato 2007, Simon and Tamura 2009) and tenure choices (Murphy and Sullivan 1985). However, most previous studies have not established the direction of the relationship. Only Strom (2010) for Sweden and Vinoly (2011) for Italy have, tentatively, made claims that the relationship runs from housing to fertility, which means that the couples who are already living in a family home are the most likely to have a child. Furthermore, most of the abovementioned studies focused on homeownership as the tenure status of interest.

The housing market seems to be a factor that could lead to the spatial patterning of fertility. Links between the TFR and the housing market have been found: i.e., in places where people face difficulties in accessing housing, the TFR tends to be lower than the TFR in places where people find it easier to access housing (Mulder and Billari 2010). Kulu (2013) has also suggested that fertility would be higher in Finland if family homes were more widely available. Housing choices are of course influenced both by opportunity (availability) and constraint (affordability). However, within that framework, location is likely to be an additional influence. Families tend to live in more spacious houses than childless people (Mulder and Wagner 2001), and the stock of such houses will itself have a spatial patterning, as will the cost of housing. Houses in the city centre that are close to shops and entertainment are generally more expensive but less spacious than suburban houses (Mulder and Lauster 2010). Kulu et al. (2009) found evidence for Scandinavia that couples tend to move to the suburbs and have a child around the same time. They may choose to move because they perceive that, compared to the city, the suburbs offer larger houses that are more suitable for families, and a more child-friendly environment (Mulder and Hooimeijer 1999). Furthermore, Feijten and Mulder (2002) found that 'fertility transitions are often linked to housing transitions', which highlights the possible impact of suitable family housing on fertility in specific locations.

The studies mentioned above constitute the small body of available research on the link between fertility and housing. As we can see, most of these studies were conducted at the national scale in Germany, the Netherlands (Mulder and Wagner 2001), and Scandinavia (Kulu et al. 2009); although there is some qualitative research about Italy (Bernardi 2003). But in most of those countries, especially Germany and the Netherlands, living in a rented house is more widely accepted than it is in Britain, and a relatively large stock of social housing is available. These countries therefore differ from Scotland and the rest of Britain, where being an owner-occupier is currently a generally shared aspiration (Forrest, Kennett and Philip 1999, Gurney

1999, Rugg 1999, Searle 2008). However, this strong desire to become a homeowner has not always been so prominent within British society. After the Second World War, around 25 per cent of the housing in the United Kingdom was social rented housing, and in Scotland this figure was considerably higher, at close to 40 per cent (Malpass and Rowlands 2010). During the post-war period living standards were improving, with homeownership becoming within reach for 'respectable labourers', the group of people for whom the social houses were originally intended (Paris et al. 2011). In addition, in 1979 the government enacted the so-called 'Right to Buy', which gave tenants the option of buying their council house (Malpass and Rowlands 2010). Many people living in social housing took advantage of this option, which greatly reduced the social housing stock, leaving mainly the least desirable houses and blocks of flats available for social housing (Forrest 1987). From being a country with a tradition of social housing, Scotland became a country where less than 15 per cent the housing stock was social housing, most of it less desirable (UK Housing Review 2009/2010). This residualisation might be a reason why owner-occupancy is now a strong preference.

The strong desire own a home implies that many, and perhaps most, people in Scotland believe that they should buy a house before starting a family (Murphy and Sullivan 1985). This aspect of housing choice cannot be divorced from social norms about what constitutes a 'suitable' house and area in which to bring up children. The kind of house that is actually required to start a family is generally not the same as the kind of house potential parents perceive they need (Hughes 2003, Strom 2010). An interesting example of research on how norms and environment influence fertility is a study by Nathanael Lauster (2010), who examined how cultural norms influence the evaluations of 'proper' motherhood in the United States. He found that women believe that in order to be a 'proper' mother they have to own a 'proper' family house. Middle-class women who did not have a proper house were less likely to have children because they did not feel prepared for motherhood. Lauster (2010) used the phrase 'the proper performance of motherhood' for mothers who think they need to have a certain kind of house to be a good mother. Kulu (2013) also noted the role of 'proper housing' for families in his work on women in Finland. In the United Kingdom a similar phenomenon might be apparent, especially for middle-class women. Because homeownership is perceived as the normal situation and the only way to create a proper home, owning a home is perceived as being a prerequisite for starting a family (Saunders 1989, Gurney 1999, Fox 2009). News articles confirm this picture; the Daily Mail, for instance, printed a joint interview with a person who favoured buying and a person

who favoured renting. While they defended their respective choices well, both interviewees mentioned that if they had a family they would want to own their house (Clark and Moss 2011).

The perceived necessity of owning a house before starting a family could mean that potential parents delay having children because they do not have enough resources to buy a house. Dey and Wasoff (2010) found that in Scotland housing costs are competing with the costs of raising children, which is in line with the proposed theory. However, in their study of the Netherlands and Germany, Mulder and Wagner (2001) found that homeowners were more likely to have a first child than renters, even though private renting is more common in these housing markets than it is in Scotland. This again confirms the importance of taking the local situation into account. Furthermore, Mulder and Lauster (2010) also found that in line with the findings of Dey and Wasoff (2010), homeownership generally has a positive influence on family formation, but only if the housing costs are not too high. However, there is some evidence that in Scotland higher parity births are more common among families who live in a house that is relatively costly (Graham et al. 2007). It thus appears that high housing costs have negative effects at the start of family formation only. Other factors may have a greater influence on the childbearing behaviour of families living in expensive housing. In sum, prior research has demonstrated several links between housing and fertility, but the nature and the complexity of the relationships has not yet been fully examined. It might be the case that not living in a 'proper' family house causes potential parents to postpone the realisation of their fertility intentions.

2.8.   Family Formation and Fertility Intentions

Fertility intentions and fertility behaviour have both been the focus of previous studies, but most often these two phenomena have been examined separately. The relationship between fertility intentions and fertility behaviour is an under-researched area, and the main reason for this gap is the lack of relevant data. To investigate this relationship and 'follow up' on intentions, we need data that extend over a certain time period, and that allow us to examine differences by socio-demographic characteristics. We also need information from the time period before the intentions were stated (to avoid problems of reverse causality). In the last two or three decades the need for panel data has been recognised, and new datasets have greatly extended the options for investigating fertility intentions and behaviour over time.

A key question is whether fertility intentions are good predictors of fertility behaviour. Several studies from the United States have found that fertility intentions are indeed good indicators of

fertility behaviour (Westoff and Ryder 1977, Ajzen 1991, Miller and Pasta 1995, Thomson 1997, Schoen et al. 1999), and recently this was confirmed by studies in Europe: Berrington (2004) for the United Kingdom and Thévenon (2011) for Norway. Among the relatively few scholars who question the predictive value of fertility intentions in relation to actual fertility behaviour are Morgan and Rackin (2010), who compared 24-year-old American men and women, and found that childless women in education in particular are likely to have fewer children than they intended. Monnier (1989) has also been also critical of this link. In a comparison of the fertility intentions and the fertility behaviour of mothers with one child at the start of his research, he concluded that fertility intentions tend to be overestimated, and are therefore more easily adjusted downwards than upwards. Thus, a majority of the scholars seem to agree that fertility intentions are good predictors of fertility behaviour. However, Monnier (1989), like Westoff and Ryder (1977) and Ajzen and Klobas (2013), also concluded that the more time that passes after the statement of the intentions is made, the more likely it is that 'life' will get in the way of the realisation of these intentions. Although the two schools of thought disagree on the overall predictive value of intentions, they agree that fertility intentions are generally good predictors of fertility behaviour in the near future, but not over the longer term.

Studies that seek to predict fertility behaviour based on intentions often refer to two theories in particular. The first theory is the previously discussed TPB, which links behaviour to intentions, via attitudes, social norms, and perceived behavioural control. The other theory is Miller and Pasta's Traits-Desires-Intentions-Behaviour framework (Miller and Pasta 1995, Miller 2011). This framework starts with the idea that the motivation for having children (desire) is based on biology and on people's experiences (traits). From traits and desires, intentions are shaped, which in turn lead to behaviour. According to Miller, Severy, and Pasta (2004), the difference between desires and intentions is similar to the difference between what a person would like to do if there were no constraints on his or her behaviour, and what this person actually plans to do in a world in which social norms are present. This explanation implies that fertility desires are stable over the life course, whereas fertility intentions (or expectations) are adjusted according to context. However, after testing those statements against the available evidence, both Grey, Evans, and Reimondos (2013) and Mitchel and Gray (2007) concluded that fertility desires may indeed change over the life course. These findings suggest that the difference between fertility desires and fertility intentions is hard to distinguish and difficult to measure.

The difficulties of measuring fertility desires and fertility intentions have been acknowledged in recent research by Miller (2011), who stressed that when using intentions as a predictor of behaviour, the wording and the operationalisation of the concepts of desire and intention, and particularly the way in which its use informs data collection, are extremely important. Monnier (1989) has previously argued that, although fertility intentions are less likely to be subjective than ideal or desired fertility, it is still implied within the wording of fertility intentions that women have strategies for achieving their fertility, whereas in reality these strategies are not very clearly defined in the minds of women. According to Miller and Pasta (1994), behaviour is shaped by intentions, which are in turn shaped by desires, and this distinction makes clear why it is so important to them to have a very specific operationalisation of the different terms when doing empirical research. The operationalisation and the wording of survey questions on fertility intentions have also been highlighted as potential complications when researching intentions or the link between intentions and fertility behaviour. Berrington (2004) and Ralston (2012), who replicated Berrington's research, are to my knowledge the only researchers to have examined the link between fertility intentions and behaviour in a UK context. Drawing on data from Scotland, Dey and Wassoff (2010) researched the fertility sample from the SSAS 2005 and found clear differences between current, ideal, and expected fertility. However, because the SSAS is a cross-sectional survey, they could not connect actual fertility expectations with realised fertility. I will resolve this problem in the current research, and will explore the link between fertility intentions and realised fertility in Scotland.

2.9.   Family Formation and the Life Course Paradigm

In the previous section, I noted the need for panel data that allows me to investigate the relationship between fertility intentions and fertility behaviour. Panel data are also needed for life course research. Many of the published papers in fertility research mention transitions such as 'a pathway into adulthood', 'getting on the housing ladder', or 'forming a family'; but few examine all the stages of family formation. These phrases all point towards an action that takes more than just one moment in time, and suggest that the outcome of one action will likely influence the onset and the outcome of another action. Taking those different pathways into consideration is advocated by the life course paradigm, and can be appropriately investigated only by using individual-level panel data.

The life course paradigm superseded another approach, an approach which considered specific stages of the family formation process, the family life cycle approach. The family life cycle theory

in its early forms had four stages based on the number of people in a family. Then, to make it more versatile, the model was extended to seven stages, and later even more stages were added (Murphy and Staples 1979). In the family life cycle it is assumed that the process of family formation will take place in an ordered sequence whereby a married union is followed by the birth of children (O'Rand and Krecker 1990).

The theory is based on the assumption that every person will transition through the same stages in life at around the same age, which means that it leaves no scope for investigating more heterogeneous life courses (Clark and Withers 2009). As suggested by the 2DT, normative changes have taken place which have resulted in more individualised life choices gaining greater importance. For example, unmarried cohabitation has become increasingly popular, divorce has become more accepted, repartnering after a breakup has led to new family forms, and there is far greater acceptance of the idea that not every partnership inevitably leads to having children. Thus, paths through life are now increasingly diverse (Lesthaeghe 2010, Liefbroer and Billari 2010), and more diverse than allowed for in the life cycle theory.

In the process of family formation, individuals are no longer assumed to follow the sequence of stages described in the life cycle theory. Furthermore, the timing of events can vary significantly over the course of an individual's life, meaning that there is far more variation between individuals in the age at which major demographic events take place. Nevertheless, as this thesis will demonstrate, social norms are still important within the, albeit more diversified, process of family formation. Contemporary examples include the birth of most children to parents in a partnership (Hewlett 2004, Jamieson et al. 2010), and the intention of most (potential) parents to have two children, reflecting the 2-child norm in Britain (Graham 2014). Other norms, including what is regarded as 'proper' housing for having a family, may also be influential within the process of family formation (Liefbroer and Billari 2010), even though these do not result in a rigid sequence of life stages, and potentially do not influence every person. The approach that deals better with such individual-level differentiation in the family formation process is the life course paradigm as it does not make any normative assumptions about the sequence or timing of events. However, nor does it exclude the possibility that other social norms may influence contemporary fertility behaviour in different ways.

The life course paradigm, also called the life course perspective, came together from different disciplines (Bengtson and Allen 1993), and has four central themes. The first theme is the

interplay of human lives and historical contexts, which refers to the fact that being born in a specific time period exposes a person to particular events, such as the Second World War or the recent credit crunch. The second theme is the social timing of lives, which refers to the duration and the sequence of roles and the expectations and beliefs surrounding these roles, such as gender roles. Social timing also refers to the scheduling of different pathways, and whether this scheduling works out. The third theme is linked or interdependent lives, which refers to the interplay between an individual's social worlds, such as family, work colleagues, and friends; and how an event in the life of a friend or a family member can influence others. The fourth theme is human agency in choice-making, which means that individuals make their own choices within the options available to them (Elder Jr 1994, Elder Jr 1985). These themes from the life course perspective are all relevant in researching the process of family formation.

Many past studies on family formation have drawn on the life course paradigm. However, there seems to be a lack of conceptual clarity about how the life course approach is applied. For instance, Billari et al. (2001) researched leaving home for a specific cohort, Feijten and Mulder (2002) linked the timing of household and housing events, Hobcraft (2008) included the context of partnership when having a child, and Stone et al. (2011) researched living arrangements. In these studies the life course is mentioned, sometimes almost in passing, but none of these studies make very clear which part of the life course approach is used, or how it is applied. Coltrane and Ishii-Kuntz (1992) also used a life course approach when researching whether the timing of becoming a parent influenced the division of household tasks between partners, and concluded that the age at which a person becomes a parent and how the household tasks are divided are indeed related. Among the studies mentioned so far, it is in this last one that the link with some of the central themes of the life course has been made most clear, as the themes of 'interlinked lives' and 'human agency' were distinguished. The life course approach was also mentioned by Billari et al. (2011) as a main reason for researching social age deadlines, which could be linked to 'the social timing of lives'. They found that social norms are very important in determining the age at which people have children and stop having children. In addition, some housing transitions were found to be dependent on the stage in the life course (Clark and Mulder 2000). While there are clearly many examples of studies that have drawn on a life course approach, one problem with these earlier studies is that many of the authors failed to explain in detail how exactly the life course influenced the topic under research. Aldous (1990) and Mayer (2000) reviewed numerous research projects in which the life course approach was used, and

both concluded that research can become very complex when authors attempt to account for the many elements of the life course. Nevertheless, they also concluded that taking the life course into account has yielded many valuable insights. It thus appears that while researchers agree that the 'life course' is a valuable paradigm, many see it as being conceptually underdeveloped.

In relation to fertility research, the timing of a pregnancy seems can be linked to elements of the life course. The four main components of a life course perspective can be applied to family formation. Thus, it may be assumed that (1) policies affecting childcare might change from one year to another (time and space); (2) social norms may change over time, and having a child is now largely a free choice (social timing); (3) most children are born within a cohabiting partnership (linked lives); and (4) the ability of individuals to make certain choices (human agency) differs depending on their social-economic circumstances. In terms of the timing of a pregnancy, women are very specific when talking about a planned pregnancy. Planning a pregnancy consists of more than just making a conscious decision to stop contraception. Women consider other issues as well, such as whether they are in the right life stage (Barrett and Wellings 2002) or in the right relationship (Lachance-Grzela and Bouchard 2009). Generally, women who are young, highly educated, and secularised are less willing than others to conform to social expectations (Liefbroer and Billari 2010). Liefbroer and Billari (2010) focused their research about social norms around fertility on sequences in the life course. They found that within a social group there is a large degree of variation in ideas about what is, and what is not, considered acceptable behaviour at a particular stage in life. However, they also found a (relatively wide) consensus about the appropriate timing of major life events (Liefbroer and Billari 2010). A life course approach is thus likely to be a very helpful tool for explaining the process of family formation. Although the value of the life course paradigm is widely acknowledged and is often mentioned as 'existing in the background', its conceptual potential has seldom been fully utilised, possibly because complex data are needed to do so. In line with the life course paradigm, Hobcraft (2006) has convincingly argued that fertility should be treated as a process rather than as an event. When researching the process of family formation rather than fertility events, this approach is appropriate because it recognises that every part of the life course influences the other parts. In this thesis, I argue that a more holistic approach to fertility research that encapsulates the dynamics of the life course is needed.

2.10. Conclusions: Developing a Holistic Approach

The purpose of this review of the fertility and family formation literature is to provide an overview of contemporary research foci and to identify the main gaps in the extant literature. The overview provides a context for the current thesis, which is situated at the intersection of a number of research areas. Over the years fertility research has shifted away from uniformity (births as numbers), and towards diversity (family formation processes). This research field now includes the decision-making process around having a child, and incorporates different facets of the life course paradigm, such as partnership, time frame, and human agency. An important reason for the shift away from uniformity and towards diversity was societal change after the Second World War. New theories have been developed that account for normative changes, such as the Second Demographic Transition theory at the macro level. Although the 2DT is a macro theory, it focuses nearly completely on individual change, thereby ignoring the wider context in which the process takes place. The Theory of Planned Behaviour operates on the micro level, and has the advantage of acknowledging the wider context. Although these theories acknowledge social norms as important factors in fertility variations, demographic research has scarcely addressed the role played by social norms. There is thus a need to extend research so that birth events are viewed as occurring within a process of family formation that includes partner relations, starting a family, and going through the various stages of the life course; and in which social norms are seen as being of major importance.

An important gap in the reviewed literature is research on how social norms influence family formation. In general, researchers agree that age and partnership status are among the most important indicators of both fertility intentions and fertility behaviour, and that education and employment status are influential factors as well. In addition, in published work on family formation the importance of social norms has recently been recognised, especially in the sometimes speculative interpretation of findings. The normative division of household tasks (Berrington 2004), the normative transitions into adulthood (Billari and Liefbroer 2010), and the normative prerequisites for starting a family (Kulu and Boyle 2009) have all been referenced in previous studies; but except for Billari and Liefbroer, none of these studies has sought to investigate empirically the links between social norms and fertility. In addition, relatively few studies have examined family formation in the UK, especially in Scotland. As Scotland's political and social systems differ from those in the rest of Europe, it may be the case that the social norms in Scotland also differ from the norms that are prevalent elsewhere.

Social norms are, however, difficult to measure directly. An example is the two-child norm in Britain, which is based on the prescription that parents 'ought not' to have an only child. We know this norm exists due to clear averages in the data on births and on ideal family size. However, some social norms are not as clearly visible, and it is difficult to provide a definition of the social norms that direct family formation behaviour. Based on the literature (for instance, Lauster 2010 or Ineichen 1981), I suspect the existence of a norm that stipulates that having proper housing is a prerequisite for starting a family. However, as what constitutes a proper family house is not well defined, it is not entirely clear how we can measure what type of housing is considered proper housing for having a family. Nevertheless, in Chapter 7 I provide a measure of what constitutes a family house.

In addition to norms about proper family housing, there might be other social norms related to family formation behaviour. In the UK context, homeownership as a normative aspiration could be included. However, it should be noted that not only will some individuals and couples fail to achieve this goal even when they are influenced by it, but that other individuals may adopt alternative attitudes regarding homeownership. Thus, attitudes may either reflect or reject normative influences, and when these attitudes are shared by a particular group in a population, they can be indicative of changing social norms. In the current study I will examine shared social attitudes regarding having children and family formation. Shared attitudes might be shaped by social norms, and together they might influence behaviour. Therefore, in this study I investigate whether the family formation behaviour of potential parents is influenced by shared social attitudes regarding issues like having children.

I expect to find that social norms and attitudes, especially in relation to housing, are highly influential within the process of family formation. There are tentative and fairly dated research results on fertility and housing that suggest that couples are expected to own a home before they have their first child (Ineichen 1981). However, different types of housing tenure are typical of different locations. It might therefore be logical to make a connection between geographic patterns of housing and fertility on the one hand, and the research that provides evidence of the presence of a social norm of homeownership in Britain (Saunders 1989, Gurney 1999, Fox 2009) on the other. The prevalence of social norms and attitudes that stipulate that a couple should own a house (and thus have jobs that enable them to buy a home) before starting a family could be one of the reasons why fertility is increasingly postponed until later in life, as

couples first save to buy a home of their own before making choices about whether and, if so, when to have children.

Another topic with potentially strong connections to family formation and social norms and attitudes is gender, as men and women continue to have different roles within families and couples. Being in a partnership is an established indicator for having children, as is the willingness of the male partner to accept the responsibilities that come with being a father. Some exceptions aside, the current research on fertility is strongly focused on women, and thus tends to ignore (potential) fathers. A potential criticism of this research is therefore that it frequently neglects the couple's perspective and gender role norms. An additional reason to incorporate a gendered approach in the research is that there is debate about whether men and women have similar fertility intentions (Berrington 2004, Dey and Wasoff 2010).

These research gaps raise many interesting questions, and it would be impossible to address all of them in one thesis. I will therefore focus on four main questions that arise from the above review of the relevant literature. My reading of the literature also informs the conceptual framework that will guide my analysis of the available data on Scotland. This framework builds on the Theory of Planned Behaviour, presented in Figure 2.1, by specifying in more detail the various factors that influence fertility intentions and fertility outcomes. As I argue that a more holistic approach to the family formation process is needed, the framework incorporates factors that are seldom included in research on fertility behaviour.

Figure 2.2 presents the conceptual framework as a visual representation of how partnership, socio-demographic characteristics, economic characteristics, housing, and shared social norms and attitudes are related within the process of family formation, which involves both fertility intentions and realisations. The thinking behind the model is based on my reading of the literature and is highly influenced by the life course approach and the Theory of Planned Behaviour. The figure shows that during the *life course*, *fertility intentions* are shaped by shared social norms and attitudes, which are working through the *individual factors* of partnership, socio-demographic characteristics, economic characteristics, and housing. *Fertility intentions* in turn lead to *fertility realisations*.

The conceptual model shows that during the life course, several factors influence fertility outcomes. These can be categorised as contextual and individual factors, both of which may

change at different stages of the life course. The primary contextual factors in this research consist of the social norms and social attitudes characteristic of the society or social group in which an individual is located. Social norms and attitudes are perceptions about prerequisites related to family formation, which might differ depending on a person's characteristics. These norms and attitudes 'work through' the individual factors of partnership status, socio-demographic characteristics, economic characteristics and housing, thus recognising that the influence of shared norms and attitudes on fertility will vary between individuals with different characteristics.

In the figure, the individual factors are placed within a grey coloured frame because these factors are likely to influence each other, and the influence of shared social norms and attitudes on one of the individual factors is not likely to be independent of the other individual factors. Furthermore, housing is placed in a multi-coloured box, since housing can be conceptualised not only as an individual factor but also as a contextual factor. Housing is a contextual factor since the availability of certain accommodation is place and time dependent; in the current research housing will be measured at the individual level but the clustering of similar house types in particular areas suggests that this measure also reflects local (i.e. contextual) circumstances. To acknowledge this multi-facetedness, housing is shown as a multi-coloured factor, but it is also placed under individual factors to reflect the measure used in the current study.

Individual factors in combination with contextual factors lead to fertility outcomes. Fertility outcomes are conceptualised as fertility intentions and fertility realisations. As can be seen in Figure 2.2 there are arrows from the specific individual factors to fertility intentions and from fertility intentions to fertility realisations. However, not all potential parents have clearly defined fertility intentions. Therefore, contrary to the TPB, my reading of the literature suggests that individual factors might also influence fertility realisations directly.

Based on the conceptual model presented in Figure 2.2 and on the literature presented above, I derive four main research questions. Each research question is addressed in a particular chapter, in which some of the relevant literature is also discussed. As previous studies have demonstrated that different factors may influence first, second, and higher order births, my interest is in childless women and men who may go on to have a first birth. Childless individuals are the focus of research in three of the four empirical chapters of the thesis. Only in the initial part of the first empirical chapter are births of different parities combined.

My first research question explores the potential relationships between housing partnership and fertility realisations:

RQ 1.   How is housing, as well as partnership, related to fertility variations in Scotland?

This question is derived from studies that associate fertility with homeownership in several countries in Europe and in the US. The purpose of Chapter 4 is to provide an overview of the associations and relationships between housing, partnership, and fertility in Scotland. In one of the few studies that have investigated fertility in Scotland, Boyle et al. (2007a) demonstrated that there is a considerable spatial variation in fertility within Scotland. In this overview I use this study as a starting point, first taking a geographical perspective, and then examining spatial variations in housing, partnership, and fertility at the macro level. Towards the end of the chapter I then move to the micro level and investigate the connection between *individual factors* and *fertility realisations*.

The second research question then focuses on the micro level and the influence of shared social attitudes on *fertility intentions*. It examines the first steps in the process illustrated in Figure 2.2 by asking:

RQ 2.   To what extent do shared social attitudes regarding having children impact on the fertility intentions of childless men and women?

With my second research question I aim to advance the current understanding of the links between fertility, partnership, and housing in Scotland. Thus, in Chapter 5 I move away from an investigation of fertility realisations and towards an examination of a different part of the conceptual framework (Figure 2.2). The focus of this chapter is on fertility intentions and their relationship to social norms and attitudes, as well as individual factors. My aim is to connect social norms and attitudes, as presented in the TPB, to ideas from the housing literature, and particularly to the possible perception that having a certain type of housing is a normative prerequisite for starting a family. Such a social norm could be a potential explanation for an association between housing tenure and fertility, whereas shared attitudes might point towards other existing social norms.

My third research question, which is addressed in Chapter 6, seeks to investigate a specific part of the connection between social norms and attitudes and family formation, and thus to extend the framework of the TPB by investigating potential gender differences. It asks:

RQ 3. **Do partnership, housing tenure, and shared social attitudes regarding family formation impact on the fertility intentions of childless men and women in similar ways?**

The literature provides several reasons to investigate family formation in a gendered way. Men's fertility is currently under-researched, and there is a debate about whether the fertility intentions of men and women are similar or different. Furthermore, certain factors seem to influence fertility in different ways depending on a person's gender. This might also be the case for shared social norms and attitudes related to family formation. This chapter therefore continues the focus of the previous chapter on fertility intentions, but uses a different dataset to examine differences between men and women.

In addressing the first three research questions, I aim to establish whether partnership, gender, housing, shared social attitudes and social norms about what is 'proper' behaviour are all related to fertility intentions. The final research question of the thesis is addressed in Chapter 7, which extends the findings of the previous three chapters by investigating factors influencing *fertility realisation*. It asks:

RQ 4. **Do partnership, housing, and shared social attitudes influence whether childless men and women realise their intention to have a first child?**

This question encapsulates all parts of the family formation process up to a potential first birth. It thus incorporates all of the elements of the conceptual model presented in Figure 2.2. Some previous studies of fertility in Britain have suggested that fertility behaviour can be predicted from fertility intentions (Berrington 2004 and Ralston 2012). However, in addition to the association between fertility intentions and behaviour, this chapter also investigates to what extent social norms and attitudes, housing, and partnership influence whether an individual has a first birth.

Throughout the thesis, I argue that to answer these four research questions, a holistic approach that incorporates several stages of the life course should be taken. To do this, I employ several

different data sources and methods. In the next chapter I present in more detail which data and methods I use to address the specific questions in the four subsequent empirical chapters (Chapters 4 to 7).
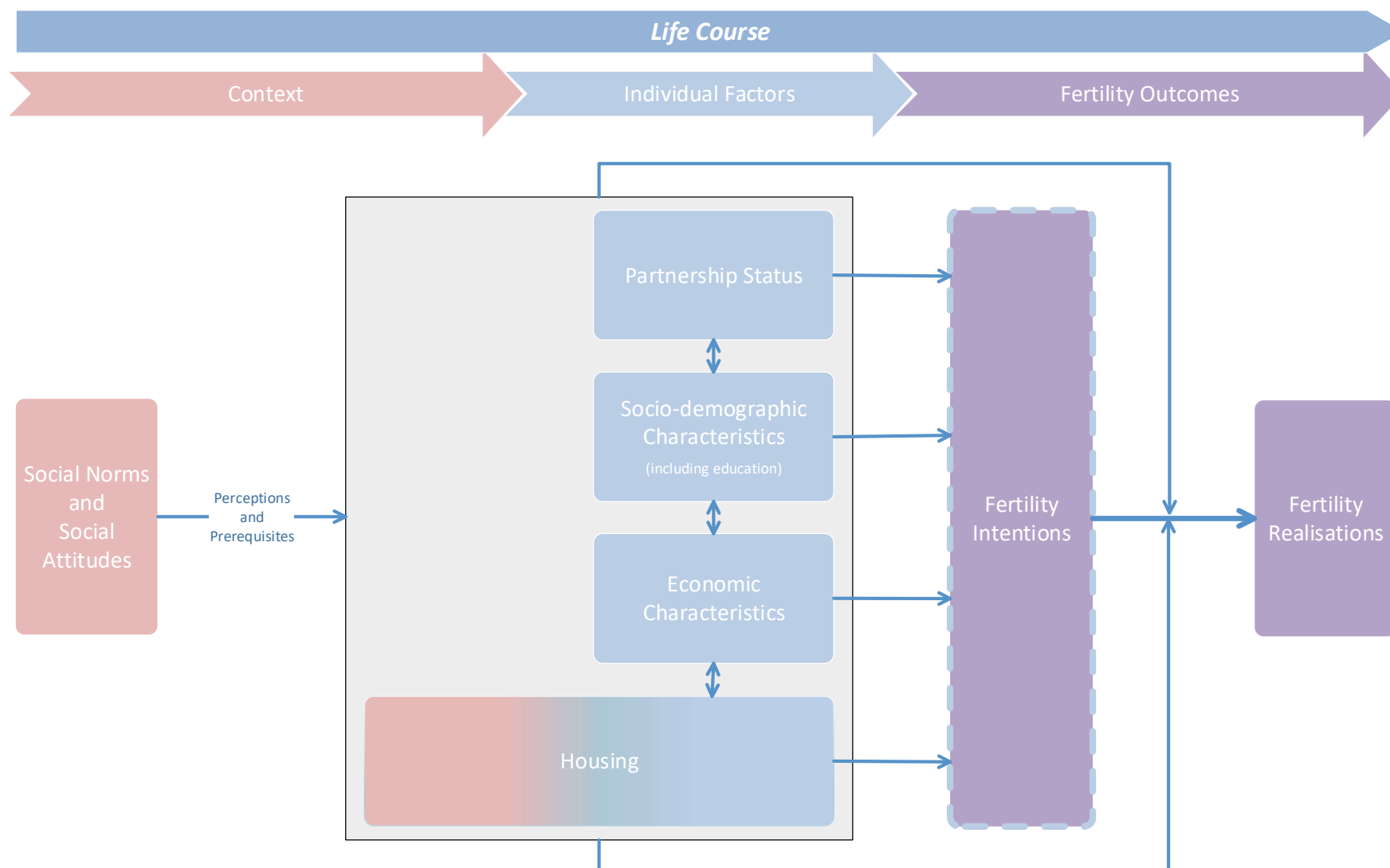
Figure 2.2 A Conceptual framework for the process of family formation

3. Research Design, Data, and Methods

3.1.   Introduction

To understand fertility behaviour we need to take a more holistic approach when examining the process of family formation. As I have suggested in the previous chapter, in addition to forming a partnership, having access to appropriate 'family' housing might also be important for family formation. In this chapter I discuss the design of this research, which contributes to the understanding of family formation in a context of partnership and social norms about family formation and housing; I also explain the key concepts that are used throughout the thesis, and I introduce the data and elaborate on the methods I use. In the first part of this chapter, I give the main objective of this research as well as a short introduction to the various datasets. In the next section I describe the operationalisation of the key concepts. In the four following sections I explain, for each empirical chapter or research question, which data are used. I also assess the strengths and weaknesses of the dataset, and explain which method best fits the question and dataset. The chapter then concludes with a description of the challenges of the chosen approach.

In Chapter 4 of this thesis, I argue that spatial variations in fertility can in part be explained by the distribution of different types of tenure. In particular, houses deemed suitable for families are situated in certain locations, especially suburban and rural locations. There seem to be persisting social norms about what constitutes 'proper' family housing, which may lead some couples who want to have a child to postpone forming a family because an appropriate house is not (yet) within their reach. These social norms will be explored in Chapters 5, 6, and 7. As it is likely that that these social norms have the greatest influence on the process of deciding whether to have a first child, I will focus on the early stages of the family formation process throughout the thesis.

In terms of theory, this research borrows from several approaches. On the one hand I draw from theories that operate at the macro level to explain changes that are society-wide, like the Second Demographic Transition theory; while on the other I draw on theories that operate at the micro level to explain changes within family life, like the life course paradigm and the Theory of Planned Behaviour. Key to understanding contemporary family formation at the micro level is the concept of diversity: the paths to parenthood are not uniform, and the choices that people make are influenced by many different factors. Combining both macro and micro factors within

a comprehensible research design presents a challenge, as will become clear from the discussion below.

As can be seen in the conceptual model presented in Figure 2.2 in the previous chapter, the theoretical discussion of fertility outcomes is preceded by the discussion of a number of important concepts that underpin the family formation process. As a result, a central part of this thesis is an empirical analysis that investigates social norms regarding family formation and partnership in relation to the type of accommodation in different locations. In the section below, I discuss how these concepts have been dealt with by other researchers, and I also show how these concepts are operationalised in this research.

3.2.　Operationalisation of Key Concepts

Family formation takes place at a certain stage in a couple's *life course* (Kohler, Billari and Ortega 2006). However, the course their life takes towards having a child is not fixed (Billari and Liefbroer 2010). As can be seen in the conceptual model presented in Figure 2.2 in the previous chapter, having a child, which is a fertility event, is influenced by *intentions* (Ajzen and Fishbein 2005); and views on the ideal number of children in a family might differ from person to person (Dey and Wasoff 2010). Furthermore, the decisions about whether and, if so, when to have a child are influenced by *contextual factors*, or factors that are outside of the potential parent's control (Mulder and Wagner 2001, Philipov, Spéder and Billari 2006), and also by *individual factors*, that is to say the social advantages and disadvantages (Aassve et al. 2006, Ní Bhrolcháin and Beaujouan 2012). The conceptual model presented in Figure 2.2 shows how those ideas and factors together form the whole process of family formation. As the various concepts related to the process of family formation mean different things depending on the reader's background and experience, I elaborate on their meaning and operationalisation below. I will also discuss how these various concepts are handled in other research.

There is research that suggests and investigates the idea that there is a certain threshold that holds back potential parents from starting their family. According to this threshold concept, couples perceive that they need to have reached a certain minimal financial (Ralston 2012), employment (Aassve et al. 2006), educational (Berrington 2004, Billari et al. 2011), or housing (Lauster 2010) situation or level before they can go on to have children. Thus, couples believe that until they reach these minimal standards, they should not take the next step towards fulfilling their desire to have children. Clearly some parts of this threshold idea might not apply

to very rich or very poor people, who have either already passed all of the threshold barriers, or have no hope of passing these thresholds. Furthermore, it implies that a pregnancy is intentional; thus, the idea only holds for couples who intended or planned to have a child, and not for unintended pregnancies. Not every pregnancy is planned (Jamieson et al. 2002, Morgan and Bachrach 2011), and this idea does not really apply to unplanned pregnancies. However, there may be different kinds of unplanned pregnancies. For example, generally women delay having children until after finishing their education (Liefbroer and Billari 2010, Ní Bhrolcháin and Beaujouan 2012). Thus, after finishing their education the threshold for going on with an initially unplanned pregnancy might be lower than during education. A similar pattern may be observed for age: i.e., after a woman reaches a certain age, the threshold for continuing an unwanted pregnancy might be seen as being less important even if her labour, housing, or financial situation is not perceived as being perfect. Within this threshold idea, I focus in the current research on how the housing situation affects fertility, and attempt to connect the perceptions about housing to social norms on housing tenure and family formation.

Fertility outcomes

As a threshold is a starting point (Procter 1995), I focus in this research on the start of the childbearing career. Specifically, I focus on having a first child and the factors that influence the intentions and decisions to become pregnant for the first time. Thus, going back to my conceptual framework, I consider not only actual fertility outcomes, but also intended or expected fertility. In line with Berrington (2004) and Dey and Wasoff (2010), who researched fertility in the British Household Panel Survey (BHPS) and the Scottish Social Attitude Survey (SSAS) and operationalised fertility as the number of biological children a woman had given birth to or a man had fathered, I examine in Chapters 4 and 7 fertility **realisations**. Berrington, however, pointed out that focusing the operationalising of actual fertility on biological children ignores the possible presence of stepchildren, even though it is likely that that these children will influence future fertility intentions. As non-biological children who are already in the household may be expected to influence future fertility intentions, Thompson (1997) included in her measurement of actual fertility these children alongside biological and adopted children. In this research all births are included in actual fertility, which means that, when possible, stillbirths are also included. This is because the focus of the study is on the time leading up to the birth, and until it occurs most respondents will not know the outcome of a pregnancy.

Stepchildren and adopted children are not included, as different sets of factors might come into play in the decisions to adopt or to accept a step-parenting role.

Regarding fertility **intentions**, which have been found to be significant predictors of actual fertility (Miller and Pasta 1995, Schoen et al. 1999, Berrington 2004, Ajzen and Klobas 2013) and are investigated in Chapters 5, 6, and 7, several researchers have reported having concerns regarding the wording of the survey question about fertility intentions or the answers to it (Berrington 2004, Dey and Wasoff 2010, Miller 2011). Ní Bhrolchain and Beaujouan (2011) made an effort to capture fertility intentions in Britain as accurately as possible by defining intentions based on whether a(nother) birth is expected, and, if so, within what time frame. This approach is interesting as it is in line with one of the recommendations Ajzen made in outlining his model of planned behaviour: i.e., that intentions are best measured within a short time frame (Ajzen 1991). I could argue that Ní Bhrolchain and Beaujouan (2011) actually examined **expected** fertility and not fertility intentions, which would lead to a discussion about how the expectations and intentions can be differentiated; perhaps by using a perceived threshold. Meanwhile, according to Miller (2011) intentions are based on expectations, which would mean there is no actual difference. However, this discussion is fuelled by the specific wording of the question in the BHPS, which is*: Do you think you will have any (more) children?* Possible answers*: yes/no/don't know/self or partner pregnant.* Berrington (2004), like Ní Bhrolchain and Beaujouan (2011), called the answer to this question 'fertility intentions', a term that I will also use in this research. Ralston (2012) and Dey and Wasoff (2010), however, investigated expected and ideal fertility in the SSAS. The phrasing of the question on fertility expectations in the SSAS is: *Do you think that you will have any more children?* Possible answers: *definitely will/probably will/probably will not/ definitely will not.* The wording of the SSAS and the BHPS question is basically the same; only the possible answers are different. Ralston (2012) and Dey and Wasoff (2010) operationalised expected fertility as the number of children a respondent thought s/he would eventually have; and the ideal fertility as the number of children a respondent wanted to have regardless of circumstances. An interesting finding in their research was that even when respondents were asked about their desires completely separate from their circumstances, most people still answered that they would like to have two children. This pattern may be related to the strong social norm of the two-child family (Dey and Wasoff 2010, Fiori, Graham and Feng 2014).

In this research the choices for intended and expected fertility are data driven. In Chapter 5, based on the SSAS data, the main focus of my research is on expected fertility, or on the respondents' reports of how many children they expect to have. I chose this metric because my research aim is to tease out perceived barriers—or perhaps stimuli—to fertility; moreover, no question specifically about fertility intentions is asked in the survey data used. The definition I rely on in the following chapters does not make such a sharp distinction between intended and expected fertility. The variable I use in those chapters is operationalised and based on whether the respondents in the BHPS 'think' they will have more children; this variable can be seen as representing a combination of both expectations and intentions, but will be researched as fertility intentions.

Contextual factors

Fertility intentions are influenced by contextual factors, including by opportunities and constraints, and by perceived opportunities and perceived constraints. Some of these factors can be linked to (socio)-economic factors, such as available accommodation (Mulder 2007); while others may stem from societal perceptions of what constitutes 'normal' or 'proper' behaviour (Bernardi 2003, Liefbroer and Billari 2010).

Operationalising a **social norm** appears to be complicated, as the definitions already leave space for ambiguity: according to Ajzen (1991 p. 188), a subjective norm refers to the perceived social pressure to perform or to not perform the behaviour; whereas Liefbroer and Billari (2010) defined social norms as ideas about proper behaviour shared by a group of people. In essence, they agree that social norms define something that is subjective, and that is thus hard to measure. It is therefore challenging to provide a clear definition of social norms that relate to family formation choices. Billari, Philipov, and Testa (2009) researched attitudes, norms, and forms of behavioural control that underlie fertility intentions. They operationalised social norms by combining the answers to 12 survey questions in a factor analysis that ultimately produced a single workable variable. A similar approach was used by Ralston (2012). Focusing on the attitudes on which the specific social norm was based, he used a latent class analysis to combine those attitude variables into a two-category variable, which he then linked to certain social norms. In this research, I will build upon the method used by Ralston in a study titled, 'Childbearing and first birth in Scotland'. Using a latent class analysis, I will combine attitudes to generate a single variable. In the current research, I will focus on shared social attitudes about having children that might influence potential parents' responses to social norms. This is the

most appropriate way to investigate social norms around family formation, because while respondents are seldom aware of the norm, they are found to have these attitudes when asked about related topics.

Some social norms will interact with the housing aspirations of potential parents. A number of studies have suggested that there is a social norm that a couple should secure a specific **tenure** (mostly owner occupation) before starting a family (Mulder and Wagner 2001, Riley and McCarthy 2003). There is also some older evidence that couples in the United Kingdom tend to postpone having children until after they have bought the home they want (Ineichen 1981). Recently, similar results were found for Finland by Kulu and Vikat (2007).

Individual factors

In addition to contextual factors, individual factors are very important in the process of family formation. These individual factors include partnership status, socio-demographic, economic, and housing indicators. In more traditional research, partnership, socio-demographic, and economic indicators were generally used as the main explanatory factors for fertility rates, possibly because they are more easily measured than other factors that influence fertility (Kirk 1996). Which variables are covered by which term can differ across studies. Age and gender are generally categorised as demographic indicators, and education and employment are usually classified as socio-economic indicators (Kulu and Washbrook 2014, Rindfuss, Brewster and Kavee 1996). However, religion was, for example, classified as a socio-economic indicator by Rindfuss, Brewster, and Kavee (1996) and by Kulu and Washbrook (2014), who also assigned ethnicity to this group. By contrast, Fiori, Graham, and Feng (2014) grouped ethnicity together with marital status, education, and employment, and called this category of indicators socio-demographic characteristics. The socio-demographic and economic indicators used in this research are age, gender, religion, education, and employment status.

A key factor in this research—and indeed in any research on family formation—is **partnership status**. Being in a relationship has been shown to be a significant indicator of a person's fertility intentions and expectations, as well as of the likelihood of the realisation of those intentions and expectations (Rijken and Liefbroer 2009, Dey and Wasoff 2010). One of the simplest operationalisations of partnership status can be found in Aassve et al.'s (2006) research on employment, family formation, and childbearing decisions; they define a partnership as living in a union with a person of the opposite gender, regardless of the couple's marital status. In their

analysis, an individual is either in a partnership (which they call marriage) or s/he is not. Both Berrington (2004) and Billari et al. (2009) make distinctions between marriage, cohabitation, and being unpartnered. However, neither of them has separated or widowed as a category, even though there are clear differences between unpartnered people depending on whether they have or have not had a partner in the past. It is likely that these scholars created these categories based on the data they had available, as the way the questions in a given survey are formulated will lead to specific answers. While being divorced or being married is a legal status that is easy to report, whether a survey respondent reports that s/he is 'single' may depend on the way the question is phrased. For example, a person who previously lived with a partner might consider him/herself single after splitting up. As the status of being in a partnership is significant for explaining fertility, in this research being in a partnership refers to either being married or cohabiting; although a distinction is made between the two partnership forms where possible. A further distinction is made between people who are single, or have never been in a partnership; and people who have been in a partnership before and are again unpartnered. This second category thus includes people who are divorced, separated, or widowed.

Whether a person is partnered has different implications depending on whether the person is a man or a woman. Generally, when men are not partnered their fertility expectations are lower than those of unpartnered women (Berrington 2004). As **gender** differences are pervasive in society, it may be expected that fertility decisions will affect the life of a woman differently from the life of a man (Moen 1996). The most simple and obvious example is childbirth and maternity leave (which for employment reasons is often covered under 'sick leave'). If a couple decide to have a baby, the woman will need time away from her job to deliver the child. Additionally, societal perceptions on matters related to fertility are different for men and women (Rindfuss et al. 1996, Hakim 2003, Billari et al. 2011). For example, it is often assumed that the woman in the family will automatically take on the childcare and family responsibilities in a family (Rindfuss et al. 1996). In Chapter 6 of this research, I will focus in greater detail on gender differences in fertility expectations. In Chapter 7, I will make the distinction by gender where possible.

In addition to gender, **age** is an obvious demographic confounder in almost any research related to family formation, as it influences intended, expected, and actual (Berrington 2004) fertility. Rendall and Smallwood (2003) operationalise age as the current year minus the respondent's birth year (instead of the respondent's age at his or her last birthday). But most other research has used age either in years (Ralston 2012) or in months or age groups (Berrington 2004, Ralston

2012, Fiori et al. 2014). Given the diverse methods used for this research, and the fact that at different stages of the life course the age-specific impact on family formation is likely to be different, I consider age groups to be the most appropriate operationalisation of age for all of the chapters except Chapter 5. In Chapter 5, I will enter age and age-squared as continuous variables.

In addition, I have chosen to include **religion** in the analysis, as this factor has long been considered influential in fertility research. Religion may be used as a proxy for commitment to traditional values. In his research on first births in Scotland based on SLS data, Ralston (2012) used a variable called 'raised religion,' which controlled for whether a respondent had a religious upbringing. His rationale for using this measure of religion was that upbringing cannot be changed later in life, and is therefore a better constant factor. Due to data constraints, I have chosen to use a relatively simple indicator of religion in Chapters 4 and 5. Following the approach used by Billari, Philipov, and Testa (2009), the variable religion is included in the analyses using two categories: religious and not religious. In this thesis the category religious includes all respondents who reported being religious and attending a religious gathering more than once per year. The variable is handled this way because nearly 60 per cent of the Scottish population reported being religious (http://www.scotlandscensus.gov.uk/news/census-2011-release-2a), but many of those people do not attend religious gatherings, which might be a sign of diminished religiosity. Therefore, the religion variable only includes respondents who attend a religious gathering at least once per year. The variable on religiosity is used in Chapters 4 and 5.

Family formation decisions and plans are dependent not only on partnership status, age, gender, and religion; they are also influenced by education, employment, and housing. However, these indicators are sometimes complex to operationalise. For example, education and employment status are frequently linked, and in a number of analyses only some of the economic indicators are included. This variation in approaches might be one of the reasons why the presentation of economic status in the literature is inconsistent (Bollen, Glanville and Stecklov 2001). The (socio-)economic indicators used in this research are employment and education, which will be discussed in detail below.

A person's job opportunities depend on both the labour market and on whether s/he has the right skillset; and an individual's personal wealth depends on income, which may in turn lead to new opportunities. Furthermore, a individual's **employment** is generally related to his/her level

of education, which has been shown to influence the fertility process (Aassve et al. 2006). Using the BHPS data for their research, Aassve et al. (2006) classified an individual as employed regardless of whether s/he was in full-time or part-time employment, or was employed by a firm or was self-employed. Respondents on maternity or long-term sick leave were classified as not employed. Fiori, Graham, and Feng (2014) also made use of the BHPS data in their research about transitions to second and third births in Britain. But unlike Aassve et al., they were much more specific, and operationalised employment or labour force status by combining working hours and economic activity into a variable with four categories: in paid employment – full time; in paid employment - part time; unemployed; and other.

Employment is dependent on education. People with different levels of **education** tend to have different family sizes (Bongaarts 2003). In their research on the influence of partner relationship quality in the Netherlands, Rijken and Liefbroer (2009) operationalised educational attainment as the number of years in education after primary school needed to finish a certain level of education. By contrast, in their research on employment and births using the BHPS, Aassve et al. (2006) divided education into five categories depending on the final level of educational attainment. A similar approach was taken by Berrington, Stone, and Falkingham (2009) in their research using the Labour Force Survey. While Fiori, Graham, and Feng (2014) also based their fertility research on the BHPS data, they used the International Standard Classification of Education (ISCED) international classification to operationalise education, creating a four-category variable: up to lower secondary; secondary – vocational/technical; secondary - leading to further education; and tertiary. As education is an important indicator in many research areas, educational attainment is available in all of the datasets that are used in this research. However, due to constraints on the sample sizes, it is employed in only three of the four empirical chapters. In the analysis of the Scottish Longitudinal Study (SLS) data in Chapter 4, education is broken down into five groups by level and type of education, as in Aassve et al. (2006) and in Berrington, Stone, and Falkingham (2009). In Chapters 6 and Chapter 7, some of these groups were combined and education was broken down into primary, secondary and tertiary educational attainment. One of the reasons why I have chosen, where possible, to divide education into five categories depending on the level is that each level tends to be associated with a certain number of years in education, and women generally wait until they have finished their education before having a child.

In this research, I incorporate measures of employment status into the analyses in all of the empirical chapters. In Chapter 4, I use the following categories: full-time employed, part-time employed, student, unemployed, and 'other' (which includes those who are retired or disabled/sick). Full-time employment, part-time employment, and unemployment tend to interact differently with men and women (Mills, Blossfeld and Klijzing 2005). After encountering some problems, I decided to combine full-time employed and part-time employed into a single category in Chapter 5; this approach to defining labour force status follows Berrington, Stone, and Falkingham (2009), who researched living arrangements among young adults in the United Kingdom. Economic activity, as they called labour force status in their research, was broken down into four categories: employed, unemployed, student, and inactive. They chose to include part-time students in the employed category, as these individuals usually have more in common with people who are employed than with full-time students; I decided to take the same approach in this research. In the last two chapters, Chapter 6 and Chapter 7, I again make a distinction between full-time and part-time employment.

Finally, in the current research housing tenure is an important indicator. Ralston (2012) includes housing tenure in his research mainly as a measure of social stratification. He initially created the following categories of housing tenure: homeownership, social and private renting, and rent free. He then collapsed these variables into an owner-renter variable; an approach that was also taken by Blaauboer (2010), who researched homeownership among couples and singles in the Netherlands. The difference between renters and owners is sometimes used as a proxy for people with lower income and education versus people with higher income and education (Barlow and Duncan 1988), which could be a reason to make a relatively simple distinction. In their research on parity progression using the BHPS data, Fiori, Graham, and Feng (2014) operationalised tenure status as ownership, social renting, and private renting (which includes all other forms of renting). They also included in their research the type of house (detached or semi-detached house/bungalow, terraced house, and flat/other) and the size of the house (based on the number of rooms). However, they found that the inclusion of the type of house did not improve their analysis much, most likely because the effect was already covered by other factors, such as the size of the house. Since housing tenure is an integral part of this research and measures of tenure are available in all of the datasets analysed, it is used as a variable in all of the models in the empirical Chapters 4, 5, and 6. Housing tenure is divided into three categories: owning, private renting, and social renting. Housing type and size are not used in

these chapters, partly because of sparseness issues, and partly because the predominant social norm related to housing tenure in the United Kingdom is the preference for owner occupation. In Chapter 6, however, individuals still living with their parents are put in a separate category, 'living with parents'. Finally, in Chapter 7 a variable is introduced that builds on the living with parents category. The **family housing** variable is a more basic measure of the respondent's living situation. A respondent is considered to be living in a family house if the dwelling consists of three or more rooms and a kitchen, and if the respondent does not live with his/her parents.

When looking at the conceptual model in Figure 2.2, it is possible to debate whether housing tenure should be seen as a contextual factor or an individual factor. The answer to this question is not entirely clear. Housing could be viewed as a contextual factor because there are different types of houses in different locations; but it could also be considered an individual factor because all types of tenure are income dependent. However, since I begin my research by using a geographical approach to analyse family formation, and since housing is very closely linked to location (Barlow and Duncan 1988), I have chosen to employ housing tenure as an individual factor in the current research.

As all parts of the life course are connected in some way (Moen 1996), there are undoubtedly additional factors that influence the family formation process. Still, these are the main factors that have been cited in the more conventional (with a focus on socio-demographic and economic indicators) and the more modern studies (with a focus on issues like path dependency, multiple levels, and normative behaviour) on family formation, and that are most likely to explain the process of family formation.

3.3. Data and Methods

A large amount of information on family formation has been collected over the years, and many of the existing data sources have not yet been used to their full capacity. Hence, I chose to make to use of existing secondary data sources, rather than conducting a new survey. When investigating changes in family formation related to social norms, researchers would ideally have access to a single elaborate panel dataset based on a survey that asked repeatedly about both of those topics. Data of this kind would make it possible to conduct a comparative analysis that could link changes in social norms to changes in family formation, and vice versa. Although there is a wealth of information available, there is no single dataset that has both a sufficiently large sample size and a comprehensive set of appropriate variables. To investigate my research

questions, I will therefore analyse secondary data from a variety of sources: namely, data from the Scottish Longitudinal Study in Chapter 4, data from the Scottish Social Attitudes Survey in Chapter 5, and data from the British Household Panel Survey in Chapters 6 and 7 (see Table 3.1). While I also considered using data from the British Labour Force Survey and the General Household Survey, I determined that these datasets do not fit the research aims of this thesis as well as the datasets I ultimately selected. Each of these datasets has particular strengths, and a combination of the data gathered from the individual surveys will be used to provide answers to my main research questions.

The section below is structured according to the empirical chapters and the specific research questions that are examined in it. Table 3.1 presents a summary of the data and the methods used to answer those questions in each chapter. In Chapter 4, I examine the determinants of actual fertility in the 2001 census, the vital events data, and the SLS; the main methods I use in this chapter are a univariate regression and a Cox proportional hazards model. In Chapter 5, I examine expected fertility and the social norms and attitudes regarding having children in the SSAS, making use of a binary logistic regression and a latent class analysis. In Chapters 6 and 7, I use data from the BHPS. In Chapter 6, I investigate whether social norms, social attitudes, and fertility intentions differ by gender using a multinomial logistic regression and a latent class analysis. In Chapter 7, I examine the links between shared social norms and attitudes, family housing, fertility intentions, and fertility realisations using a Cox proportional hazards model.

Table 3.1 Chapter, data, methods

Chapter	Data	Statistical methods
4	Census, Vital events data, Scottish Longitudinal Study	Univariate regressions, Cox proportional hazards
5	Scottish Social Attitude Survey	Binary logistic regression, Latent class analysis
6	British Household Panel Survey	Multinomial logistic regression, Latent class analysis
7	British Household Panel Survey	Cox proportional hazards Latent class analysis

In the previous chapter, I concluded by presenting a conceptual model, and outlined four main research questions based on this model. These questions will be answered in the following chapters. Hence, in this section each question is linked to the appropriate data and methods.

Geography of Housing, Partnership, and Fertility
RQ 1.   How is housing, as well as partnership, related to fertility variations in Scotland?

This question is examined in Chapter 4 by using data from the SLS. The SLS is a large-scale linkage study that samples 5.3 per cent of the Scottish population, and is based on 20 semi-random birthdays. The SLS is created using data from administrative and statistical sources, including the Scottish national censuses and vital event registrations. Individuals who are born on one of the 20 birthdays are traced for entries in the vital events registration and in the following censuses (Boyle et al. 2009). The birth events of sample members are captured from birth registration, and are included in the dataset. The census data cover a wide variety of topics, including geography, occupation, and socio-demographic characteristics; moreover, since the 2001 census a question about cohabitation has been included. This is a significant addition, as it has become increasingly common to have a child while cohabiting (Kiernan 2004).

The SLS dataset starts with the 1991 Scottish census data, and finishes with the 2010 vital events data. (When I was undertaking this analysis the data from the 2011 census were not yet available.) As a high proportion of children are born to mothers in the age group 25-30 (ISD Scotland 2014), I include in the research sample male and female SLS members who were counted in both the 1991 and 2001 censuses, who were between the ages of six and 30 in 1991, and who were childless in 1991 (i.e., were not living with any of their own children). Having access to information over a time span of almost two decades allowed me to design a sample for an event history analysis without left-censoring.

The main advantages of the SLS are that it has a large sample size and a prospective design. The number of female respondents aged 18-45 in both 1991 and 2001 was about 30,000, and during the follow-up period about 17,000 of these respondents had at least one child living in their household. There is also rich background information on each respondent. So far, however, the SLS has not been used much for fertility research. A disadvantage of the study is that census data are available only once every 10 years. Yet even though the information in the dataset can hardly be seen as panel data, it is possible to use the data in a prospective way. Furthermore,

since the census has to be concise while covering a whole range of topics, only a limited number of variables can be generated for each topic.

The SLS data have been used by a number of scholars, including Boyle, Feng, and Raab (2011); Ralston (2012); and Clemens, Popham, and Boyle (2014). Of those researchers, only Ralston used the data for research on family formation. His aims for the SLS data analysis were twofold: first, to find links between social structures and first births in Scotland; and, second, to assess the effectiveness of the standard measures of geography for explaining first births. His results indicate that childbearing is related to measures of social stratification. In assessing the effectiveness of the geographical measures, Ralston observed that his findings suggest that the standard measures of geography (such as the Scottish Household Survey Urban Rural measure) are of little use. However, he admitted that *"it is not an easy task to interpret and analyse the meaning of geographic effects"* (Ralston 2012 p. 227). To contribute to the interpretation of the meaning of those effects, in the current research I use the SLS data alongside vital events data from the National Records of Scotland (NRS) and data from the Scottish census of 2001. Combining those datasets allows me to take an area-based approach, which should improve the means of interpretation.

The censuses are held decennially, and are designed to collect information about the population of a country. Modern censuses in the UK have been held every 10 years since 1801, with exception of 1941 due to the Second World War; however, the first four censuses were merely headcounts (www.ons.gov.uk). In most countries, including in Scotland, participation is obligatory. The census is designed to count the whole population, and the questions cover a range of social, economic and demographic topics, including questions about household composition and the professional and health status of household members. For the purposes of research, the main strength of the census is that it covers the whole population. This goal of covering the total population means that the data collection process is an extensive logistical operation. To minimise respondent fatigue while covering as much important information as possible, the questionnaire is kept relatively short. This means that hardly any in-depth questions are asked. However, some of the information gathered is very useful for this research, including the information about the respondents' partnership status and tenure status. Most importantly, this information is linked to geographic locations at a very detailed level. The geographic detail in particular is very important for this research, as it allows me to map the census information.

Another data source that contains detailed geographic information is the National Records of Scotland vital event registration. As all births, deaths, and marriages in Scotland are registered with the NRS, this data source provides reliable birth numbers. The birth parity data from this source are less reliable, as parity is recorded within a married relationship, but children born to different fathers are not usually counted. This is unfortunate for researching early adulthood, as a focus on first births would be preferred. The birth registration records do, however, make it possible to calculate the period total fertility rate. The TFR is the average number of children a woman would have if she experiences the current age-specific fertility rates throughout her entire lifetime, and she survives until the end of her fertile years (Woods 1979). Because the address information of each woman who gives birth is also recorded, we can calculate the TFRs at specific locations.

Detailed geographic information is therefore available for births (from the NRS vital events registration) and for partnership status and housing tenure status (from the Scottish census of 2001). These data can be combined into a series of topical maps. These maps show the patterns of fertility, tenure status, and partnership status in Scotland and are created using the spatial information program ArcGIS 10.2 (http://www.esri.com/software/arcgis). How the maps are created, and how the TFRs and other themes that are mapped are calculated, will be discussed in greater detail in Chapter 4.

To make optimal use of the research opportunities provided by the three data sources (the 2001 census, the NRS vital events registration, and the SLS) a bivariate regression and a Cox proportional hazards regression are used in addition to mapping. When measuring the time and the events leading up to a birth, using an event history model is an obvious choice. However, due to the nature of the SLS data (i.e., because the data provide a wealth of information around a census point and scarce information thereafter, the confounders are fixed at a single point in time) a Cox model for proportional hazards is the logical choice. The Cox proportional hazards model is a semi-parametric model, which measures both the timing of an event and the situation leading up to that event. For the SLS data, the model measures the timing and situation leading up to a birth. The Cox model is an alternative to the real parametric models because it does not specify how the duration times must be distributed. This semi-parametric model assumes that the hazards are proportional to the covariates (Box-Steffensmeier and Jones 2004, Blossfeld, Golsch and Rohwer 2007). The limitations of this method include the issue of censoring, which refers to the time outside the design of the research. In this thesis, right-censoring, which refers

to the subject leaving the research without experiencing an event (either because the subject left the survey or because the research period ended), is part of the research design. Left-censoring, or the time before the research commences, is almost entirely covered by the sample and the cohort data, as I use event history data and have information about the respondents that goes back 10 years. The outcome variable is the time to have a first birth between 2001 and 2010, and the explanatory variables are taken from the census point 2001.

The hazard function for each individual i can be expressed as: $h_i(t) = h_0(t) e(\beta'x)$. $h_0(t)$ is the baseline hazard function, and $\beta'x$ are the covariates and regression parameters. Cox regression models do not have an intercept term because in a Cox model the baseline hazard is unspecified (Box-Steffensmeier and Jones 2004). As the Cox model is well known in the field of demography and human geography and fits the purposes and the possibilities of the SLS data, this model was chosen over other duration models. Moreover, two earlier studies that used the SLS for research about mortality and widowhood (Boyle et al. 2011) and unemployment and mortality (Clemens et al. 2014) chose this model. Ralston (2012) also determined that this model was the best model for researching first births in Scotland using the SLS data. This method will also be used later in Chapter 7.

Socio-economic status and social norms in family formation and housing

In Chapter 4, I explore the geographical relationships in Scotland using three themes: partnership, housing tenure, and fertility realisations. In this chapter, I present maps on each of these themes, and explore their statistical relationships. In Chapter 5, I move away from examining fertility realisations and instead focus on another part of the process of family formation: namely, the connection between fertility intentions and social norms and attitudes. My second research question is:

RQ 2. **To what extent do shared social attitudes regarding having children impact on fertility intentions of childless men and women?**

The most appropriate dataset for answering this question is the SSAS in 2005, as it is the only dataset that gives sufficiently detailed information about attitudes around childbearing in Scotland. Moreover, attitudes regarding a specific topic are related to the social norms and behaviour surrounding that topic as well; thus, to a certain degree, these attitudes have a predictability value for related behaviour (Ajzen 1991, Ajzen and Fishbein 2005). The SSAS is an

annual retrospective survey of people aged 18 years and over who are living in Scotland. Information about this representative sample of 1549 individuals is gathered via face-to-face interviews and self-completion questionnaires. Multi-stage stratified random sampling is then used to ensure representativeness for Scotland. In the 2005 questionnaire a special module on fertility in Scotland was included. The questions of the fertility module were asked of 680 individuals, including women aged 18-45 and men aged 18-49. In the core questionnaire, the respondents were asked questions about a range of topics, including about their socio-economic characteristics and their attitudes about Scottish politics. In the fertility section, the respondents were asked questions about their ideal, expected, and current fertility; their attitudes towards having children; and a range of related issues. The SSAS dataset has three measures of fertility: actual (or current), expected, and ideal fertility. Questions on actual and ideal fertility were asked of all respondents of childbearing ages, whereas questions on expected fertility were only asked of respondents who were childless at the time of interview, but who said they intended to have children at some point (ScotCen 2005).

A major advantage of this dataset is that it includes detailed questions about attitudes towards fertility. This dataset is unique in that it is the only dataset that provides in-depth attitude information from Scottish respondents across a range of subjects. A disadvantage of the dataset is the sample size. For example, within the fertility sample some questions were asked of all of the individuals in this module, while other questions were asked of childless people only or of parents only. Depending on the question, this results in samples of between 180 and 680 individuals. As the dataset is cross-sectional, it is sensitive to fluctuations due to environmental effects; it is therefore possible that cohort effects will be missed.

The information from this survey will be used to examine the relationships between social norms and attitudes to fertility, and to explore the relationships between socio-economic groups and other areas. The fertility module has been used in a number of studies, including by Boyle, Graham, and Feng (2007b); Dey and Wasoff (2010); Jamieson et al. (2010); and Ralston (2012). However, none of them combined the descriptive information with research on social norms and attitudes around housing. Ralston (2012) extended the research of Dey (2007) by adding social attitudes on financial stability. (Dey (2007) is the project report on which Dey and Wasoff (2010) published a journal article). In this research, I initially follow Ralston by using a latent class analysis (LCA), albeit with a focus on housing tenure. However, I extend this idea by incorporating the obtained results about shared social attitudes into a logistic regression that

predicts expected fertility. Of the studies that use a combination of these methods, the current study is the only study about fertility, and one of very few in the field of demography (I have so far found only one published article (Van Gaalen and Dykstra 2006) and one conference paper (Covre-Sussai et al. 2014)).

I have chosen to use a logistic regression for this part of the research. Since the data are recorded at one moment in time only, it would not be appropriate to use an event history model as in the previous chapter. Thus, I considered models without controls for time. Within regression models, a logistic regression would be the right choice for analyses that have a binary outcome variable (Rabe-Hesketh and Skrondal 2008, Agresti and Finlay 2009); whereas if the outcome had been linear, then an Ordinary Least Squares regression model would have been appropriate (Treiman 2009). The logistic regression models probabilities for binary outcome variables; it estimates the likelihood that a certain action will take place or that a subject has a certain (binary) characteristic (Rabe-Hesketh and Skrondal 2008). In this research on the SSAS data, it models the likelihood that respondents expect to have children at some point in the future; it includes age, gender, tenure, partnership status, employment status, religion, attitudes towards the impact of having children, financial security, and neighbourhood quality. The regression thus predicts the likelihood that a respondent will expect to have children depending on his/her socio-demographic and economic status and attitudes towards the impact of having children on his/her personal life. The dependent variable in the logistic regression model is expected future parenthood. The resulting model explains whether and, if so, how fertility expectations depend on tenure type and the other respondent characteristics.

The used model has the form of: $P(y = 1) = \frac{1}{1+e^{-(\alpha+\beta x)}}$ but will for convenience reasons, since it is more easily interpretable, be used in a log odds form, which looks like: $log\frac{P(y=1)}{1-P(y=1)} = \alpha + \beta x$. Where P is the probability that a respondent expects to have children at some point in the future, α is a constant factor of expectation, x are the independent variables and β the coefficients of the independent variables (Agresti and Finlay 2009).

A binary logistic regression model is a relatively standard model for researching fertility outcomes (see, for example, Rendall and Smallwood 2003 and Ralston 2012) . What is, however, new is using a latent class analysis to construct a measure for possible social norms and attitudes that is included in that regression. A LCA tries to identify patterns of association, which are initially unobserved, among the answers to groups of questions. These patterns do not have to

stem from causal relationships, but may instead derive from an unknown shared component. In LCA this unknown shared component can be considered a categorical variable (where the categories can also be called 'classes'). The LCA estimates the conditional probabilities of giving a certain answer to a certain question given the class a respondent is in. It analyses an unconditional contingency table and works out what the answer to the missing variable/class is (Collins and Lanza 2010). It is fairly similar to factor analysis, which has been used in other research on social norms (Billari et al. 2009, Dommermuth et al. 2011), but the variables on which the analyses are based are categorical; and the latent variable is also categorical. Additionally, it is not based on an assumption of linearity (Magidson and Vermunt 2003), but on an assumption of local independence: the items are independent within each class (Collins and Lanza 2010).

The equation of the model has the form of: $P(Y = y) = \sum_{c=1}^{C} \gamma_c \prod \rho$. Where γ_c represents the probability of membership in latent class *c* and ρ is the parameter that expresses the relationship between the observed variable indicators and the discrete latent variable. ρ could also be written as*: $\rho_{1/c}$* which represents the *probability* of response *i* to item 1 conditional on membership of latent class *c*. To test for the relative model fit and the number of latent classes, Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC) are the most useful criteria (McCutcheon 1987, Collins and Lanza 2010). In this research the LCA models are constructed using the LEM software, a freely available program developed for the analysis of categorical data by Vermunt (1997).

In Chapter 5 LCA is used to explore possible social norms regarding family formation. The SSAS data contain a number of categorical variables that attempt to measure attitudes on topics related to childbearing. Using LCA instead of factor analysis was an obvious choice, as factor analysis deals with continuous variables. Likewise, it is doubtful that the outcome variable, which could be a hidden social norm, will be linear; which means that for factor analysis the assumption of linearity would be violated twice. Consequently, applying a LCA is the best method for discovering possible hidden relationships between those attitude variables. The next step is then to predict in which class a respondent would be, depending on his/her answers to the questions entered in the analysis. This prediction allows me to create a new variable, which can then be entered into the logistic regression model discussed above to predict fertility

expectations. Using this method, I will be able to see how much impact attitudes have on fertility expectations. It could be argued that instead of using a fairly complicated method to combine several variables, I could have just entered the variables in the model. This is not possible because the dataset is very small; thus, I would have run into issues with the small number of observations. Furthermore, the discovery of groups of shared social attitudes could indicate that there are unobserved social norms (Liefbroer and Billari 2010).

Gender patterns in social norms and fertility intentions

The dataset used in Chapter 5 contains very interesting information, but due to its size and structure there is a limit to the number of questions it can answer. Thus, in Chapters 6 and 7 another dataset is used: namely, the British Household Panel Survey. The BHPS is a longitudinal panel survey with retrospective elements. Compared to the SLS and the SSAS datasets that were used in the previous chapters, the BHPS dataset has the major advantage that it contains longitudinal information about fertility intentions, which is the focus of Chapter 6; as well as information about the actual fertility outcomes of the respondents who are followed over multiple years, which is the focus of Chapter 7.

The BHPS is a panel survey, and most of the individual data are collected through face-to-face interviews. It started in 1991 with a panel consisting of around 5500 households and 10,300 individuals drawn from 250 British areas located south of the Caledonian Canal. The BHPS has no refresher samples; however, additional samples of 1500 households in Scotland and Wales were added to the main sample in 1999. The addition of those new households resulted in a Scottish sample consisting of 1459 households with 2407 respondents. Since the boost, the Highlands and Islands have also been covered. From 1999 onwards all of the data collection was done via Computer Assisted Personal Interviews (CAPI). In total, 18 waves of information were collected, and the last BHPS wave was conducted in 2008. After 2008 the BHPS was incorporated into Understanding Society, a longitudinal survey based on a subset of the BHPS respondents. The core questionnaire contains numerous questions about socio-economic and demographic topics as well as questions about fertility. In addition, in some years information about fertility intentions and attitudes towards childbearing was collected (University of Essex Institute for Social and Economic Research 2010).

The research population used for examining fertility intentions and behaviour consisted of men and women of childbearing ages (16-45 for women and 16-49 for men) who were living in

Scotland and who did not yet have children (N=697). The lower age limit was set at 16 because in a BHPS household the children were interviewed separately after this age; thus, no detailed information is available before this age. Over the study period, the numbers of births to Scottish respondents were as follows: 122 first births, 138 second births, and 39 third births. In Chapter 6, separate subsamples are also used that consist of women and men who were between ages 16 and 45 for an unspecified number of years in the time period 1999 to 2008 (men N=402, and women N=295).

A big advantage of the BHPS is that it has yearly waves in which elaborate general information is gathered. The BHPS can therefore provide very detailed information on a small subsample of women who had a child. We have information about where these women lived, their socio-economic characteristics, their fertility intentions, and some of their attitudes towards family formation. A disadvantage of the dataset is that not all of the questions are asked in every wave; consequently, the study design for both chapters had to be adjusted, as a slightly longer research period would have been ideal for examining fertility intentions. It is also possible to check whether people move around the time they have a child. Furthermore, the geographic spread by marital status can be checked. As these data are of good quality, they are frequently used in fertility research. Several researchers have used the BHPS to study family formation, including Aassve et al. (2006), Graham et al. (2007), Berrington (2004), Kulu and Washbrook (2014), and Fiori et al. (2014).

In the literature mentioned above it was noted that the factors that influence fertility decisions have different effects on men and women. For example, several of these authors found evidence of gender differences in the effects of education (Berrington 2004) and labour force status (Aassve et al. 2006) on fertility. But to my knowledge, the question of whether the effects of social norms and attitudes on fertility have gendered patterns has been hardly researched. This is understandable in part because of the double challenge of finding a data source that has enough attitude variables and that is large enough to allow researchers to add enough confounders to the model so that the explanatory value is preserved. In order to bridge this gap, the main question I seek to answer in Chapter 6 is:

RQ 3.   **Do partnership, housing tenure, and shared social attitudes regarding family formation impact on the fertility intentions of childless men and women in similar ways?**

As in the previous chapter, in this chapter I also focus on social norms and attitudes. However, whereas the SSAS included attitude questions that allow for a more detailed study of social norms, there are few such questions in the BHPS. On the other hand, the SSAS has a very small sample size, which makes differentiating by gender impossible; while the BHPS has a larger sample size, which makes it possible to analyse differences between the genders.

To answer my third research question, I use both a multinomial logistic regression and a latent class analysis in Chapter 6. I chose a multinomial regression because the outcome variable, intended fertility, has three categories, and the analysis would lose a lot of explanatory value if it was collapsed into two categories. A multinomial logistic model is basically a binary logistic regression model that is adjusted towards a model for an outcome variable with more than two outcomes, which are not ordered (Treiman 2009). Instead of modelling the probability of a specific outcome, a multinomial model gives the probability for pairs of outcomes. The model pairs each category with a baseline category. The formula for a multinomial logistic regression can be written as: $P(y_i = j) = \dfrac{e^{(\beta_j x_i)}}{\sum_j^J e^{(\beta_j x_i)}}$, which is similar to the formula for the binary regression, but includes the outcomes for the other categories. *P(y$_i$=j)* is the probability of belonging to outcomes j, and x_i is a vector of explanatory variables (Agresti and Finlay 2009, Treiman 2009).

In order to make full use of the possibilities of the BHPS data, while keeping the connection to the information gained from the SSAS data, I conclude by conducting a latent class analysis on the attitude variables in the BHPS. The initial intention was to enter the variable derived from the LCA into the multinomial logit model, as in Chapter 5; however, due to data sparseness this did not improve the explanatory value of the regression model. The LCA results will nonetheless be presented.

Explanations of family formation
The last empirical chapter provides a more holistic approach to the family formation process by bringing together the information from the previous chapters. In Chapter 5 I showed the existence of shared social attitudes that are likely indicative of social norms, and that could influence family formation behaviour. In Chapter 6 I demonstrated how social norms and attitudes affect fertility intentions, and how these effects differ by gender. In Chapter 7 I attempt to bring together the different parts of the family formation process as presented in the

conceptual framework in Figure 2.2 on page 43. In this chapter, fertility realisations are again researched as in Chapter 4; however, this time the research uses the BHPS data and with the knowledge gained from the other chapters. This last empirical chapter examines the following question:

RQ 4.   Do partnership, housing, and shared social attitudes influence whether childless men and women realise their intentions to have a first child?

As in the previous chapter, the longitudinal nature of the research question posed in this chapter makes using the BHPS data the best choice. The selected sample starts off with the same conditions as in the previous chapter (childless women aged 16-45 and men aged 16-49 who stated their fertility intentions in 2003: Wave M); however, to investigate whether these respondents realised their fertility intentions I need information about them after the moment they stated their intentions. Therefore, another condition is that the respondents needed to have answered the BHPS questions at least once in the years after Wave M, in 2003. The BHPS collected data up to 2008, which means that after 2003 there were five more years of data collection. The total sample size therefore is 645 respondents, of whom 15 per cent had a child within five years of the interview in 2003.

As in the first empirical chapter, Chapter 4, a Cox proportional hazards model is employed in Chapter 7. Again, due to the design of the sample, only childless respondents were selected; left-censoring should not be a serious issue in this part of the search. However, no data were collected after the year 2008, which means that a substantial number of respondents are right-censored. In Chapter 7, the last empirical chapter of this study, I attempt to combine the findings from the previous chapters into a single survival model. The latent class results from the previous chapter will therefore also be incorporated here. Furthermore, the results will be presented for men and women separately, and combined.

3.4.   Conclusion

In this chapter I have set out to explain the different datasets and methods and the operationalisation of the key concepts that are used in this research on the process of family formation in Scotland. In the secondary datasets that are available, most of the data are about the United Kingdom as a whole or about England and Wales. There are, by contrast, only a few datasets available that are specific to Scotland. Two of those datasets, which are used in this

research, are the Scottish Longitudinal Survey and the Scottish Social Attitude Survey. In addition, the British Household Panel Survey, which also has many respondents in Scotland, is used.

As well as describing the datasets, I elaborated on the different methods that are used, and I explained why these were the most appropriate for answering the research questions with the given datasets. I also addressed which parts of the research are of particular scientific relevance, including researching the social norms regarding family formation along gender roles, and the combination of a latent class analysis with a logistic regression. One of the main challenges of this research is operationalising a holistic approach to the process of family formation and the inclusion of all factors while remaining coherent. Especially given the diversity of the datasets, integrating the findings of all the data sources in the last chapter has not proved to be easy.

To operationalise research that embraces the process of family formation many factors need to be included. As the sample size would have to be rather large, primary data collection for research of this kind is hardly feasible. Consequently, I have chosen to use quantitative secondary data sources. Of course, by not using interview or other types of qualitative data I will miss out on the small nuances that can be provided by expressions of feeling or by non-verbal answers, which are almost impossible to tease out using quantitative data. It would therefore have been useful to have had access to qualitative data sources. Nonetheless, some invaluable information was gained during informal conversations with peers, which was later incorporated into the literature research and the data design. However, to be able to generalise and apply the findings of the research to a larger group of people, the current method is in all likelihood the most useful.

In the chapter, the key concepts related to the research on family formation are also operationalised. In the next chapter I will elaborate on these concepts by giving an overview of fertility, housing tenure, and partnership in Scotland. In addition, I will explain the relationship between these three key concepts in this thesis, and will raise several questions based on this relationship.

4. An Overview of Partnership, Housing, and Fertility in Scotland

4.1. Introduction

In the review of the published literature on fertility and family formation in Chapter 2, I identified research gaps that I seek to address in this thesis. In particular, I argued that population researchers need to adopt a more holistic view by placing the birth of a child (the fertility event) within a more dynamic framework of family formation in which—in addition to fertility—the following elements play a role: normative ideas in society, partnership, and housing. In this chapter, I aim to provide an overview of the possible relationships among three of these key elements—i.e., fertility, partnership, and housing—by first providing an empirical overview of their geographical variation in Scotland. Previous research by Boyle, Graham, and Feng (2007a) took an ecological approach, and observed significant spatial variations in fertility across Scotland, which have been linked to a number of socio-economic factors. My aim in this chapter is to move from an ecological to an individual approach, and in doing so to explore whether there is an association between housing, partnership, and fertility. As I expect that the link might be apparent in the spatial distribution of selected variables, my first step is to produce a series of maps for visual comparison. I therefore adopt a geographical perspective on fertility, but *extend this perspective to both partnership and housing*.

When I the term 'geographical perspective', I actually mean a combination of two perspectives, namely *"Geography's way of looking at the world through the lenses of place, space and scale." (National Research Council 1997 p.28)* and *"Spatial representation using visual, verbal, mathematical, digital, and cognitive approaches." (National Research Council 1997 p.29)*

Below I will elaborate on what each of these perspectives means in the context of this research on family formation, and on how each perspective gives shape to views on family formation in Scotland. Geography is a useful way to study the relationship between family formation and the occurrence of high and low fertility, partnership status, and other phenomena. Studying these phenomena through the lenses of place, space, and scale makes clear that certain processes, such as family formation, differ according to the space in which they occur and the scale at which they are studied (National Research Council 1997). It is important to consider location as a significant factor because the population composition can differ greatly from one place to another, especially in countries with high levels of social heterogeneity, such as Scotland.

Scotland is also highly differentiated in terms of its population distribution: the Highlands are remote and fairly thinly populated, while the majority of the population live in the densely populated central belt, which consists of the two largest Scottish cities, Glasgow and Edinburgh. In terms of wealth and population, these cities are also highly heterogeneous (Findlay et al. 2015). Furthermore, different geographic locations have different school catchment areas, different socio-economic circumstances, and different housing opportunities.

In addition to these measurable differences, there may be differences in the ways individuals look at the world that lead to different experiences. For example, a circumstance that is seen as an opportunity by one individual might be seen as a barrier by another. Thus, geographical differences do not affect all people in the same way. For example, some people maintain numerous connections to other individuals and have a wide variety of connections through work, family, and institutions. In terms of family formation, this could mean that individuals with a large social network have access to many individuals who can provide childcare or help in other ways in times of need, which might improve their perceptions of an area; whereas other people with no or a very small social network may not have such a safety net, and might therefore have very different, and possibly less positive perceptions of the same area. These individuals might want to relocate, as from their perspective their area of residence does not provide them with the right opportunities. Having different experiences can therefore result in completely different views of an area. Thus, it is important to realise that differences in place and scale can be important.

The second geographical perspective considers spatial representation. Maps are among the most logical ways of showing phenomena from a geographical perspective: they allow for the visualisation of patterns that might otherwise remain invisible. Nevertheless, a map that compares more than two factors often becomes complicated. Both maps and statistical models are appropriate ways of investigating and revealing differences in the relationships between phenomena. Furthermore, maps may show patterns that could link fertility with other factors, because different groups of individuals occupy different geographical spaces. In addition, maps may reveal potential relationships that could be further explored using statistical models. Moreover, maps might show relationships that are not always grasped using a 'simple' urban-rural classification, as a city might serve an area that is larger than the area within the city boundaries. Yet it is important to remember that maps cannot show many socio-economic differences at the same time; to incorporate a number of variables into the investigation, a

multivariate statistical approach will be needed. Boyle, Graham, and Feng (2007b) are among the few researchers who have mapped fertility on a small geographical scale. However, they did not map partnership or housing. Within the life course, partnership and housing tenure seem to be very important when discussing family formation: partnership because individuals generally start thinking about reproduction when they are in a relationship, and housing because, based on the literature, there appears to be a perception of minimum housing requirements when starting a family. As housing and geography are strongly related, family formation and geography are highly likely to be associated as well. In this chapter, I explore the geography of fertility rates in Scotland, because fertility rates seem to vary considerably according to location. Furthermore, I present maps that show the geography of housing tenure and partnership status, and thus provide an overview of the factors involved in family formation in Scotland.

In the next section, I will explain how the maps are compiled and which data are used. In the following section I present maps of the total fertility rates for Scotland on a small geographical scale, and discuss the implications of the spatial patterns. In the next two sections I focus on the combinations of partnership and fertility, and of housing and fertility. In these sections, I show mapped spatial patterns, and discuss the potential explanations for the similarities and differences in the patterns, as well as for the deviations from the expected patterns. In the penultimate section I discuss the combination of fertility partnership and housing, and show some associations between them. In this section I seek to gain a deeper understanding of how these phenomena are related to each other by employing a new dataset, the Scottish Longitudinal Survey; and by fitting Cox regressions to a selected sample, with controls for socio-demographic indicators. I then discuss the results of the modelling. In the final section, I present my conclusions from the maps and the regression results, and address any unexplained issues.

4.2.   Mapping Aspects of Family Formation

In this chapter, I explore three phenomena that occur during different stages of the life course, and that are associated with family formation in Scotland: namely, fertility, partnership, and housing. Thus, I draw upon datasets that contain information on those three topics. Since children born in Scotland are registered with the National Records of Scotland (NRS) vital event registration, data from this source are used. As the national Scottish census is a reliable nationwide source of information on housing tenure, relationships, and geographical locations, I also use census data. Finally, towards the end of this chapter I will introduce and analyse data

from the SLS, as the use of this dataset will allow me to incorporate time-related issues and socio-economic indicators into the study.

The TFR is a period measure that controls for women who are actually at risk of childbearing. To calculate this measure, I used the yearly average count of births from the NRS vital events registration for 2000, 2001, and 2002; as well as data on the female population aged 16-44 from the 2001 census. Using an average over three years of birth registration allows for annual fluctuations in births to be taken into account. Ideally, we would make a distinction between first births and higher order births, because the process of deciding whether to have a first child differs from the process of deciding whether to have a second child (Philipov et al. 2006, Fiori et al. 2014). However, until very recently the question of whether the mother of the child had already had children was deemed to be too sensitive to ask at the registration process, thus, parity was recorded only within the marriage with the current partner. This is one of the reasons why in a later stage in this chapter data from the SLS data and from other sources are used.

Information about housing tenure and partnership status is also used in this chapter, and has been obtained from the 2001 Scottish census. Using this census information as a baseline allows for a decade of family formation research. Furthermore, at the time of writing, the 2011 census data are not available to researchers. The census data cover the whole nation, and have thus a very high number of observations. The extraction of the census data that were used in the maps is a combination of Table ks018 (tenure and landlord) and Table ks003 (living arrangement) by output area. In terms of partnership status, the population are subdivided into three categories: living together married (including remarried), living together cohabiting, and not living with a partner. As the research concerns fertility, only individuals of childbearing ages—that is, within the age range 18 to 49—have been included in the sample (N=2,222,191). Since the year 2001, the Scottish census has contained a question about cohabitation (in earlier censuses this question was not asked). This is a significant adjustment to current social norms, because living together and having children without being married have recently become much more common (Kiernan 2004). It might be expected that cohabitation is more common in certain areas of a given city than in others, although this pattern has not yet been mapped in Scotland. Therefore, the incidence of partnership as well as of housing tenure will be mapped, with additional attention being paid to patterns within the major cities.

The maps that are presented in this chapter show fertility, measured by TFR, as well as partnership status and housing tenure. The geographical areas used in the mapping are defined by datazones. These are geographical areas that were drawn up to contain about 750 individuals, based on the 2001 census information. Scotland is divided into 6505 datazones (Office for National Statistics 2014). As the datazones are based on population numbers, the size of a datazone on a map depends on the population density in that area. Thus, the datazones in rural areas are much larger than in the more densely populated urban areas. In the large Scottish cities the population density is so high that it is hard to distinguish different datazones in these cities on a map that shows the whole Scottish mainland. When we look at the map that shows fertility rates in Scotland (Figure 4.1 in the next section), we can identify the central belt (the area in the circle) by the very small, almost invisible areas with different colours; whereas large areas of the same colour can be observed in the Highlands in the north. In order to understand spatial variations in fertility, it is important to realise that although the datazones are based on population, they do not specify the numbers of men and women, which could affect the TFR within a datazone. Thus, in theory there could be datazones that consist completely of men or of women. To create the maps, I employed data provided through EDINA UKBORDERS with the support of the ESRC and Jisc. The software program used for mapping and analysing these spatial data was ArcMap 10.2 (http://www.esri.com/software/arcgis).

In the remainder of the chapter, I will look first at the maps showing fertility, fertility and partnership, and fertility and housing; then, towards the end of the chapter, I will move on to use a different dataset, the SLS, and employ different methods for exploring the relationships between fertility, partnership, and housing at the individual level.

4.3. Variations in Fertility

When we look at the population density and the population structures in Scotland, it becomes clear that the country is highly heterogeneous, as the differences between different locations are pronounced. To compare fertility between locations, the TFR is one of the best modes of measurement. The TFR controls for women at risk of childbearing, and gives the average number of children a woman will have if she survives until the end of her childbearing years and experiences the current age-specific fertility rates throughout her entire fertile period (Preston, Heuveline and Guillot 2001). This means that the TFR will be less affected by the number of individuals living in a certain area or datazone.

What the number of individuals in a certain area does affect is the spatial size of a datazone. The map of mainland Scotland showing the TFR by datazone (Figure 4.1) shows large areas of the same colour in the thinly populated Highlands and very small ones in the more densely populated areas, such as in the central belt; although there are densely populated areas outside of the central belt such as Aberdeen, which can be identified by the group of small datazones on Scotland's north-east coast. Like population density, the number of children per woman also varies a great deal depending on the location, as is shown in Figure 4.1. Although in the time period 2000-2002 the average TFR in Scotland was 1.5, this rate varied by datazone, ranging from 0.2 to 4.2. The classification of the TFR used in the map of Figure 4.1 is therefore divided according to the number of standard deviations from the mean, with the mean having the lightest colour. Looking at Figure 4.1, we can see that the map has a patchwork of different colours, with the light yellow colour representing the areas with the average TFR for Scotland. The red and blue colours represent deviations from the average TFR, with the dark red and dark blue colours representing areas that are more than 1.5 standard deviations higher or lower than the average Scottish TFR. The map seems to show that the TFRs in Scotland are fairly heterogeneous. However, this pattern needs to be interpreted with care, as the size of a datazone represents the number of people living in that area. For example, it is important to note that the fairly large yellow areas in the middle of the map are actually fairly thinly populated areas.

There are different reasons for the geographical variation in fertility rates. In rural areas with small settlements, families are generally larger than in the urban areas with large settlements (Kulu, Vikat and Andersson 2007), or, as Sato (2007) found, in areas with higher population density the TFR tends to be lower. Another reason is simply the lay of the land; in some areas, especially those that are mountainous, individuals live quite far away from each other, and it is hard for families with children to get to the facilities that need. Therefore, these rural areas might be less attractive for (aspiring) families searching for somewhere to live. Most individuals of childbearing ages in Scotland live in or near an urban area. In Scotland the area with the highest population density is the central belt, which includes the large cities Edinburgh and Glasgow. Edinburgh is the capital of Scotland, (greater), while Glasgow has the largest population. The third biggest city is Aberdeen, which is situated in the north-east and is mostly dependent on the oil industry. Two other noteworthy cities are Dundee on the east coast, which is the fourth biggest city in Scotland; and Inverness in the central north, which serves the entire north of Scotland. The largest differences in TFR can be found in the central belt; both the areas

with the lowest as well as the highest TFRs in Scotland can be found in these large urban centres. Therefore, the maps in the next section of this discussion will focus on the main cities of the central belt.
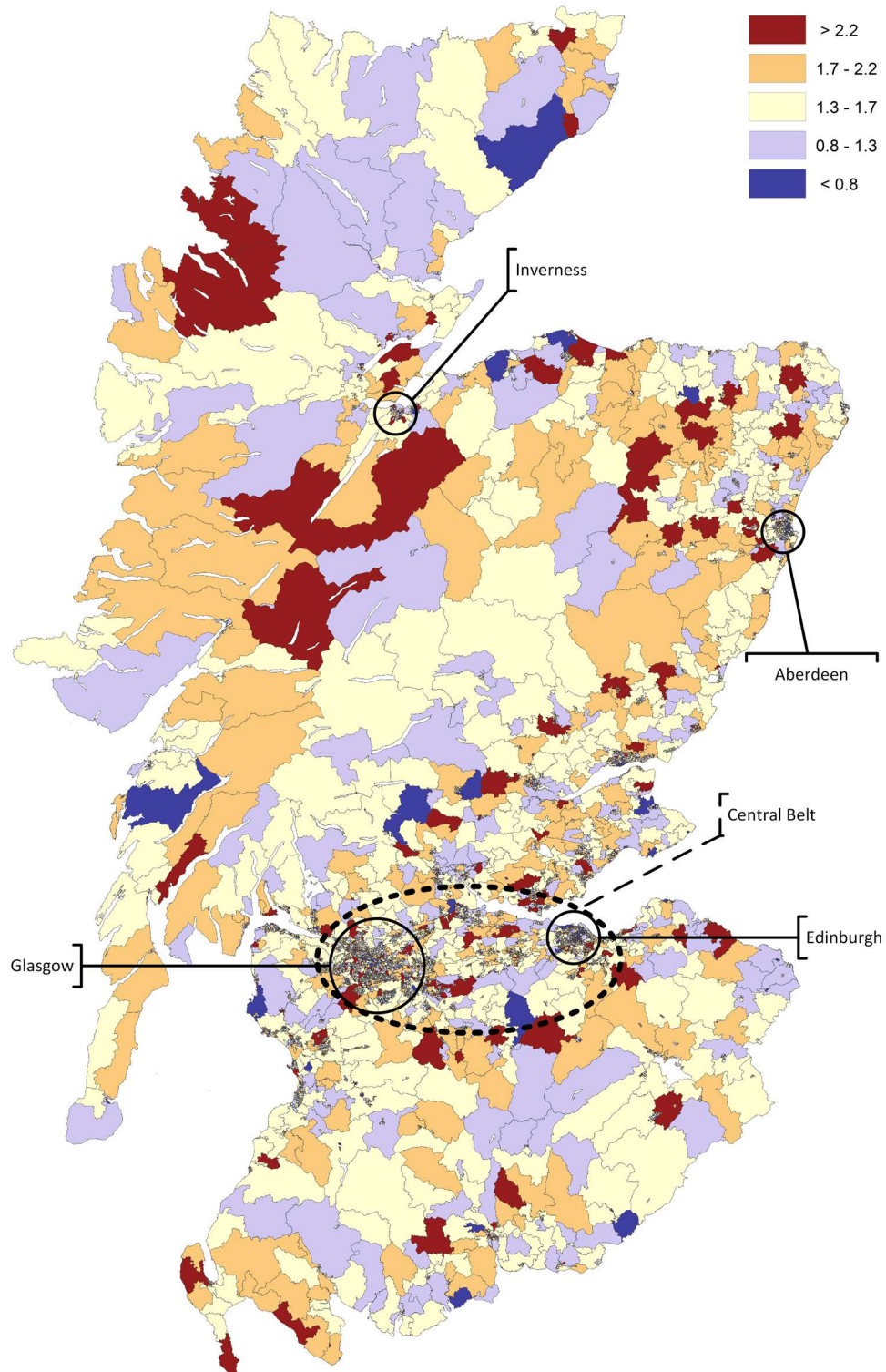
Figure 4.1 Mainland Scotland, total fertility rate.
(Based on the NRS vital Registration, average counts for 2000-2002)

 When we look at the patterns on the map of Figure 4.1, we can see that the areas with fertility levels that are much higher than average (dark red) are mostly found in relative proximity to the urban centres, such as Inverness and Aberdeen. It is possible that these areas also exist around Edinburgh and Glasgow, but a larger scale map is needed to investigate whether this is the case. This finding that areas with relatively high TFRs are in close proximity to an urban centre seems counterintuitive when we consider, for instance, that Sato (2007) found for Japan that areas with high population densities had low TFRs, and vice versa. We might therefore expect to see a gradual increase in the TFR outwards from the urban centres. When we study the urban areas on the map carefully, it is clear that the very low fertility areas are indeed located in the cities. The differences in the TFR that can be seen in the map in Figure 4.1 might be partly attributable to socio-economic factors, and these factors could explain why no clear pattern is visible. However, this remains an hypothesis as long as these factors are not taken into account in the map. I will therefore address these issues in the remainder of this chapter, starting with partnership status.

4.4.   Partnership and Fertility

The total fertility rate is a very useful measure of fertility because it takes age into consideration, and includes only women within childbearing ages. Nevertheless, it does not account for other factors that influence fertility, such as the assumption that being in a partnership is generally a prerequisite for having a child (Kiernan 2004, Jamieson et al. 2010). Within the life course paradigm, the event of giving birth to a child may be considered a stage in the family formation process, with partnership formation marking the beginning of that process. However, within the family formation process, the stage before partnership formation, or the transition to adulthood, should be taken into account. Thus, in this section I will focus on the transition to adulthood and to forming a relationship.

The partnership status and the other socio-economic characteristics of an individual are important indicators of the number of children s/he is likely to have (Fiori et al. 2014). Before the individual can think about starting a family, s/he has to form a partnership. When a person is single, s/he is generally not thinking about having children—although it appears that single men think even less about having children than single women (Aassve et al. 2006). Factors such as the educational level of the potential parents (Berrington 2004), where they come from (Testa and Toulemon 2006), or how much money they have (Ralston 2012) can all influence people's decisions about whether, and, if so, when they want to have a child. Social connections also tend

to be important for young families (Bernardi et al. 2007). Generally, for most of these factors, the differences tend to be more pronounced in urban areas than in rural areas.

A possible explanation for the geographical variations in fertility rates, which can be seen in the map of Figure 4.1, is that some young people move to urban areas for educational reasons during their transition to adulthood (Mulder 1993). Meanwhile, the young people who do not choose to or have the opportunity to participate in tertiary education might stay where they are. This implies that during this stage in early adulthood some young people cluster in cities, because they are pulled to the urban centres for education. Additionally, these young adults might postpone having children until they have finished their education, as this pattern has been found to be a social norm in Europe (Liefbroer and Billari 2010).

In addition to the transition to adulthood, partnership formation is a stage in the life course that has strong effects on the likelihood of having a child and of forming a family. Though the numbers and the social acceptance of single parents have increased over the past 50 years (Miller 2006), most individuals seem to aspire to having children in a relationship with a partner, and most children in the UK are born to married couples (Kiernan 2004, Jamieson et al. 2010). As was mentioned above, when young adults move to urban areas for educational or other reasons, many of them are single. Although meeting a partner may not their primary reason for moving to the city, they are likely to meet new people in the city, some of whom may be potential partners. They then form a new relationship with a partner who may have no incentive to return with them to the place they came from; hence, the young couple are likely to stay in the city, where there are generally more jobs than in rural areas.

In Scotland, in contrast to the rural areas where differences in TFR are not very pronounced, the largest differences in TFR can be found in the cities (Boyle et al. 2007a). Within cities, subgroups of individuals might cluster around locations connected to their lifestyle; for example, students tend to live near the university and social facilities targeting students (Hubbard 2009) and migrants from less developed countries, who tend to have a higher TFR than the local population, often live in less affluent areas of the city (Massey and Denton 1985). Furthermore, some of the high fertility areas in Scottish cities can be associated with the locations of former social housing estates. To be eligible for social housing, people usually have to be below a certain income level or otherwise not able to work. These circumstances are most often associated with lower socio-economic status and with relatively high fertility, in part reflecting the priority given

to housing families with children in the allocation of social housing. This could be a further reason for geographical variation in TFR in urban areas.

Figure 4.2 shows that the lowest TFRs prevail in the central areas of Edinburgh, whereas the highest TFRs are mostly found in the (residential) areas surrounding the centre of the city. These areas of low TFR are near the location of Edinburgh University and house a higher proportion of students than in other parts of the city. Part of the explanation for the low fertility is therefore likely to be the residential clustering of students as students tend to postpone having children until after finishing education (Liefbroer and Billari 2010). In contrast, the areas with higher TFR are largely areas of social housing and lower socio-economic status, where people tend to start childbearing at younger ages and thus often have higher completed fertility than other groups in the population (Ralston 2012). This spatial patterning of fertility is not unique to Edinburgh because it is visible for Glasgow (Figure 4.3) as well. As in Edinburgh, many of the areas with high TFR are also areas with a high proportion of social housing (as can be seen in Figure 4.6); and while the predominantly low fertility areas north of the river Clyde are around the location of the city centre, the highest fertility rates are further away from the city centre, and mostly south of the river Clyde.
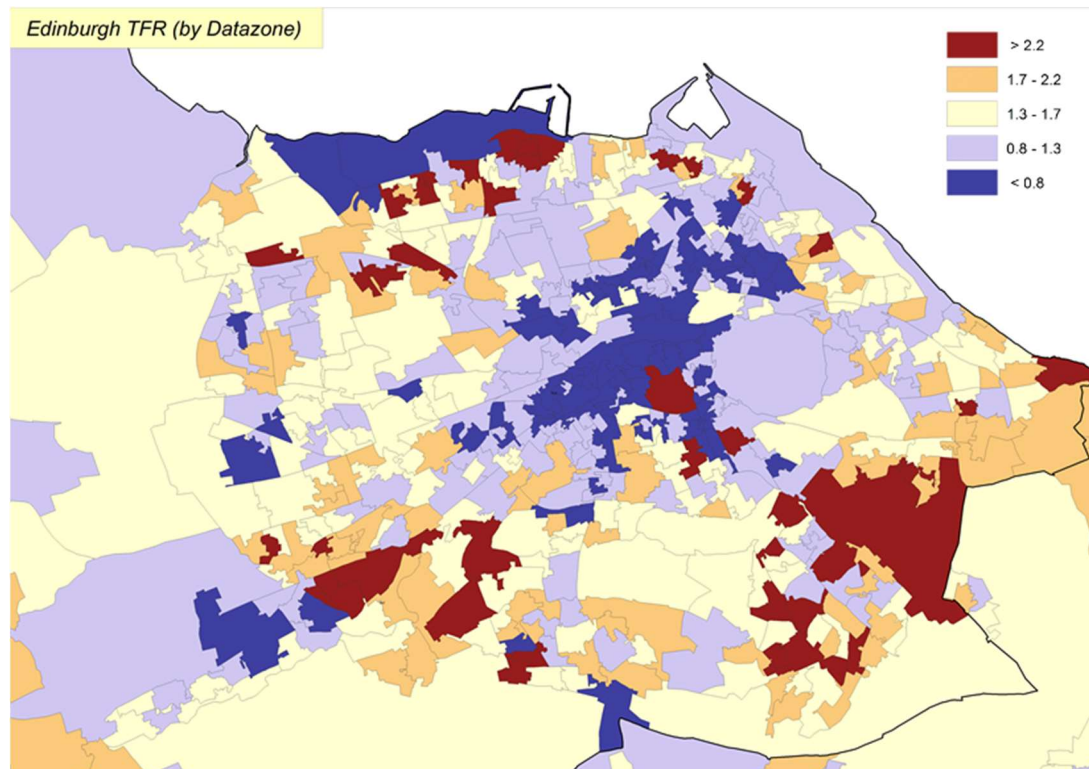
Figure 4.2 Edinburgh, TFR
(Based on the NRS vital Registration, average counts for 2000-2002)
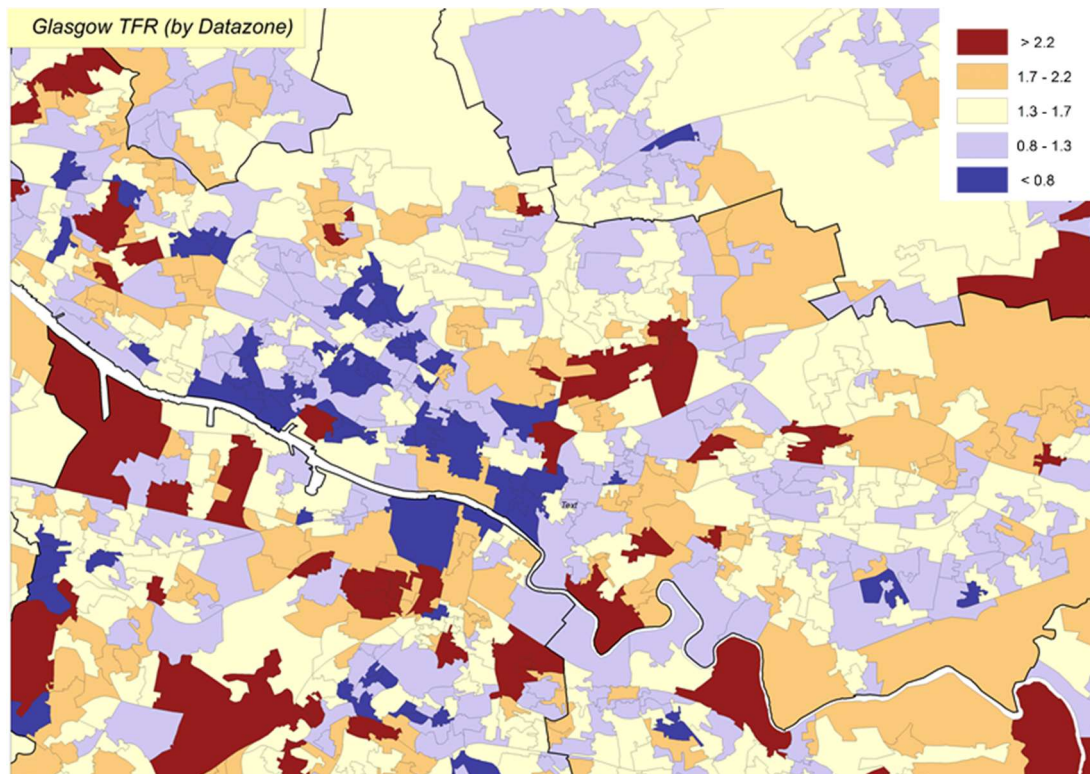
Figure 4.3 Glasgow, TFR
(Based on the NRS vital Registration, average counts for 2000-2002)

One potential reason for this division between the centre and the suburban areas is the presence of large numbers of students in both cities. Students tend to live within certain areas, usually in proximity to a university, and are usually childless (Chatterton 1999, Sage, Smith and Hubbard 2012). After completing their education, some stay in the city, whereas others return to their hometown or move on. Women with a higher level of education are more likely to postpone starting a family than women who finished their education at a younger age (Berrington 2004, Benzies et al. 2006), which also could be an explanation for the lower fertility rates in the urban centres. Finally, young urban professionals with no children tend to live in more central areas with restaurants, bars, theatres, and other cultural and social centres; whereas families with children and couples who aspire to have children tend to have other locational aspirations.

Most children are born within a partnership; therefore, Figure 4.4 and Figure 4.5 illustrate the spatial patterns of singlehood and partnership in Edinburgh. In Figure 4.4, singlehood in Edinburgh, all of the individuals who are living alone are combined; thus, this map provides information on singles, divorcees, widow(er)s and people who split up after living together. Figure 4.5 shows married people as a proportion of all cohabiting couples in Edinburgh. From

Figure 4.4, we can see that high proportions of single people live in the city centre of Edinburgh and around the former harbours on the coast to the north of the centre. In Figure 4.5, by contrast, we can see that in the areas surrounding the city centre of Edinburgh the proportions of cohabiting couples are lower. It seems that some of the patterns observed in Figure 4.2, which shows Edinburgh's TFRs, are also visible in Figure 4.5. In places where the TFR is relatively low, the proportion of unmarried couples seems to be relatively low. Most children are born to married individuals. Cohabiting couples tend to be younger than married couples (Kiernan 2004), and might therefore be at the start of their childbearing career. It seems that these maps again show heterogeneity in the cities, but they also show clear spatial patterns of high and low proportions of partnered people.
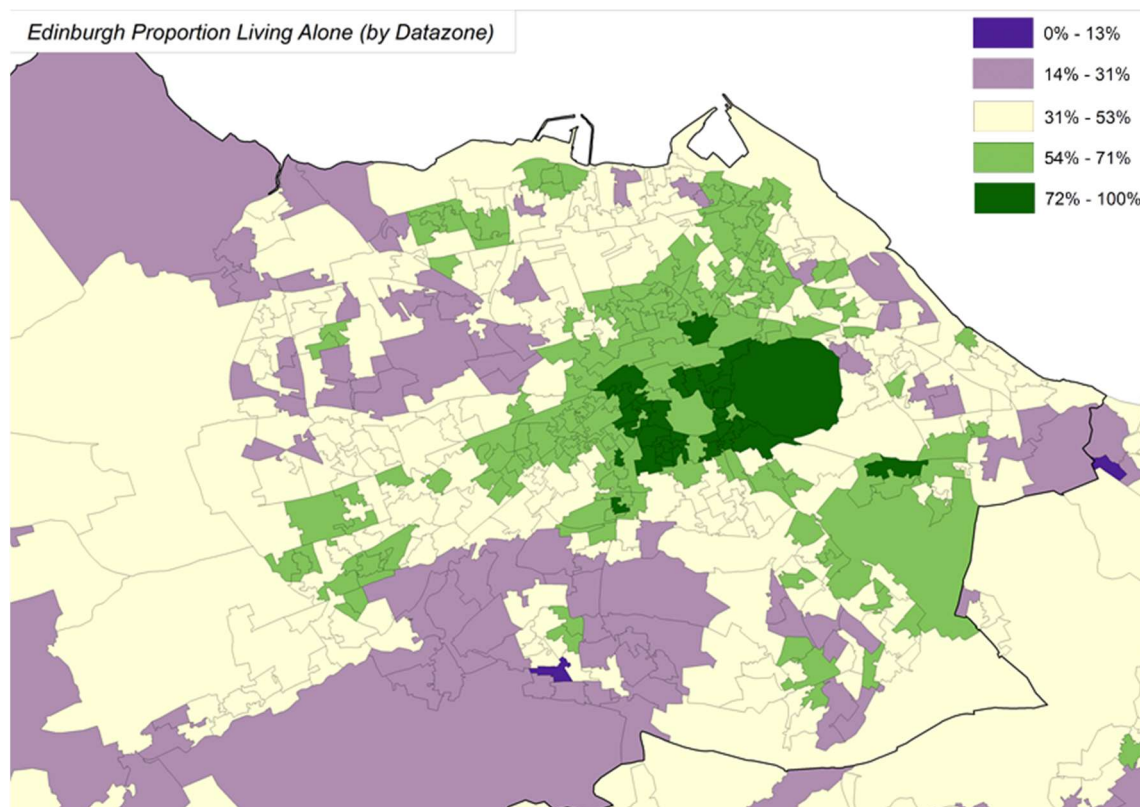
Figure 4.4 Edinburgh, relationship status: proportion of single men and women.
(Based on the Census 2001, men and women aged 18-49)

Edinburgh Proportion Married, within Partnered Couples (by Datazone)

■	0% - 25%
■	26% - 50%
■	51% - 75%
■	76% - 100%

Figure 4.5 Edinburgh, relationship status: proportion of married men and women, within partnered couples.
(Based on the Census 2001, men and women aged 18-49)

In Edinburgh a more or less circular, or concentric ring pattern is visible; whereas in Glasgow there is a visible division north and south of the river Clyde. In Figure 4.4 I mapped singles in Edinburgh in relation to all individuals within childbearing ages, whereas in Figure 4.5 I mapped partnership status showing married individuals in Edinburgh in relation to cohabiting individuals. I show only couples in order to disentangle whether the proportion of partnered individuals who are cohabiting and those who are married have different spatial patterns that are comparable to those of high and low fertility rates in Figure 4.2. A first comparison of the partnership maps shows that in the areas where the proportions of singles are high, the proportions of cohabiters relative to married individuals are high as well. This could be because individuals tend to cohabit before they marry, but do not necessarily move to another house when they get married. Since the TFRs tend to be lower in the city centres, which are the areas where most single people live; and the areas where the most singles live are also the areas where there are the most cohabiters, it seems that we can tentatively conclude that there is some kind of gradient, starting from single and ending up at married, whereby the datazones in which singles dominate have the lowest TFRs, the datazones in which cohabiters dominate have TFRs in the middle ranges,

and the datazones in which the most married individuals live have the highest TFRs. A similar pattern was found for partnerships in the maps of Glasgow (see Appendix B).

However, a close inspection of the maps reveals that this theory cannot be correct. Certainly, the areas with low TFRs seem to correspond with areas of high proportions of singles. However, the opposite is not always true: not all areas with high TFRs correspond with areas of high proportions of married individuals. Looking at Edinburgh, we can see that there are some high TFR areas on the fertility map (dark red) that seem to correspond to the areas with a fairly high proportion of singles in the partnership map. Thus, variations in partnership status alone is unlikely to be the complete explanation for spatial variations in fertility. It could therefore also be the case that housing tenure is part of the explanation. More inside knowledge of Edinburgh reveals that some of these areas with 'unexplained' high fertility are areas with former social housing estates. A number of studies have shown that the TFRs are generally higher among individuals who live in social housing than among individuals who live in privately rented housing or are homeowners. As this issue might merit closer investigation, I discuss the possible relationship between housing tenure and fertility in the next section.

4.5. Housing Tenure and Fertility

Fertility might be influenced by housing, and be linked to particular areas and neighbourhoods. These area-specific features include factors that either pull or push aspiring families towards or away from an area. The pull factors include good schools, good childcare facilities, and suitable family housing. For young families, having a good social network through work, family, or social activities in the local area also tend to be important. The push factors might include a high crime rate, which could scare potential parents and families with children away; or housing that is too small or is otherwise unsuitable for families. Equally, individuals with no children might favour other neighbourhood-specific features, and will thus be influenced by other push and pull factors; they may, for example, worry less about crime rates. While none of these area-specific features are visible in the previously presented maps, the literature has suggested that there are links between housing tenure and fertility (Murphy and Sullivan 1985, Vitali et al. 2009, Mulder and Billari 2010), and that these links might influence the decision-making process of individuals considering having a (first) child.

The availability of family housing has also been mentioned as a factor that might influence fertility behaviour (Mulder and Hooimeijer 1999, Vitali et al. 2009, Lauster 2010). As houses are

fixed at a certain location, this link could be another explanation for the spatial variations in fertility rates found in Scotland. Moreover, the availability of houses is not the same in all areas. To return to the example of the young single individuals who move to the cities, possibly for educational reasons: these individuals likely need another place to live after becoming involved in a relationship, and before starting a family. The area and the housing they chose to live in when they had just arrived in the city to start their student life might not be the area and the housing they envisage living in when they start a family. The houses that are perceived as being good for families tend to have parks and/or lots of space for children to play (Mulder and Hooimeijer 1999). These kinds of houses are more likely to be found in the more residential areas of the city or in the countryside than in the city centre, although there are some exceptions. I will therefore consider the availability of family housing as a possible explanatory factor for the geographical patterns revealed by the fertility maps. There is relatively little theory on this factor, and in the European context Scotland is a fairly special case, with a strong preference for homeownership and a history of having a large stock of social housing (Riley and McCarthy 2003). Therefore, I now turn to housing tenure. In the maps, housing tenure is divided into three categories: homeownership, private renting, and social renting. In Figure 4.6 an overview of social renting by datazone in Edinburgh is presented.
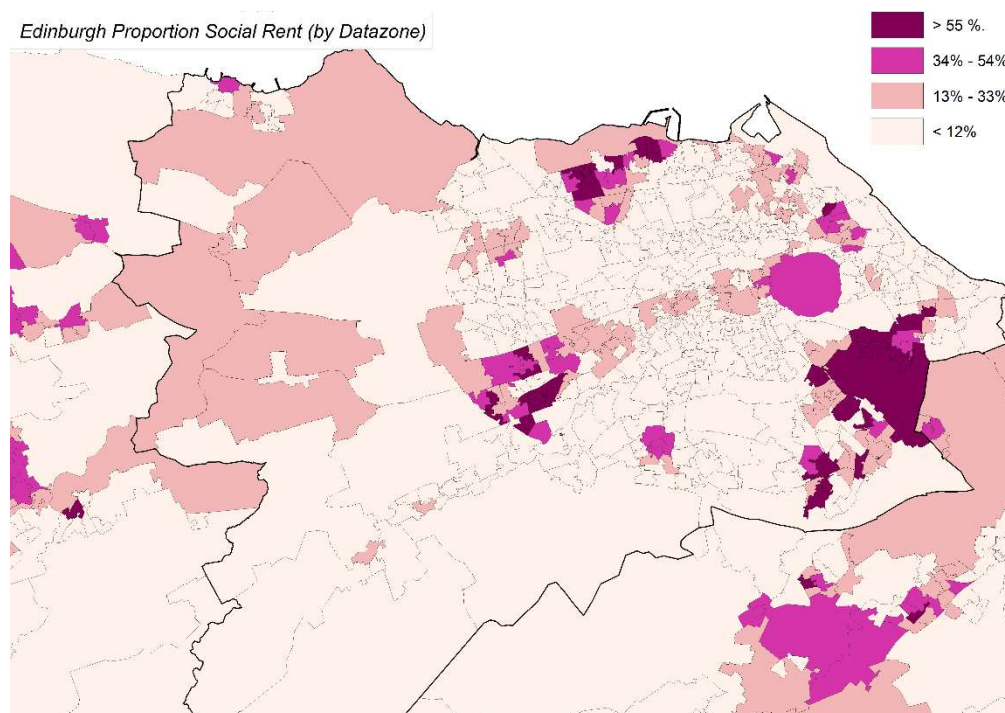
Figure 4.6 Edinburgh, housing tenure: proportion of social renting within a datazone (Based on the Census 2001, men and women aged 18-49)

When we look at the map presented in Figure 4.6, the first thing that stands out is the seemingly small share of all housing in Edinburgh that is social housing. However, across the Scottish datazones the average share of housing that is social housing is between 13 and 22 per cent, and the share in Edinburgh is higher than these figures (Census 2001). Renters of social housing tend to have higher fertility levels than private renters and homeowners. If we compare the maps that show the proportion of couples who are married versus cohabiting and the map showing the proportion of residents who are social renters (Figure 4.5 and Figure 4.6), we can observe some similar patterns, although these similarities are less clear than they are for the maps showing TFRs and partnership status. Nevertheless, it does seem that all of the areas in which a high proportion of the residents are social renters tend to coincide with the areas with high TFRs on the fertility maps.

The maps of Aberdeen, in Figure 4.7, Figure 4.8 and Figure 4.9, also show a group of datazones with low fertility in the more central areas and higher fertility in the areas around the city centre. Particularly in the outer areas of Aberdeen, the TFRs are relatively high (Figure 4.7). Regarding partnership status, Figure 4.8, the patterns in Aberdeen are similar to those in Edinburgh. The share of residents who are married is low in the central areas, and is higher in the surrounding areas. Finally, there are small areas with high fertility rates around the city centre that seem to coincide with the areas of social housing in the map in Figure 4.9. Thus, when we look at Edinburgh and Aberdeen, it appears that spatial variations in housing tenure could at least partly explain the spatial patterns in the TFRs.
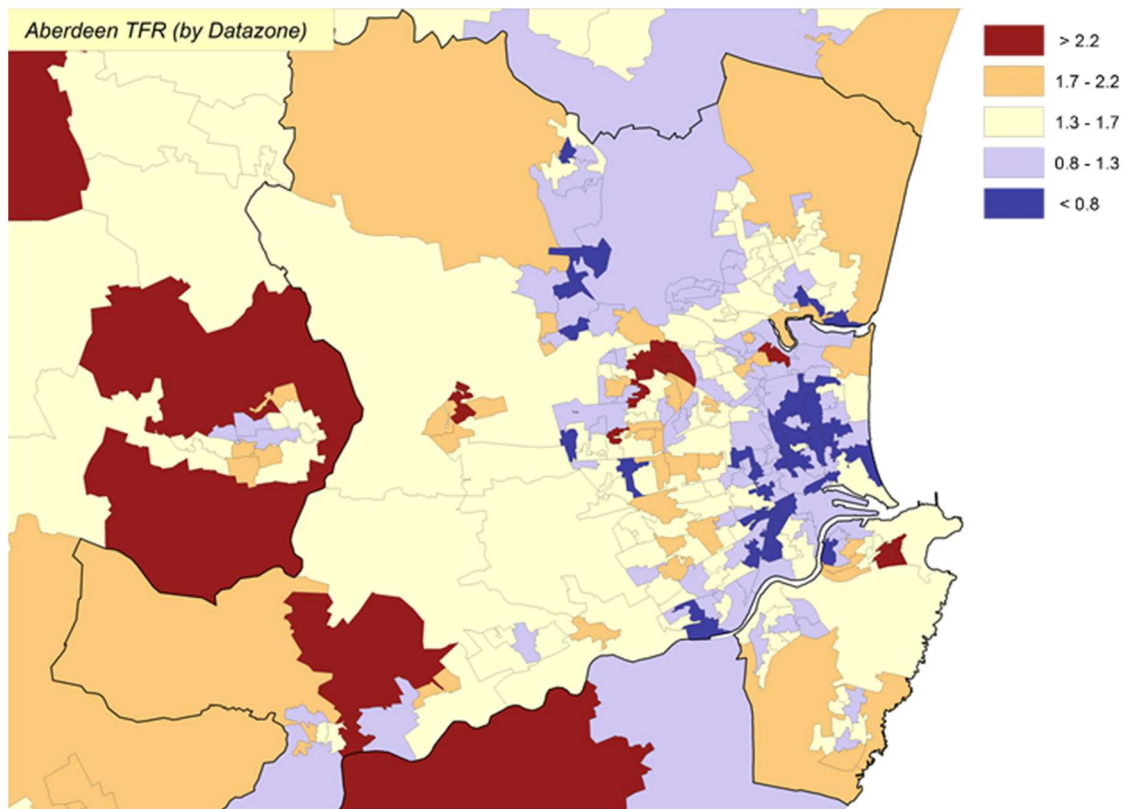
Figure 4.7 Aberdeen, TFR
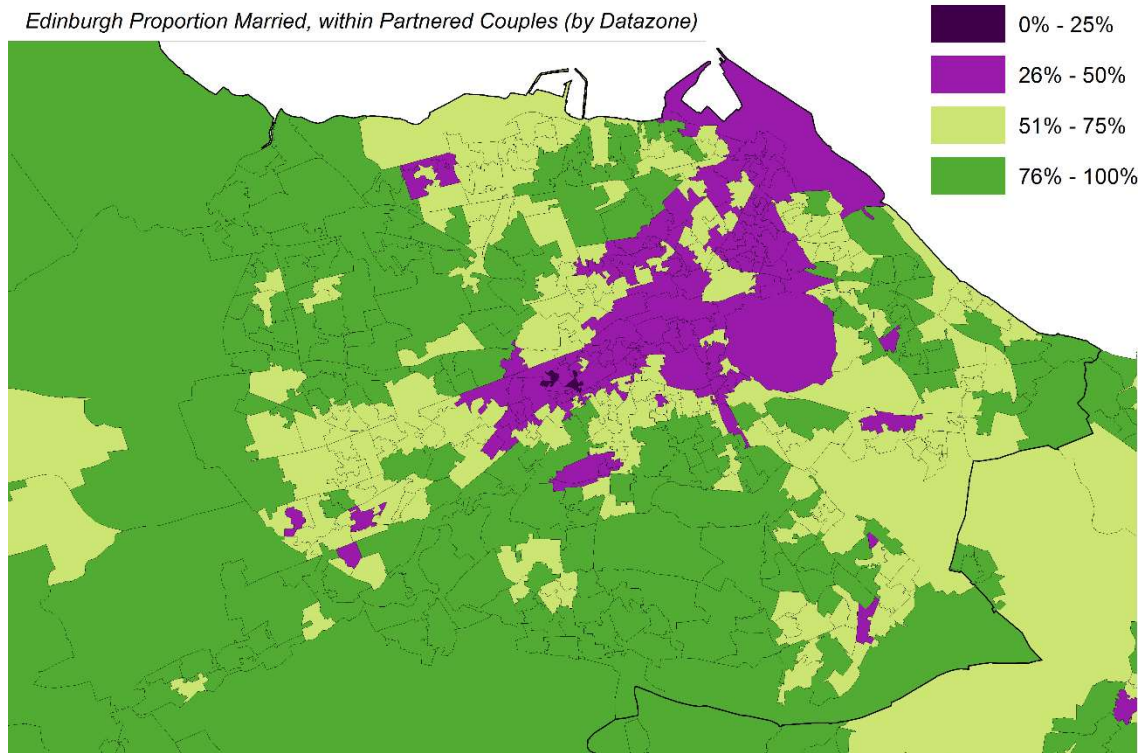**(Based on the NRS vital Registration, average counts for 2000-2002)**

Figure 4.8 Aberdeen, relationship status: proportion of married men and women, within partnered couples.
(Based on the Census 2001, men and women aged 18-49)
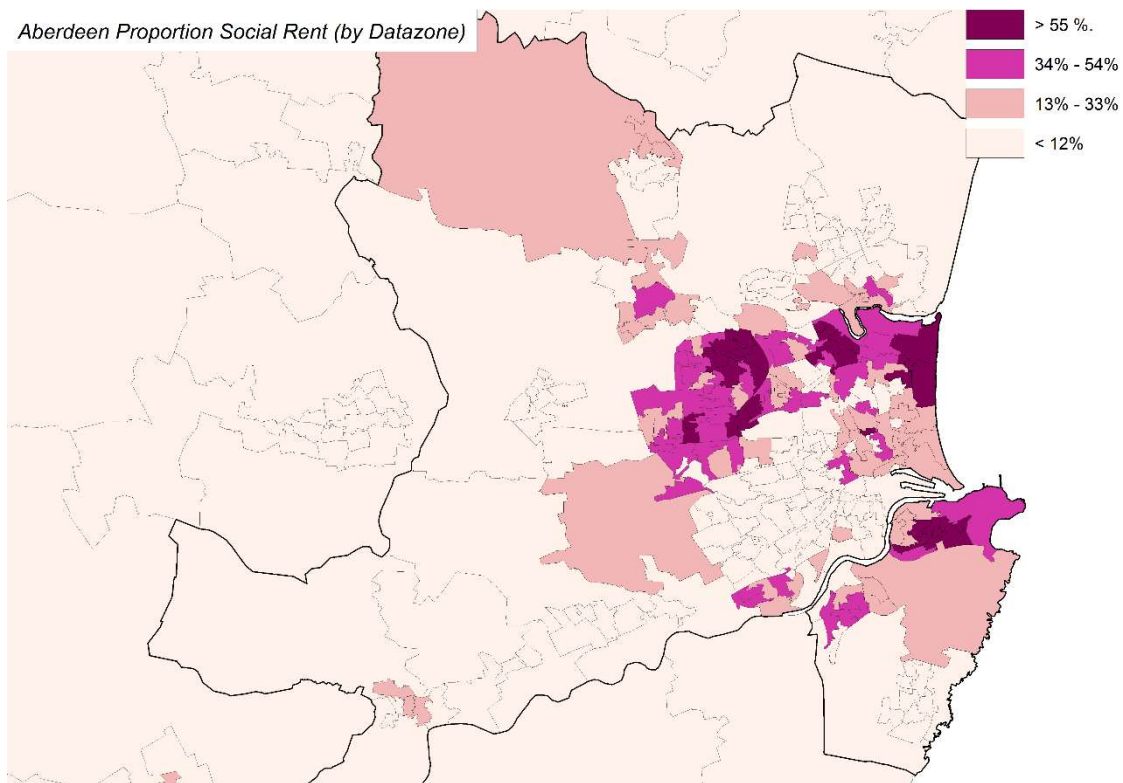
**Figure 4.9 Aberdeen, housing tenure: proportion of social renters within a datazone
(Based on the Census 2001, men and women aged 18-49)**

Housing tenure includes private renting and homeownership, in addition to social renting. However, from a policy perspective individuals with children are given preference when applying for social housing. This means that, overall, a higher TFR is to be expected in datazones in which the proportion of housing that is social housing is high. This observation does not seem to apply to Glasgow, however. Figure 4.10 shows a map that displays housing tenure in Glasgow. Some of the locations of social housing do indeed correspond with areas of high TFR, but areas with a high proportion of housing that is social housing but a relatively low TFR can also be distinguished. A question arises: What is the reason for this low TFR in areas of social housing? In Scotland, living in social housing is generally perceived as being less favourable than living in other kinds of housing, although until relatively recently a large share of Scotland's housing stock was owned by the local authority. The Right to Buy legislation, which led to the sale of the most desirable council housing, also marginalised the current social housing stock, as only the least favourable homes were retained for social renting (Beer and Faulkner 2011). Furthermore, there seems to be a persisting social norm in the United Kingdom, which is now evident in Scotland as well, that couples should own a home before having children. Thus, many potential parents aspire to buy their own home (Murphy and Sullivan 1985). It may be the case that these low TFR

areas in Glasgow are perceived as being undesirable for raising children; however, this is an area for further investigation.
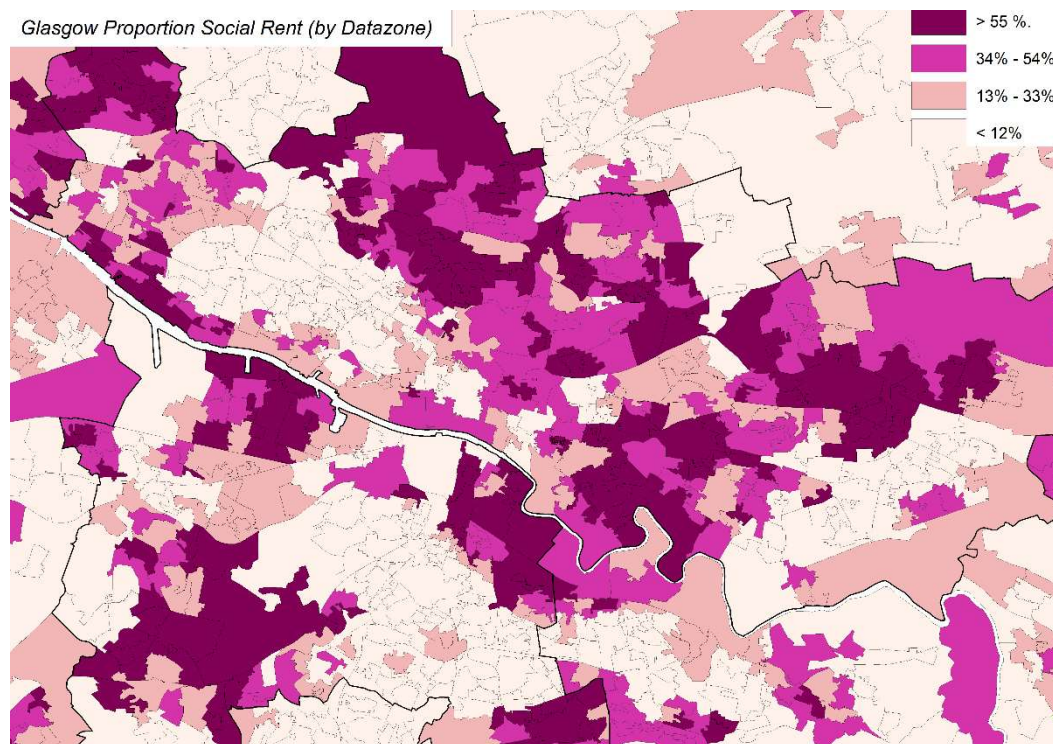
Figure 4.10 Glasgow, housing tenure: proportions of social renters by datazone
(Based on the Census 2001, men and women aged 18-49)

Even though the creation of datazones, with their relatively equal number of people, could be considered a means of normalising the data, as has been noted above, they are visually slightly misleading. For example, the current maps do not provide information about the size of a city or town, while settlement size might influence fertility rates. Since the maps might be criticised for potentially displaying insufficient context, it is useful to explore the possible statistical correlations between the mapped indicators: TFR, housing tenure, and partnership status. In Table 4.1 the correlation coefficients between settlement size, TFR, tenure, and partnership status for the whole of Scotland are shown. Datazones were the unit of analysis in the table. Settlement size was added following other studies (Kulu et al. 2007), and because the maps above suggest that fertility and settlement size might be related. When the datazones were created, the existing administrative boundaries were mostly respected, which means that a datazone cannot fall into two settlement categories at the same time.

Table 4.1 Ecological correlations between TFR, housing tenure, and partnership status by settlement size.

	Large Urban Areas (>125,000 people) TFR		Accessible rural areas and Towns (>10,000 people & proximity to larger settlement (>10,000)) TFR		Remote Rural areas (<10,000 people & >30 minutes' drive to larger settlement) TFR	
Social rent	0.2965	***	0.1809	***	0.1104	**
Private rent	-0.4048	***	-0.0268		-0.1259	**
Owned	-0.0853	***	-0.1665	***	-0.0382	
Cohabiting	-0.1506	***	0.1134	***	0.0115	
Married	0.2077	***	0.0428	*	0.1079	**
Living alone	-0.1834	***	0.0991	***	-0.1393	**

Data source; Census of Scotland 2001 & vital registration 2000-2003
*p<0.05, **p<0.01, *** p<0.001

The variable settlement size, as displayed in Table 4.1, is divided into three categories: (1) large urban areas, which are settlements of over 125,000 people; (2) accessible rural areas and towns, which are towns of between 10,000 and 125,000 people and smaller towns and rural areas within half an hour drive of a settlement of 10,000 inhabitants or more; and (3) remote rural areas, which are towns and rural areas of less than 10,000 people that are more than half an hour drive to a larger settlement. With regard to the correlation coefficients and the significance levels, it appears that there are indeed significant relationships between settlement size, the total fertility rate, housing tenure, and partnership status. Especially in the large urban areas (i.e., Glasgow, Edinburgh, Aberdeen, and Dundee), all of the associations are significant. By contrast, there are fewer significant relationships in the accessible rural areas and towns and the remote rural areas. One possible explanation for the absence of a significant relationship between the TFR and housing tenure outside of the large cities is that these accessible towns are close to one of the larger cities, which distorts the picture; and also that the tenure composition in these places might differ from that in the large urban centres. Furthermore, it is important to realise that there is more potential for heterogeneity in the large datazones typically found in rural areas, whereas there is more potential for homogeneous datazones in cities, where the population density is higher and each datazone is therefore smaller in area. In the latter case, this of course increases the significance levels. Yet in this very simple analysis, a great deal of potentially important geographical detail has already been lost as the maps showed spatial patterns *within* some large urban centres.

Nonetheless, although the geography in the correlation table is relatively simple, the figures do show that there are many potential relationships. Of course, a simple test of correlations does not control for other indicators of fertility. To gain a deeper understanding of the associations among housing tenure, family formation, and geography, we need additional data that give more information about the housing and the neighbourhoods, the potential parents, and the prospective fertility event. The differences in the TFRs that can be seen on the different maps might be partly attributable to socio-economic aspects of the population composition, but this is not certain as long as we do not account for them. Furthermore, the TFR does not allow for a distinction by parity, which is potentially important as well. Hence, I will try to address these issues in the remainder of this chapter, in which I move from area-based to individual data.

4.6. Fertility, Partnership, and Housing

In the following section I focus on factors related to first births, while using individual-level data. In Table 4.1 significant correlations between TFR, partnership status, housing tenure, and geography could be seen. Based on the social norm prevalent in the United Kingdom that a couple should own a house before starting a family (Murphy and Sullivan 1985), I would expect to find that the TFRs are higher among homeowners than among renters. However, the maps presented in the previous section lead me to expect that other factors must be involved. Depending on their personal characteristics and the opportunities they perceive themselves as having, different people make different decisions about when to enter specific stages of the life course, such as entering into a partnership and having a child, but also buying a house. Furthermore, the decision-making process for having a child may differ depending on the parity of the prospective baby (Philipov et al. 2006, Fiori et al. 2014). In order to address these issues, as well as issues of geography, I turn to individual-level data from the Scottish Longitudinal Study.

The SLS should prove very useful for my research purposes, because it is a 5.3 per cent sample of the Scottish population and includes linked census and vital events registration data (which in this case means information about births) as well as other sources (http://www.lscs.ac.uk/). The SLS data span a relatively long time period (1991-2010), and these data are used to obtain both individual and parity information. Fiori, Graham, and Feng (2014) conducted research on women in the British Household Panel Survey (1999-2008) and demonstrated that the process of deciding whether to have a first child differs from the process of deciding to whether to have a higher order birth, especially when considering the local context of a family at the beginning

of their childbearing career. Similar results were found for other countries by Philipov, Speder, and Billari (2006). Furthermore, the information about parity makes it possible to distinguish the age when a woman became a mother, or when she entered the phase of family formation, which is important for modelling fertility outcomes.

Since the SLS links the vital registration data with the census data, it is possible to construct a research sample of individuals without children, which then allows us to deduce the parity of the children who have been born after 20 years. The sample drawn consists of individuals who were present in the SLS over 19 years, from 1991 until 2010. In 2001 they were aged 16 to 30 years. Choosing this cohort will limit the chance of respondents having a birth prior to the 1991 census, and hence it could be assumed that all of the births they either already had or will have had up to 2010, will be measured. The total sample size of individuals who were ever at risk of having a first child is 31,904, of whom 16,980 are men and 14,924 are women. These include adult children still living with their parents. Over the 19 years from 1991 until 2010, 39.7 per cent of the individuals in the sample had a first birth (36.5 per cent of the men and 43.5 per cent of the women).

 The proportions of men and women who had a first birth at a certain age are shown in Figure 4.11. All of the measures of fertility on the maps were based on total fertility rates, which is a period measure that includes first, second, and higher order births to women of childbearing age. In Figure 4.11 I move from showing the TFRs to showing the percentage of individuals within a certain age group who had their *first* birth at that time. The graph clearly shows that age is an important factor when talking about fertility. Most women in the sample, which is representative for Scotland, have their first birth between ages 28 and 34. For men the most common age range seems to be 29 and 33; although the differences between ages are less pronounced for men than for women, and Figure 4.11 shows that the range of ages at first birth is larger for men than for women. Men also tend to have children later in life than women (Zhang 2010). It is important to note that the information in the figure is only available for individuals who had a first birth between 1991 and 2010, which means that the youngest person in the sample was only 25 years old at the end of the measured time frame. Thus, the childbearing careers of some of the youngest women in this SLS cohort might not have started.
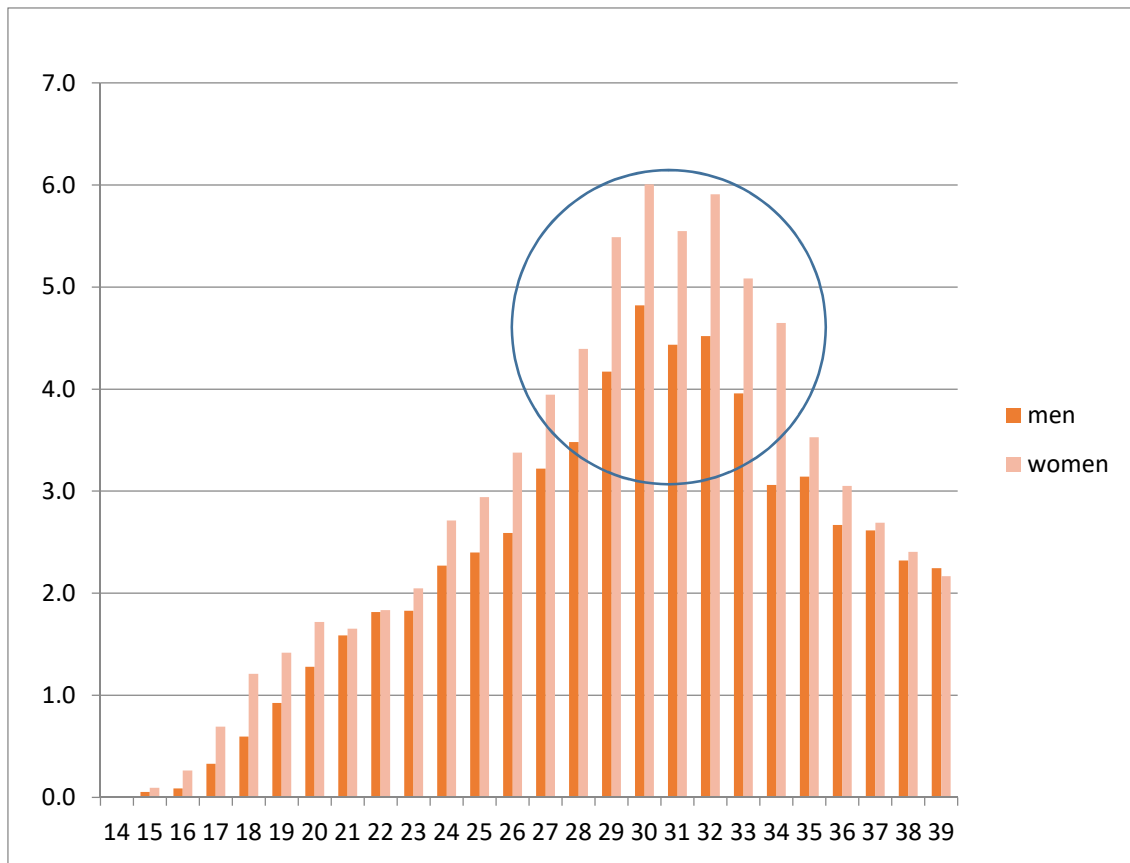
Figure 4.11 Proportion of people in a certain age group who had a first birth between 1991 and 2010, for people aged 6-20 in 1991

63 respondents were registered as parents living with dependent children in 1991, and they can therefore be assumed to have already had a birth before entering the sample. For them the assumption is made that the age at the first birth is the age at which they entered the sample. Their ages were 18, 19, and 20 years old.

Data source; Scottish Longitudinal Study; N=31,904, 16,980 men and 14,924 women

Figure 4.11 also shows that the age at which a person starts a family depends on individual factors as well. For example, an individual might decide to have a family relatively late in life because s/he is in education. Taking the previously mentioned example of a young person who moves to the city to pursue an education, we can reasonably assume that this individual is going to university. A further argument can be made that individuals who have higher levels of education tend to postpone having children until they have finished their education (Liefbroer and Billari 2010), are likely to earn more than people with lower levels of education, and have relatively high chances of having children while married (Berrington 2004) and of owning a home. This example indicates that the personal characteristics of the potential parent in addition to age need to be taken into account before conclusions can be made about whether and, if so, when s/he will have a first birth. Moreover, based on the census data, it is hard to make a geographic connection to family formation while accounting for other, possibly

important, socio-economic factors; and concurrently following the respondents over time. By combining vital events information with data from the Scottish census, the SLS allows us to study the respondents over time. The type of model that is most appropriate for investigating both the occurrence of an event and the situation leading up to that event is a survival, or event history model. When using this type of model, not just the occurrence of an event, but the timing of this event must be taken into account. Thus, it is important that we take into account not just each birth event itself, but also when in the life course of the mother the birth happened. Hence, I fitted a Cox proportional hazards model to predict whether and, if so, when the women in the SLS sample gave birth.

The Cox models that are fitted in this chapter include only time-constant explanatory variables, which may initially seem strange. For example, a person who is a student at a certain point in time is unlikely to still be a student five years later, or a person who is cohabiting at a certain point in time might have separated or married by the time of the recorded birth event. However, the only point of measurement for these explanatory variables in the SLS data was the 2001 census; thus, due to data restrictions the explanatory variables are considered time-independent. The only variable that changes in the Cox models that are specified in Table 4.2 is the dependent variable, which for a Cox model is a unit of time spent in a certain state before the event happened. In the fitted models specified, the dependent variable is the duration in years until a woman had a birth.

Women who did not experience a birth event within the timeframe of the study are right-censored. Many cases will be right-censored because the respondent had a birth. As the time frame for the study is 2001-2010, which is nine years, and the oldest person in the sample was only 39 years old by the end of the measurement time, the respondents in the sample will have had about 10 unmeasured reproductive years. The unmeasured history before the time frame of the study is called left-truncated or left-censored. The SLS data are available between 1991 and 2010. However, as my dependent variable is a first birth, I have attempted to eliminate from the sample for my Cox models all of the women who had a child before the 2001 census, which provides the baseline information for the models. Hence, left-censoring will be assumed to be negligible, and all of the observed birth events will be assumed to be a first birth.

In order to explain whether and, if so, when a woman had a child, it is likely important to take into account various socio-economic indicators—for example, age, partnership status, and

housing tenure—that have been proven to influence the family formation process in one way or another. Age was entered into the model in five three-year age groups for women who were between 16 and 30 years old at the time of the 2001 census. Partnership status indicates the relationship an individual was in at the time of the 2001 census: married, cohabiting, single, or divorced/separated/widowed. Divorced, separated, and widowed individuals are combined as these are all forms of singlehood after having been in a relationship. Housing tenure is entered into the model as social renting, owning, and private renting. Those who claimed to be living rent free are also categorised as social renters, as the National Records of Scotland deems it possible that individuals who were collecting housing benefits while living in social housing ticked the rent free option on the census form (www.gro-scotland.gov.uk, 2014).

Using the information from the SLS about the age at first birth and additional individual characteristics, I fitted a Cox model for proportional hazards to estimate the effects of the important explanatory variables on the timing of a first birth for women in Scotland. The analyses are focused on women who could have had their first birth between 2001 and 2009, and between the ages of 16 and 39. All births are considered an event, irrespective of the outcome, because the main focus of this study is the period leading up to the birth. Therefore, stillbirths are also included in the analyses. Time is measured in years since the 2001 census. Adding variables one or two at a time allows me to observe the different effects of these variables on fertility outcomes. Table 4.2 shows the results of the different models. A Cox proportional hazards model is a method for researching the effect of several factors on the timing and occurrence of an event (in this case, a first birth). A positive coefficient shows that the hazard (or risk) of having a first birth is higher for those women than for the women in the reference category (Box-Steffensmeier and Jones 2004, Blossfeld et al. 2007).

Table 4.2 Hazard model for having a first child.

	Model A		Model B		Model C		Model D	
	β	s.e.	β	s.e.	β	s.e.	β	s.e.
22-24	ref		ref		ref		Ref	
16-18	-0.261 ***	0.044	-0.093	0.053	-0.056	0.054	-0.061	0.054
19-21	-0.069	0.042	0.083	0.045	0.101 *	0.046	0.099 *	0.046
25-27	0.053	0.043	0.003	0.044	-0.012	0.045	-0.014	0.045
28-30	-0.106 *	0.047	-0.158 **	0.048	-0.182 ***	0.049	-0.185 ***	0.049
Married	ref		ref		ref		ref	
Cohabiting	-0.398 ***	0.049	-0.444 ***	0.050	-0.443 ***	0.051	-0.443 ***	0.051
Single	1.240 ***	0.046	-1.195 ***	0.047	-1.103 ***	0.052	-1.084 ***	0.052
Split/widow	-0.709 ***	0.124	-0.638 ***	0.125	-0.623 ***	0.127	-0.619 ***	0.127
Own	ref		ref		ref		ref	
Social rent	0.252 ***	0.034	0.176 ***	0.037	0.168 ***	0.037	0.255 ***	0.056
Private rent	-0.235 ***	0.049	-0.221 ***	0.051	-0.297 ***	0.054	-0.515 ***	0.075
Fulltime employed			ref		ref		ref	
Part-time employed			-0.303 ***	0.042	-0.293 ***	0.042	-0.291 ***	0.042
Unemployed			0.045	0.064	0.048	0.064	0.043	0.064
Student			-0.597 ***	0.054	-0.590 ***	0.054	-0.576 ***	0.055
Other			-0.434 ***	0.083	-0.422 ***	0.084	-0.423 ***	0.084
Higher grade			ref		ref		ref	
No qualification			0.397 ***	0.065	0.390 ***	0.066	0.381 ***	0.066
Standard grade			0.313 ***	0.039	0.314 ***	0.039	0.301 ***	0.039
Vocational (hnc/hnd)			0.195 ***	0.048	0.180 ***	0.049	0.175 ***	0.049
Degree or higher			0.252 ***	0.044	0.245 ***	0.044	0.252 ***	0.044
Living with parents					-0.184 ***	0.043	-0.204 ***	0.043
Is religious					0.119 ***	0.030	0.118 ***	0.030
Urban >125,000							ref	
Accessible town >10,000 & Proximity >10,000							0.039	0.035
Remote rural <10,000 & No proximity >10,000							-0.088	0.085
Own in Urban area							ref	
Social rent in accessible town							-0.123	0.073
Social rent in rural area							-0.222	0.154
Private rent in accessible town							0.474 ***	0.108
Private rent in rural area							0.617 **	0.183
Births	5491		5199		5078		5078	
Log likelihood	-50392.68		-47197.97		-45942.06		-45923.18	
N	13469		12585		12252		12252	

Data source; SLS 2001-2010. *p<0.05, **p<0.01, *** p<0.001

Every model includes the variables from the previous model plus one or two more. Model A shows effects of two variables already proven to be highly influential for family formation and for the timing of a birth: age and partnership status (Mitchell and Gray 2007). Furthermore, Model A also includes a variable for housing tenure because the maps in the previous sections lead me to expect that housing tenure is influential for fertility outcomes as well. The reference category for age is the group of women who were in the age group 22-24 in 2001, the reference category for partnership status consists of the women who were married, and the reference category for the tenure variable consists of the women who were homeowners. This first model includes all of the variables that were mapped in the previous sections and that seemed likely to add to the explanation of family formation. As can be seen in first column of Table 4.2, all of the covariates in this model have a significant impact on the timing and occurrence of a first birth. Compared to women who were in the age group 22-24 in 2001, younger as well as older women have a negative log-hazard of having a first birth. The log-hazard for the highly significant younger age group, 16-18 in 2001, is -0.26; whereas the log-hazard for the oldest age group, 28-30 is -0.106. Thus, within the significant categories the hazard of having a first birth within the next decade is highest for the women aged 22-24, the reference category. As the coefficients in the two other significant groups were negative, the hazards of having a first birth in the designated time are smaller. A possible reason for the fairly large negative log hazard found for the youngest age group might lie in the study design. The women aged 16, 17, or 18 in 2001 were only 25, 26, or 27 when the study ended. As we can see in Figure 4.11, the majority of women have their first child around age 30; thus, a fairly large number of those women might have had their first child after the study ended. For the oldest age group, it is important to keep in mind that since the sample consists of childless women, some of these women could have made the choice to not have children; whereas other women in this age group may want to have children, but have not yet had them as they are approaching the end of their reproductive career. For the youngest group, another potential explanation for the negative coefficient is that for a considerable share of the measured time they were still in education. Having children while in education is fairly uncommon; most individuals tend to postpone having children until after they have finished their education or until they have had a few years to establish their career.

When we look at partnership status, we can see that the women in all of the partnership categories are highly likely to have a first birth, which leads me to conclude that partnership status is an important explanatory factor for having a first birth. Furthermore, women who are

cohabiting, single, or split up/widowed all have a negative log-hazard compared to married women, who are the reference category. Thus, being married increases the hazard of having a first child in the following years. The categories of women who deviate the most from the reference category are those of women who are single (-1.240) and of women who have separated (-0.709). This makes sense as an individual who is living in a partnership is likely to differ from an individual who is living on her own, especially in terms of the chances of becoming pregnant.

Being partnered increases the hazard of having a first child. A question that remains is whether the other mapped variable, housing tenure, has a significant influence on having a first child. Based on the literature it seems that many people believe that prospective parents should own their own home; preferably a home with a garden (Mulder 2007). However, this preference for homeownership is not confirmed in Model A, as in that case all log-hazards would have been negative. Compared to homeowners, who are the reference category, women living in social housing are significantly *more* likely to have a birth (0.252), whereas women in privately rented accommodation are significantly less likely to have a birth (-0.235).

One reason why homeowners have a smaller hazard of having a first birth than women in social rented accommodation might have to do with employment. It is likely that a woman in full-time employment has more income, though less time, than a woman who is in part-time employment or is unemployed; hence, this woman is more likely to be a homeowner or ineligible for securing social rented accommodation. One possible explanation for the smaller hazards found among women who live in private rented housing is that these women have a more fluid lifestyle, and have not yet 'settled down'. Alternatively, women who live in private rented housing may feel insecure, as they could be asked to leave the accommodation if the owner decides to sell the house. Another possibility is that some of the women living in private rented housing have just finished their university education, and need to work for a few years before having a child. However, if this is the case then adding education into the model should diminish the effect of housing tenure.

In order to explore the potential impact of education and employment on having a first birth, the next model, Model B, includes employment status and educational attainment, in addition to the factors of age, partnership status, and housing tenure. I added the two variables at the same time because it can be argued that educational attainment and employment status are

related, since both are associated with economic activity status. In other research, a higher level of education was found to have a negative effect on first birth rates (Aassve et al. 2006, Rijken and Liefbroer 2009) and also on the timing of first births (Rendall and Smallwood 2003). This is generally the case because individuals in education tend to defer childbearing until they have finished their studies (Black, Devereux and Salvanes 2008, Liefbroer and Billari 2010). Regarding employment, Aassve et al. (2006) also found that being in employment has a negative effect on childbearing for women. Looking at the significance levels in the outcomes from Model B in Table 4.2, we can see that the effects for the different categories in partnership status are basically unchanged from those found in Model A. The reference category of married people still have the highest hazard of having a first birth. Regarding age, some changes from Model A to Model B are visible; women in the youngest age group are no longer significantly more likely to have a first birth. This insignificant result is likely due to the inclusion of educational attainment in the model. The women in the younger age group are likely still in education; therefore, the age effect might be controlled for by education. Interestingly, despite the addition of educational attainment and employment status, housing tenure is still found to be a significant factor in the likelihood of a fertility event. We might have assumed that individuals in full-time employment, and especially those with higher education, would be in a better position to buy a house, and that the effect of tenure would therefore diminish once employment status and educational attainment were taken into account. As we can see in Model B in Table 4.2, this is not the case.

A phenomenon that has not been accounted for in Models A or B, and that could distort the picture so far, is the possibility that some of the respondents might still be living with their parents, and that data about their housing tenure actually relates to the tenure status of their parents rather than themselves. This issue is important to acknowledge, as I argue that housing tenure is one of the important explanatory factors of family formation. Therefore, Model C includes a variable for those respondents in the sample who still live with their parents. As being religious is generally considered a reason for higher fertility, and sometimes for having children at a younger age (Philipov and Berghammer 2007), I add to the model a variable measuring religion that is based on the census question in which individuals were asked whether they regarded themselves as religious. However, the model changes little when controlling for religiosity and for whether a woman lives with her parents. Figures for all of the variables that were significant in Model B are again significant again in Model C, and the coefficients changed

only slightly; the only notable difference is that the age group 19-21 becomes significantly more likely to have a child sooner than the reference group; however, the log-hazard is small (0.101). Both added variables do, however, show a significant effect. Women who were living with their parents at the time of the 2001 census have a significantly negative log hazard of having a child within the following nine years (-0.184) compared to women who were not living in their parental home. By contrast, the log-hazard for having a first child is significantly positive (0.119) for religious women compared to women who are not religious.

So far, age, partnership status, housing tenure, educational attainment, employment status, living with parents, and being religious are all shown to be significantly related to having a first child. However, a variable that has so far not been included is settlement size, although it has already been shown, for instance, that people living in more rural areas are more likely than urban residents to be religious (Philipov and Berghammer 2007). The mapping exercise conducted earlier in the chapter suggests that geographical location might be an important influence on fertility behaviour. Previous studies have also shown, for example, that the number of children per woman is higher in the countryside than in the urban areas (Kulu 2013). Therefore, in Model D a variable is added to account for settlement size; and in this same model an interaction between the settlement size variable and housing tenure is also added. As for the correlation table (Table 4.1), settlement size is divided into three categories: large urban areas with populations of over 125,000; accessible rural areas and towns with populations between 10,000 and 125,000, or proximity to an urban area with a population of over 10,000; remote rural areas with populations of less than 10,000; and no proximity to a larger urban area. The interaction is added to account for the differences in housing stock in the cities and in the countryside. In a very rural area, rental accommodation might not be available, and if it is available, it might consist of private rented housing only; therefore, the housing tenure variable interacts with the location. Interestingly, controlling for living in an urban or a more rural area on its own does not add anything to the explanation of the duration times to first birth (results not shown). Yet, when interacted with housing tenure, the interactions become significant and the effects between the different kinds of tenure become more pronounced, especially for private renting. The log-hazard for private renting in this last model is -0.515. For women living in social rented accommodation, the log-hazard becomes more pronounced and positive (0.255) after settlement size is taken into account. The interaction itself is also proven to be significant. Compared to the reference category, which is homeownership in an urban area, living in private

rented accommodation outside of the urban areas is shown to have a positive effect on having a first birth. Private renting in accessible towns has a log-hazard of 0.474, whereas private renting in a rural area has a log-hazard of 0.617. It appears that living in private rented accommodation mostly has a negative effect when the housing is in an urban area.

As can be expected, age and partnership status are both shown to be important factors in the likelihood of having a first birth. Married individuals have higher chances than cohabiting people of having a first birth, whereas being single or widowed significantly lowers this risk. This finding is consistent with the literature; for instance, Jamieson et al. (2010) found that respondents with a co-residing partner are much more likely to have children than those who are living without a partner, and Kiernan (2004) found that married couples are more likely to have children than cohabiting couples. However, partnership status was reported in 2001 only. This means that a woman who was categorised as single may well have been in a partnership by the time she had a child. Moreover, housing tenure is of significant influence: social renting and private renting are both significantly related to the chances of having a first child (while owning is the reference category). Furthermore, a result that may contribute to our current knowledge about family formation and geography is the finding that housing tenure has a different effect on the likelihood of having a first birth depending on the settlement size.

4.7.   Conclusion

In this chapter, I have explored how partnership status, housing tenure, and fertility are linked by using the 2001 census and the 2001-2010 SLS data. I explored this link first by using a spatial perspective, and produced a series of maps for visual comparison. Spatial variations in fertility have rarely been the focus of fertility research (Boyle 2003), but examining the geography of fertility does add an extra dimension to the data. The main strength of the maps presented in this chapter is that they bring potential relationships on a small geographical scale into view. Such a small scale could not be used in a survival model; nevertheless, the strengths of the survival model is that it showed associations on a larger scale, and was able to include other explanatory variables. The results of the final analysis show that partnership status and housing tenure are significant indicators of the hazard of having a first birth within the process of family formation.

Family formation and its relationship with partnership is fairly clear, but what is the relationship between family formation and housing tenure? Moreover, where in the process of family

formation are partnership and housing situated? I will attempt to answer the first question in the current paragraph, and the second question later in this section. There is a possibility that the link between family formation and housing is influenced by social norms about what constitute proper conditions for starting a family. Some studies have pointed to the existence of a social norm that prospective parents should buy a home before having a child (Murphy and Sullivan 1985), and others have found evidence that homeowners have higher fertility than renters (Mulder and Wagner 2001). In addition to housing tenure, the size of the house and the location or the neighbourhood might be important. In their research, Mulder and Wagner (2001) compared family formation in different locations and found different results, which they linked to location. It is therefore possible that the context in which family formation takes place, or the attitudes about the ideal context in which to raise a child, are also influential in fertility decisions. In this chapter the indicators related to measurements of context were a variable for urban-rural area and a variable for housing tenure. This tenure variable could be only partly considered a contextual variable, as it is measured on the individual level, but depended on contextual factors such as availability, the catchment area, and the neighbourhood. In the next chapter I expand on this issue by examining attitudes related to fertility, to neighbourhood, and to housing tenure.

While exploring attitudes related to fertility, neighbourhood, and housing tenure, in the next chapter I also shift the research focus to a different stage of the family formation process. The process of family formation encompasses several transitions in the life course, starting with partnership formation and ending with having children. In between these two stages many choices and decisions can be made. For instance, if, as the literature suggests, homeownership is an important prerequisite for having a child, then the presence of this norm should be seen in the data. Housing tenure can indeed be associated with actual fertility, but at which moment in the family formation process does tenure become important? Although it is valuable to explore the main indicators of having a first birth, it is important as well to investigate which factors affect the fertility intentions and expectations of a potential parent. Therefore, in the next chapter, I move away from actual fertility and focus on 'expected' fertility. After using the large datasets from the Scottish census of 2001 and the SLS to establish the association between partnership status, housing tenure, and having a first birth, in the next chapter I will use the relatively small fertility module of the Scottish Social Attitude Survey 2005 to explore shared

social attitudes related to fertility, and their relative influence on an individual's fertility expectations.

5. Social Norms in Family Formation and Housing

5.1. Introduction

Social norms and expectations that are apparent in society influence people's behaviour. They encompass the rules and the attitudes regarding what is appropriate behaviour within a certain social group (Ajzen 1991, Kandori 1992, Crawford and Ostrom 1995, Liefbroer and Billari 2010). During the 21st century, norms and values regarding family life (including having a child) have been changing, and the proponents of the 2DT have argued that as society has become more individualistic, social norms have become less important in directing the behaviour of individuals (Van de Kaa 1987). However, other studies (Fishbein and Ajzen 1975; Ajzen 1991; Liefbroer and Billari 2006) have argued in favour of the incorporation of social norms into behavioural research, as even in modern, more individualistic societies social norms are likely still important. In the previous chapter I found that housing tenure significantly influences the risk of a first birth. This finding may be attributable to shared social norms regarding family formation and preferences regarding family housing tenure. It is, however, challenging to provide a clear definition of the social norms that direct specific family formation choices, and it is nearly impossible to measure social norms directly. Therefore, in the current chapter my focus will be on the shared social attitudes regarding having children that might influence potential parents' responses to social norms.

While in the previous chapter I investigated women's total fertility rates and first births based on data from the SLS, in this chapter I move to an earlier stage of the family formation process, and investigate potential parents' fertility expectations based on data of the Scottish Social Attitude Survey 2005. The reason for examining fertility expectations is related to the potential social norms. If social norms regarding the preferred housing tenure and the area of residence influence an individual's choices and decisions, in the case of family formation this means that these norms are influential before the actual birth takes place. These norms might indeed be influential earlier in the family formation process, including at the moment the decision is made to have or to not to have a child. Therefore, in this chapter I investigate fertility expectations. My objective in this chapter is to gain more insight into social norms in Scottish society, and to answer the following research question:

To what extent do shared social attitudes regarding having children impact on the fertility intentions of childless men and women?

To explore the answer to the question above, I use three statistical methods: bivariate analysis, latent class analysis, and multivariate logistic regression. The bivariate analyses are used to explore and describe the data, whereas the logistic regression tests for possible important associations. As social norms regarding housing tenure and family formation are likely to be the drivers of the significance of housing tenure shown in the previous chapter, in this chapter I will use a latent class analysis to create a measure of shared social attitudes towards having children that was included in the logistic regression models.

The chapter is structured as follows. I begin by providing a brief overview of the literature related to social attitudes and expectations regarding fertility. In the following section I present the SSAS dataset and the relevant variables included in in it; in this section I also present three statistical methodologies. In the next section I present an exploration of the data using descriptive statistics, and in the penultimate section I report the modelling outcomes and discuss the results. In the final section I reflect on the relationships between the results and the concepts of social norms related to fertility expectations.

5.2. Attitudes and Expectations Regarding Fertility

In this section I will outline the variables I consider to be most likely to influence fertility expectations based on the fertility literature. There are three main publications on the topic of family formation that made use of the SSAS, and the results of these investigations are given some extra attention in the selection of variables. Boyle, Graham, and Feng (2007b) focused on fertility in a geographical context, and modelled the fertility expectations of childless women; whereas Dey and Wasoff (2010) examined the differences between the ideal, the expected, and the actual family size. The latter study found a link between family formation and socio-economic indicators, and also between socio-economic indicators and family size (two factors associated with low fertility that stood out are higher levels of education and working women). Ralston (2012) took the relatively descriptive research of Dey and Wasoff (2010) a step further by using more sophisticated statistical methods to compare the ideal and the actual number of children, and he also investigated attitudes related to the financial aspects of family formation. He did not, however, make a direct connection between shared attitudes and fertility expectations.

Among the factors found to be associated with fertility by Dey and Wasoff (2010) were level of education, income, class, religion, female employment status, and housing tenure. Boyle et al.

(2007b) found that that being a woman, being single, being non-religious, and being unemployed or having the 'other' employment status are all significantly associated with expecting to have zero or one child; as are being too stressed to have children and having a mother who does not encourage the individual to have a child. Neither of these studies mentioned a relationship between fertility and age, whereas actual fertility tends to vary with age. I therefore anticipate that, like actual fertility, expected fertility will decline with increasing age. Furthermore, the age of an individual is likely to affect his or her opportunities to improve his or her educational attainment, employment status, and housing tenure; as for all those indicators the chances of improving one's situation typically increase over time.

Partnership status is an important indicator for fertility. Most children are born to individuals in a partnership (Kiernan 2004). Being single was found by both Boyle et al. (2007) and Ralston (2012) to be related to low fertility. As the norm in Scottish society is that a child should have a father and a mother, it seems reasonable to assume that individuals who are in a relationship (married or cohabiting) are more likely than people who are single to expect to have children. However, as single individuals might still be young (and idealistic), it is likely that a large share of them will expect to have children in the future. Meanwhile, individuals who have separated from a partner or who are divorced may be expected to have the lowest fertility expectations.

In addition to finding a relationship between actual fertility and partnership, Dey and Wasoff (2010), Wasoff et al. (2007), and Boyle et al. (2007b) also found links between religion and the number of children couples expected to have. They found that individuals who are not religious have a higher chance of expecting to remain childless or having only one child. Research on other data also showed that being religious positively influences fertility (Philipov and Berghammer 2007). It is possible that religious individuals feel strongly about procreation, and therefore expect to have children in the future. Based on the literature, I hypothesise that being religious increases fertility expectations.

Actual fertility tends to be related to education, as individuals with high levels of education tend to have children later in life, whereas individuals with lower levels of education tend to start the family formation process at a younger age, and therefore have more opportunity within their reproductive life span to have a larger family. Similarly, Dey and Wasoff (2010), using data from the SSAS, found that low levels of fertility are related to the level of education. However, education also tends to be related to age and employment status, and employment status may

in turn be related to tenure type. People with university degrees tend to be older, and have thus had more time to establish themselves than people who are still in education, and who therefore have a lower 'highest attained qualification'. Liefbroer and Billari (2010) argued that finishing education is normative behaviour before starting a family, and Ralston (2012) theorised in his fertility threshold theory that individuals usually have children after they have finished their education, since that is the time when they establish themselves. As finished education is directly related to indicators such as employment status, I anticipate that the possible influence of being in education on expected fertility will be controlled for by the other indicators, especially employment status. Being employed, unemployed, or in education has been found to be an indication of the chances of having children (Aassve et al. 2006). The TFR is usually higher among people who are unemployed than among people who are employed, whereas individuals who are in education and are economically inactive tend to be childless. I assume that expected fertility is similar to actual fertility with respect to its relationship to employed and unemployed individuals. However, as students or individuals who are still in education have the prospect of improving their lifestyle, their expected fertility might be higher than their actual fertility.

An individual's employment status typically influences where s/he lives, and in what kind of tenure. Students are more likely to be found in private tenure (Hubbard 2009), whereas being employed increases the possibility of being able to afford to own a home. Compared to homeownership, renting has been found to be a significant and positive indicator of actual fertility (Ralston 2012). How expected fertility is influenced by tenure is unclear. In Chapter 4, I found that the hazard of having a first birth is higher for women in social rented housing than for women who own a home. Private renting is less secure than social renting, and private tenants might be individuals who are not yet settled, and who perceive that their situation is unsuitable for raising a child. This finding that people in social rented housing have a comparatively high hazard of having a first birth seems to be in contradiction with the literature, as research on other countries in Europe found higher TFRs among homeowners (Mulder 2006). Furthermore, in Britain the normative preferred tenure has been shown to be homeownership (Murphy and Sullivan 1985). Thus, I anticipate that most individuals will say they expect to have a child after they have settled down, by, for example buying a house; and I therefore expect to find that homeowners are the most likely to say they expect to have a child in the future.

In addition to the differences between people based on their housing tenure, there might be differences on a more local scale between people in different neighbourhoods, as could be seen

in the maps in Chapter 4. Child-friendly neighbourhoods have been found to be associated with higher levels of fertility (Wasoff et al. 2007). Boyle et al. (2007b) found that men in the most deprived areas and women in the least deprived areas are much more likely to expect to have a large number of children than individuals living elsewhere. From these seemingly opposing results, they concluded that there is a relationship between geographical context and fertility behaviour, because fertility attitudes and expectations vary depending on what kind of neighbourhood people live in. They also found that there is a strong link between how individuals perceive their neighbourhood and their expected family size. Individuals who live in areas they perceive as being as bad or very bad for bringing up children generally expect to have fewer children; however, the women who live in the most deprived areas are the least likely to remain childless. Boyle et al. (2007) suggested that this contradiction may be attributable to the incidence of teenage pregnancies. Whatever the explanation, these findings present a paradox: the individuals who perceive that their area is bad for raising children also are the least likely to remain childless until a later age. This contradiction emphasises the potential differences between an individual's expectations about having children and his or her actual fertility behaviour, which might point towards the existence of a social norm that children should be raised in a 'nice' area.

The differences between the fertility expectations of men and women were not only found at the neighbourhood level. In their analysis of the SSAS data, Boyle et al. (2007b) found that men in rural areas are more likely to expect to remain childless. Overall, fertility is found to be higher in rural areas than in the cities(Kulu 2013). If in rural areas a large share of individuals remain childless but overall fertility is higher, this likely means that family sizes are larger in rural than in urban areas. If living in a rural area is considered good for having a family, then this norm might stimulate people living in the country to have a large family. If the assumption that the high actual fertility rate stems mainly from large families is correct, then this pattern would be hard to detect in the research results for expected fertility, since for expected fertility only the possible transition from zero to one child is analysed.

5.3. Data and Methods

In the previous chapter, I used the SLS dataset. The main asset of the SLS dataset is that it has a large sample size, and therefore enables researchers to explore several background characteristics of the respondent. In the current chapter I employ the SSAS 2005 dataset, a retrospective survey conducted in Scotland. This survey, which had a special module on fertility

in the 2005 questionnaire, is smaller than the SLS, but contains a wealth of attitudinal information regarding fertility and family formation. This dataset is unique in that it is the only dataset that contains relevant attitudinal information on fertility from Scottish respondents (ScotCen 2005). I use the data from this survey to explore potential social norms regarding to family formation, and to investigate potential differences between groups of individuals with different socio-economic backgrounds, as well as other characteristics of the respondents of the 2005 survey.

The 2005 SSAS was conducted among 1549 individuals, and the information was gathered through face-to-face interviews and self-completion questionnaires. Multi-stage stratified random sampling was used to ensure representativeness for Scotland. The 2005 fertility module had questions that were posed to women aged 18-45 years and men aged 18-49. It had several measures of fertility attitudes and indicators for the neighbourhood in which a respondent was living, as well as a range of socio-economic indicators. The questions of the fertility module were asked of 680 respondents. However, within this 'fertility sample' some questions were posed to all respondents, some only to childless people, and others to parents only. This results in samples of between 180 and 680 records, depending on the analysed question.

The SSAS dataset has three measures of fertility: c*urrent, expected,* and *ideal*. The main focus of the current research is on expected fertility, rather than on ideal and actual fertility, as the research aim is to tease out perceived barriers—or perhaps stimuli—to fertility. Taking this approach means that no distinction will be made between intended and unintended fertility. However, when a pregnancy is unintentional, an individual may have to deal with a completely different set of decisions, and these are outside the scope of the current research.

Furthermore, it is important to consider the differences in the questions regarding ideal and expected fertility. A person may want to have another child, but may not expect to have another child due to financial or time constraints. Moreover, the person may not have full control over his or her decisions regarding childbearing/rearing.

The analyses in this chapter focus on the expected measure of fertility; i.e., the question regarding whether the respondent expects to have children in the future. Current fertility (expressed in the form of 'does the respondent have children') is also analysed. The questions in the fertility module were answered by 680 respondents; of those, 439 had experienced

'current fertility'. This means that 241 respondents did not have children at the time of the survey, and could have answered questions regarding expected fertility, but 10 of these respondents opted out of doing so. Thus, for the analysis of expected fertility, the total sample consists of 231 individual respondents.

In addition to fertility measures, the survey contains different indicators of attitudes towards fertility. Broadly, they can be arranged in three categories: residence and fertility, income and fertility, and lifestyle and fertility. I will analyse these attitudes both as a group and separately with respect to expected and actual fertility. Finally, there are the individual characteristics of respondents. In the current chapter, controls for age, gender, housing tenure, being religious, employment status, and settlement size are also incorporated and investigated. All of the analysed variables are shown in (Appendix C).

The methods I use in this chapter are uni- and bi-variate analyses that employ chi-square tests. These analyses describe the data and test the associations between expected fertility and age, gender, education, employment status, religion, partnership status, and type of residence. I then employ logistic regression to test possible multivariate relationships, and a latent class analysis to find possible shared social attitudes. The latent class model estimates the probabilities of class membership, and the class-specific probabilities of providing a certain answer (McCutcheon 1987, Collins and Lanza 2010). The latent class analysis is used to identify a latent variable that is responsible for a relationship between the variables that seem to be unrelated. The class membership is eventually added to the logistic regression model.

5.4. Indicators Associated with Fertility Expectations

I start by testing fertility expectations according to the traditional indicators of actual fertility, like the ones used in the two reports mentioned above. First, the analysis tests the hypotheses that *if variables are important for actual fertility, then they might be indicators for expected fertility as well*. The next step is to explore other variables, based on Boyle et al. (2007) and Dey and Wasoff 2010 but also on other literature, that might explain expectations regarding future parenthood. At the start of this section, I present descriptive statistics showing the distribution of the explanatory variables in the SSAS sample across different fertility categories. In addition, I then use Chi-square tests to examine the differences between selected variables.

Table 5.1 Indicators of fertility in the SSAS

		N	Has children yes	no	(Within 'No') Expect children in future? yes	no
Gender	Male	302	57%	43%	68%	33%
	Female	378	71%	29%	69%	32%
Age grouped	18-24	97	24%	76%	93%	7%
	25-29	81	49%	51%	84%	16%
	30-34	120	67%	33%	74%	26%
	35-39	142	71%	29%	65%	35%
	40-44	173	86%	15%	12%	88%
	45-49	67	70%	30%	1%	95%
Partnership status	Married	313	83%	17%	55%	45%
	Cohabiting	94	61%	39%	69%	31%
	Separated/Divorced/Widowed	80	86%	14%	36%	64%
	Single	193	28%	72%	75%	25%
Religious	No	411	62%	38%	66%	34%
	Yes	267	68%	32%	70%	30%
Employment status	In education	34	27%	74%	88%	12%
	Employed	498	64%	36%	70%	30%
	Unemployed	59	70%	31%	63%	38%
	Sick/Disabled	59	95%	5%	22%	78%
Tenure	Own	456	65%	36%	70%	30%
	Social rent	154	73%	27%	50%	50%
	Private rent	60	48%	52%	76%	24%
Settlement size	Large urban (>125.000)	232	59%	41%	69%	31%
	Other urban (10.000<>125.000)	182	65%	35%	64%	36%
	Rural/town (<10.000)	266	69%	31%	69%	31%
	Total N	680	439	241	156	75

Source; SSAS 2005

In every society there are ideas regarding the best time in the life cycle to have children. These norms are generally backed up by arguments that refer to the education, the maturation, and the development of the potential mother. It is often asserted that a woman needs to have a certain level of maturity before she can offer her child the optimal environment for development (Liefbroer and Billari 2010, Billari et al. 2011). Looking at the data and the presented analysis, potential connections to these social norms are visible. The descriptive statistics for the SSAS 2005 fertility module are presented in Table 5.1. We can see that more women than men in the sample already had children. Nevertheless, among those who were childless, men and women had similar expectations regarding parenthood, with almost 70 per cent saying they expect to

have a child at some point in the future. In contrast, both actual and expected fertility are shown to be strongly related to age.

There may be no specific answer to the question of what the best age is for an individual to have a child, but there are lower and upper limits between which men and women are perceived as being at the most appropriate age to start a family (Liefbroer and Billari 2010). The majority of women in the sample had their children between the ages of 25 and 35; a pattern that is in line with national averages and the findings from the SLS data in the previous chapter. However, as we can see in Table 5.1, a substantial number of individuals also had a child before their 25th birthday. Furthermore, we can see that while nearly all of the young respondents said they expect to have a child at some point in the future, the respondents in the higher age groups were less likely to say they to expect to have a child. These figures might indicate that young people are more idealistic than older people, as they have much more time than older people to find a partner and settle down.

Most of the children of the respondents in the sample lived in families with married parents, while smaller shares lived with parents who were single or unmarried. Although it has become more common for children to be born to cohabiting parents (Kiernan 2004), there seem to be residual effects from the past social norm that children should be born within a married partnership. These residual effects might have led most of the individuals who said they expect to be a parent sometime in the future to also say they expect to get married. As we can see in Table 5.1, most of the people who were in a partnership were married. Among childless respondents, however, those who were married were not more likely than those who were not married to say they expect to have a child in the future, as might be anticipated. Rather, it seems that individuals who were single or cohabiting had similar expectations regarding future parenthood, while a rather large proportion (45 per cent) of the childless married respondents said they do not expect to ever have children. These figures could be related to the fact that most of the married individuals in our sample already had children; thus, those who did not have children may have been childless by choice. The cohabiting group without children is proportionally larger, possibly they did not perceive that their life/relationship was established enough to allow them to have children.

A large proportion of the religious individuals in the SSAS sample had children, whereas a relatively large share of the non-religious individuals said they expect to remain childless.

Philipov and Berghammer (2007) studied the relationship between religion and fertility. They used data from the Fertility and Family Surveys, which allowed them to draw comparisons between European countries (unfortunately, the survey was not conducted in the United Kingdom). They found that religiosity was often connected to higher fertility (proportional within groups and to larger family sizes). In the current study sample, religion is the only indicator for which the proportions of individuals in the actual fertility group and in the expected fertility group are almost the same. It is possible that being religious can be linked to a greater tendency to conform to the traditional social norm that a person should be married before having children, and to a greater likelihood of adopting the male breadwinner model.
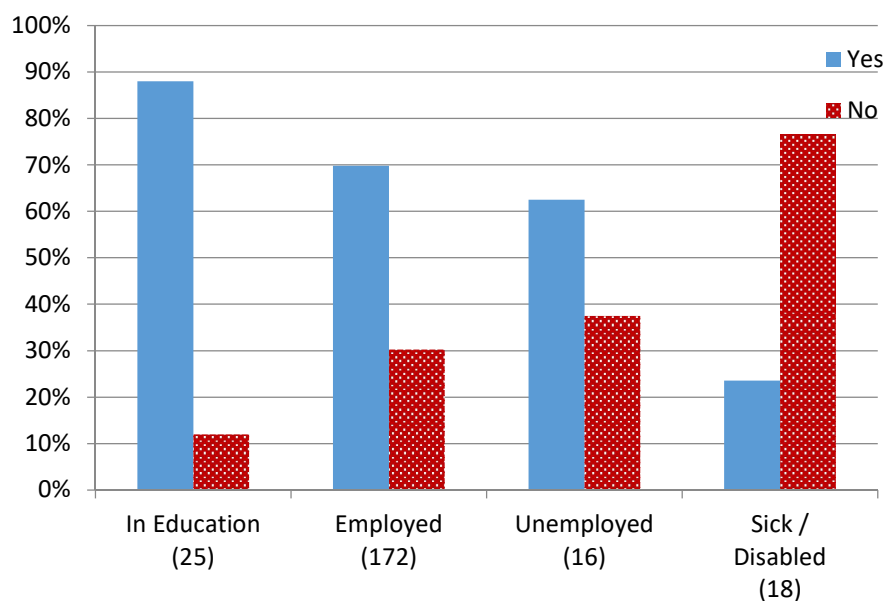
Figure 5.1 Expected fertility by employment status
Source; SSAS 2005 N=231

When we look at the bars in Figure 5.1, which shows expected fertility by employment status, it is clear that being able to provide for one's children is seen as an important prerequisite for having children. A relatively large proportion of the respondents in education said they expect to have a child. Compared to the students and the individuals in employment, a larger proportion of the respondents who were unemployed said they expect to remain childless. When we look at employment status overall in Table 5.1, we can see that most of the SSAS respondents were employed. However, 70 per cent of the unemployed respondents, but only 64 per cent of the employed respondents, had children. In comparison, only 27 per cent of the students had children. This result is not surprising, as most individuals in education are still

young, and younger individuals tend to be childless. The figures for expected fertility are reversed for the employed and the unemployed individuals.

There are several potential explanations for these findings. First, it is possible that young people who are still in education are more idealistic about the prospect of becoming a parent, and may not have seriously considered the costs and benefits. Second, it is likely that they have not yet met the norm of being able to offer their potential children a certain standard of living. Furthermore, it is possible that the individuals who said they do not expect to have children in the future did so because they doubt that they will ever have the income that would allow them to comfortably afford having a child without having to give up other lifestyle choices they value. The main difference between individuals in education and older people is that individuals who have already finished their education and have entered the labour market are likely to be more aware of the cost of living and of their chances of improving their lifestyle than individuals in education (who might expect to make a good living after finishing their education). These explanations would be in line with Ralston's threshold theory, in which he argued that potential parents need to have achieved certain milestones, like completing their education and finding a secure job (Ralston 2012). Finding a secure living situation might also be part of this reasoning.

The TFR is generally higher among individuals who live in social housing (Murphy and Sullivan 1985). This is also apparent in the SSAS 2005 data: 73 per cent of the inhabitants of social housing were parents, compared with 65 per cent of the homeowners and 48 per cent of the private renters. I anticipated that I would find a similar response pattern by tenure type to the question on expectations regarding future parenthood. Although a chi-square test on tenure type by fertility expectation (Figure 5.2) showed statistically significant results $\chi^2=7.32\ p<0.05,$ the results were different than expected. Only 50 per cent of the individuals living in social housing said they expect to become a parent in the future, compared with 70 per cent of homeowners and 75 per cent of private renters. These numbers may reflect a persistent aspiration in the UK to own a home (Forrest et al. 1999, Gurney 1999, Rugg 1999, Searle 2008), even though homeownership might not be achievable for many individuals.

Gender is another dimension of difference in relation to expected fertility and housing tenure. When we examine the distributions for men and women, we can see that while group differences by tenure were insignificant for men, there were large and significant proportional group differences by tenure for women ($\chi^2=7.98\ p<0.05$) (see 0D for the specific figures). Of the

women who were living in social housing, less than 46 per cent said they expect to have a child. But when we look at actual fertility and tenure type, we see that the largest proportion of parents in the SSAS sample were living in social housing (and this share stands out as statistically significant: $\chi^2=11.41$ $p<0.01$ compared to the proportions of parents in owned or private rented accommodation). A potential explanation for the high proportion of parents who were living in social housing is policy-based: families with children are given preference over adults without dependent children when applying for social housing (Anderson 1999). This points to a slightly unexpected relationship between expected fertility and tenure type. Childless individuals in social housing may not perceive their living situation as being suitable for raising a child.
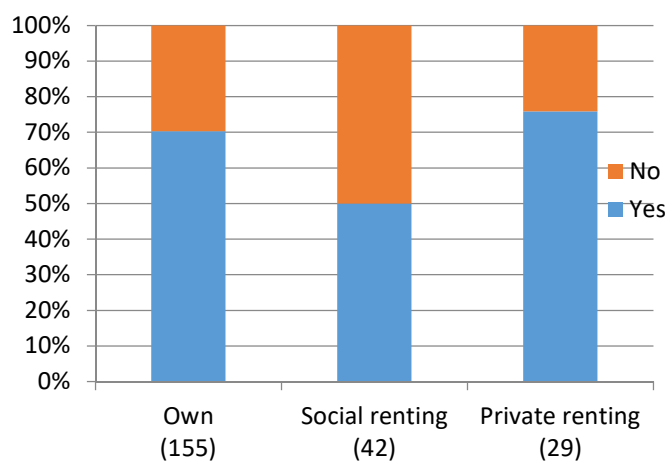
Figure 5.2 Expected fertility by tenure type
Source; SSAS 2005. $\chi^2(2)=7.32$ p< 0.5 N=226
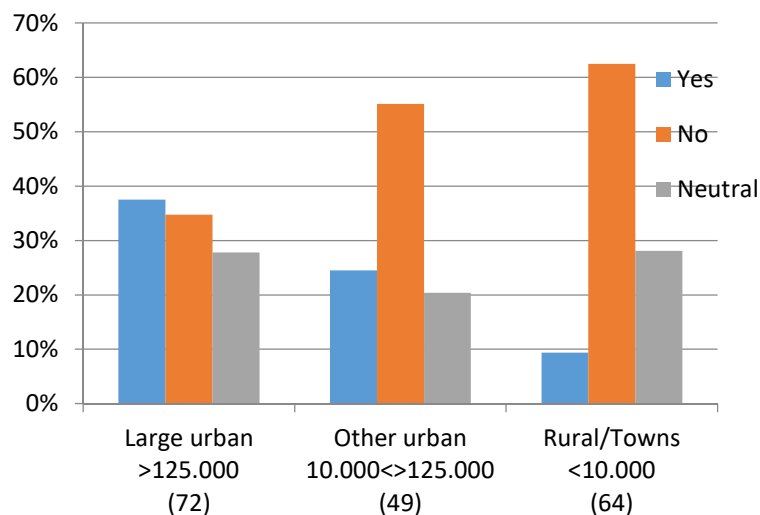
Figure 5.3 'Would want to move if child' by settlement type
Source; SSAS 2005. $\chi^2(4)=17.45$ p<0.01. N=185

Houses cannot, however, be disconnected from their location. The neighbourhood determines the value of a house and its suitability for raising children. Generally, the countryside and suburban areas are perceived as being the best places to raise children (Mulder and Hooimeijer 1999, Mulder and Billari 2010). The SSAS data also give significant results ($\chi^2=17.45\ p<0.01$) that point in that direction. When the respondent is asked whether s/he wants to move to different house before having a child, the preference for rural areas is obviously apparent. Figure 5.3 shows that the proportion who answered 'no' to the question 'Would you want to move if you had a child?' was over 60 per cent for individuals in rural areas, which is almost double the percentage for individuals in large urban areas. In other words, most of the people who were already living in a rural area lived in circumstances they regarded as being appropriate for raising a child, whereas only a minority of large city residents were in a similar position. Nevertheless, only 20 per cent of the respondents who were living in a large urban area actually perceived their neighbourhood as being a 'bad' area for bringing up children. This suggests that it is the house rather than the urban neighbourhood that is generally regarded as being inappropriate for raising a family. The urban housing stock is much more diverse that the rural housing stock, and it may be the case that the respondents who were living in a small apartment were the most likely to say they would want to move if they had a child. In comparison, only a very small proportion (9.4 per cent) of rural residents said that they would want to move if they had a child, and this probably reflects the much higher proportion of family housing within the rural housing stock.

Other studies have found that people who live in rural areas have more traditional behavioural patterns than people who live in urban areas, and that fertility is higher in rural areas than in cities (Kulu 2013). Furthermore, rural areas tend to have relatively small shares of individuals who are divorced or separated. Cities, by contrast, tend to have relatively large shares of singles, which could be due to the fact that higher education is concentrated in the cities. Moreover, most individuals in rural areas are married, whereas in cities many couples cohabit without being married. In the SSAS almost 70 per cent of the respondents who were living in rural areas had children, compared to around 60 per cent of the urban inhabitants. However, the proportions of urban and rural childless respondents who said they expect to have children were very similar, at just under 70 per cent (Table 5.1). These figures suggest that whether a person lives in a rural or an urban area has less influence on the expectation of becoming a parent than it does on actual fertility behaviour. In other words, living in housing regarded as being inappropriate for

raising a family may act as a barrier to having a child, but it does not appear to affect fertility expectations (which might be perceived as referring to a time far in the future).

5.5.   Shared Attitudes and Indicators of Expected Fertility

In the previous section, I provided descriptive statistics for the SSAS sample in relation to traditional indicators of fertility identified in previous studies. However, while these indicators, may be individually predictive of fertility outcomes, they might also influence each other. In order to examine more complex relationships, in this section I enter the set of variables identified above into multivariate models. The focus is on expected fertility, and Table 5.2 outlines the model characteristics for logistic regression models that predict a positive answer to the question regarding future parenthood. The first model includes tenure, age, age-squared, gender, and partnership status (Model A). After examining these demographic indicators, I proceed with a model that includes employment status and religion (Model B). Then, having tested for the more common indicators of fertility, I move on to incorporate attitudinal information into the models. Model C includes a variable that represents general attitudes towards having children, whereas Model D includes an attitudinal variable about the costs of children. The last model (E) includes a variable about the quality of the local area.

In the first model (Model A), tenure type and age turned out to be the most important indicators of future expected parenthood. In particular, social renters are significantly less likely than homeowners to say they expect to have children in the future (OR=0.089, p<0.001), and older respondents are also less likely to say they expect to start a family (age-squared: OR=0.99, p<0.05). In Model B, which additionally controls for being religious and employment status, the effect for tenure is found as well. However, likely due to the control for employment status, age does not seem to significantly influence the likelihood of expecting a first birth. However, religious individuals have a larger likelihood of expecting a first birth (OR=2.3, p<0.1). Surprisingly, in neither Model A nor Model B is partnership status found to be significantly associated with expected fertility. This is somewhat surprising since being in a relationship tends to be a normative precondition for starting a family, and I expected that this variable would have influenced fertility expectations as well. The addition of religion and employment status in Model B had little impact on the odds for tenure found in Model A, which remain significant. The variable tenure type appears to be a more significant driver of fertility expectations than other hypothetically important variables.

Table 5.2 Logistic Regression: Does the respondent expect to have children in the future?

Variable		Model A			Model B			Model C		
		$β^1$	**Odds Ratio**	*95% CI*	$β^1$	**Odds Ratio**	*95% CI*	$β^1$	**Odds Ratio**	*95% CI*
Tenure	own		1			1			1	
	social rent	-2.420	0.089 ***	0.029 - 0.275	-2.006	0.134 ***	0.040 - 0.453	-0.178	0.169 **	0.048 - 0.591
	private rent	-.433	0.649	0.167 - 2.519	-0.39	0.677	0.174 - 2.643	-0.419	0.658	0.152 - 2.841
Age	age	.250	1.283	0.804 - 2.049	0.102	1.107	0.644 - 1.904	0.247	1.280	0.708 - 2.314
	age-squared	-.008	0.992 *	0.985 - 0.999	-0.006	0.994	0.986 - 1.002	-0.009	0.991 +	0.982 - 1.001
Gender	male		1			1			1	
	female	-.279	0.756	0.336 - 1.702	-0.4	0.670	0.288 - 1.561	-0.317	0.728	0.299 - 1.777
Partnership status	married		1			1			1	
	cohabiting	-.341	0.711	0.211 - 2.400	-0.127	0.880	0.241 - 3.220	0.084	1.088	0.269 - 4.402
	divorced/widowed/separated	.506	1.658	0.226 - 12.150	0.606	1.833	0.245 - 13.698	0.697	2.008	0.221 - 18.285
	single	-.275	0.759	0.266 - 2.164	-0.344	0.709	0.240 - 2.088	-0.428	0.652	0.205 - 2.074
Religious	no					1			1	
	yes				0.833	2.300 +	0.895 - 5.909	0.972	2.634 +	0.972 - 7.189
Employment status	in education					1			1	
	employed				-0.503	0.605	0.061 - 6.035	-0.619	0.539	0.051 - 5.664
	unemployed				-2.187	0.112	0.007 - 1.800	-2.301	0.100	0.006 - 1.772
	sick/disable				-1.842	0.158	0.009 - 2.844	-1.979	0.138	0.007 - 2.873
Attitudes towards impact of children	ambivalent								1	
	burden							-1.014	0.363 +	0.109 - 1.201
	no burden							-0.705	0.494	0.178 - 1.368
No child till financially secure	agree									
	neither									
	disagree									
Local area quality for raising children	good									
	neutral									
	bad									
Likelihood Ratio		158.211			150.52			138.121		

Source; SSAS 2005, N=226, +p<0.1; *p<0.05; **p<0.01; *** p<0.001

¹ The coefficients of the variables in the regression model

Continuation of Table 5.2 Logistic Regression: Does the respondent expect to have children in the future?

Variable		β[1]	Odds Ratio	95% CI	β[1]	Odds Ratio	95% CI
			Model D			Model E	
Tenure	own		1			1	
	social rent	-1.8	0.165 ***	0.046 - 0.589	-1.549	0.213 *	0.057 - 0.792
	private rent	-0.458	0.633	0.145 - 2.763	-0.312	0.732	0.162 - 3.314
Age	age	0.225	1.252	0.685 - 2.289	0.219	1.245	0.678 - 2.287
	age-squared	-0.008	0.992 +	0.982 - 1.001	-0.009	0.992 +	0.982 - 1.001
Gender	male		1			1	
	female	-0.302	0.740	0.302 - 1.810	-0.255	0.775	0.312 - 1.929
Partnership status	married		1			1	
	cohabiting	0.036	1.037	0.251 - 4.285	-0.094	0.910	0.204 - 4.059
	divorced/widowed/separated	0.642	1.901	0.202 - 17.895	0.617	1.853	0.205 - 16.768
	single	-0.439	0.645	0.202 - 2.059	-0.532	0.587	0.177 - 1.947
Religious	no		1			1	
	yes	0.981	2.667 +	0.976 - 7.289	1.019	2.770 +	1.001 - 7.665
Employment status	in education		1			1	
	employed	-0.566	0.568	0.054 - 5.971	-0.683	0.505	0.048 - 5.357
	unemployed	-2.231	0.107	0.006 - 1.919	-2.43	0.088	0.005 - 1.654
	sick/disable	-1.91	0.148	0.007 - 3.114	-2.025	0.132	0.006 - 2.733
Attitudes towards impact of children	ambivalent		1			1	
	burden	-1.028	0.358 +	0.108 - 1.191	-1.2	0.301 +	0.088 - 1.032
	no burden	-0.678	0.508	0.182 - 1.414	-0.724	0.485	0.171 - 1.379
No child till financially secure	agree		1			1	
	neither	-0.253	0.776	0.252 - 2.394	-0.31	0.733	0.232 - 2.314
	disagree	-0.113	0.893	0.271 - 2.944	-0.098	0.907	0.258 - 3.184
Local area quality for raising children	good					1	
	neutral				0.405	1.499	0.385 - 5.832
	bad				1.196	3.308	0.551 - 19.875
Likelihood Ratio		137.925			134.737		

Source ; SSAS 2005, N=226, +p<0.1; *p<0.05; **p<0.01; *** p<0.001

[1] The coefficients of the variables in the regression model

From the first two logistic regression models (A and B), we can see that the indicators for actual fertility do not seem to sufficiently explain the expected fertility outcomes. From the variables I tested, tenure type is found to be the most significant driver of expected fertility, possibly because of the relatively strong social norm of homeownership in the United Kingdom (Murphy and Sullivan 1985). Therefore, in the next models I include variables for attitudes towards having children in order to identify behaviour that might be connected to other social norms. I added attitude variables into the logistic regression model using a measurement based on latent class analyses.

Attitudes, Social Norms, and Expected Fertility

Why is tenure such an important indicator of expected fertility? One possible explanation relates to the influence of social norms regarding family formation. Social norms are 'ideas regarding proper behaviour shared by a group of people' (Liefbroer and Billari 2010), which could determine people's behaviour. From the Second Demographic Transition theory, we could assume that the old social norms regarding family formation are not really important anymore. However, Liefbroer and Billari (2010) and Billari, Philipov, and Testa (2009) have argued that social norms should be considered in fertility research. In Britain there seems to be a strong norm regarding living in an owner-occupied house (Murphy and Sullivan 1985); and owning a home seems to be a normative prerequisite for starting a family. It is therefore possible that individuals postpone starting a family until they have achieved this housing goal. However, if an individual is living in social housing, achieving this goal might seem impossible. Thus, people who live in social housing might be influenced by different normative ideas. To further explore this possibility, I will attempt to ascertain whether there are groups of respondents who have identifiably different attitudes about having children by examining responses to the attitudinal questions in the SSAS dataset.

Groups of shared attitudes can be identified using latent class analyses. The variable obtained via latent class analysis covers three of the SSAS attitude variables that give information on attitudes regarding the impact a child has on the life of the respondent. In addition to a desire to keep the model as simple as possible, another reason for using a single variable is 1) that the bias associated with socially accepted answers is reduced if only one question is included in the regression model. Moreover, 2) individuals might be more affected by one of the issues addressed than the others, and might therefore have a clearer opinion on this issue than on the others. When a single variable is based on a latent class analysis, several issues are covered in

one. Furthermore, the analysis includes childless individuals as well as parents. Thus, if parents have a very different response pattern than childless individuals, this will be picked up in the analysis.

The three variables covered in a latent class analysis are:

- People cannot afford to have more than two children

- Children are dependent for too long

- Stress and worry puts people off having children
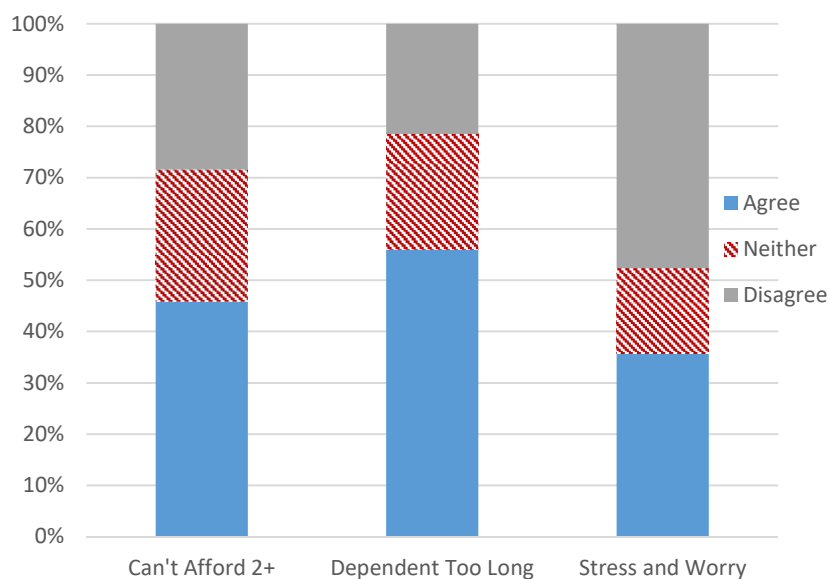
Figure 5.4 Frequencies of responses to latent class questions.
Source; SSAS 2005, N=672

The possible responses varied from 'agree' to 'neither agree nor disagree' to 'disagree'. Originally, these variables had answers ranging from 1 - strongly agree to 5 – strongly disagree. But for this analysis these variables have been collapsed into three-category variables, whereby 1 is a combination of the former strongly agree and agree, 2 is the former category neither agree nor disagree, and 3 is a combination of disagree and strongly disagree. The response frequencies for the respective questions are given in Figure 5.4. As we can see in the figure, a fairly stable share of respondents (between 17 to 26 per cent) neither agreed nor disagreed with the different statements. Between 36 to 55 per cent of the respondents agreed with the given statements, whereas less stable shares of respondents disagreed with the statements (from 22 to 48 per cent).

With latent class analysis it is possible to investigate whether the same or different groups of respondents agreed with the statements. Models with one, two, and three classes were identified, and based on the lowest BIC and AIC the three-class model, as shown in Table 5.3 was identified as the best fit.

Table 5.3 Sizes of latent classes and conditional response probabilities

	Class 1	Class 2	Class 3
Proportional class size	0.262	0.187	0.551
Conditional probabilities			
People cannot afford to have more than two children			
Agree	0.91	0.39	0.45
Neither agree nor disagree	0.01	0.61	0.20
Disagree	0.08	0.00	0.35
Children are dependent for too long			
Agree	0.78	0.45	0.31
Neither agree nor disagree	0.17	0.45	0.23
Disagree	0.05	0.10	0.46
Stress and worry puts people off having children			
Agree	0.68	0.38	0.19
Neither agree nor disagree	0.10	0.36	0.13
Disagree	0.21	0.25	0.68
Chi-squared	5.6238 (p = 0.4666)		
BIC (log-likelihood)	4160.103		
AIC (log-likelihood)	4069.9873		

Source; SSAS 2005. N=667

Classes were assigned to respondents using a probabilistic method. A respondent can be part of one of the three following groups:

- Group 1**:** *Children are a burden.* These respondents tend to agree that stress and worry put people off having children, that people cannot afford to have more than two children, and that children are dependent for too long.

- Group 2**:** *Ambivalent about the impact of having children on their life.* These respondents tend to agree, but less strongly, with Group 1 that stress and worry put people off having children, and that children are dependent for too long. They are not sure whether people can afford to have more than two children.

- Group 3**:** *Children are no burden.* The respondents in this group are mainly characterised by their disagreement with the statement that stress and worry put people off having

children. They also disagree that children are dependent for too long. However, they lean towards the answer that people cannot afford to have more than two children. This last group is the largest, containing over 50 per cent of the respondents.

When we look at Figure 5.5, which presents group membership by fertility expectations, it is clear that most respondents expect to have children at some point in their life. However, the proportion of people who answered 'yes' was highest in the group who think children are *no burden* (73.3 per cent). Interestingly, the largest proportion of the individuals who said they do not expect to have children in the future are not in the group who think children are a burden, but in the group who are *ambivalent* about the impact having children would have on a person's life. Nearly half (46 per cent) of the members of this group said they do not expect to have a child in the future. The question is whether these differences are still visible when other factors like the age of the respondent are controlled for.
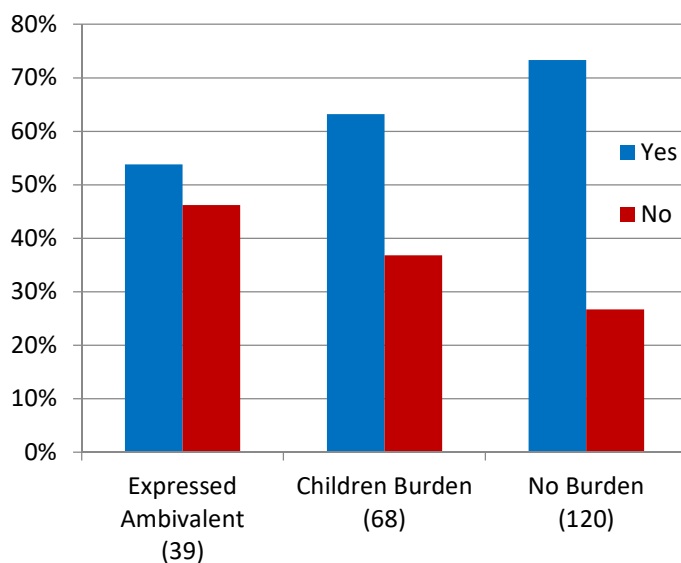
Figure 5.5 Fertility expectations of childless individuals by latent class,
Source; SSAS 2005, N=227

In Table 5.2, a regression model (Model C) is shown in which latent class membership based on the attitude variables is entered. Model C includes (in addition to tenure, age, age-squared, gender, partnership status, religion, and employment status) the variable that measures shared attitudes regarding the impact of having children on the respondent's personal life. The result again shows significant effects for tenure and age (tenure: OR=0.169 p<0.01, age-squared: OR=0.991 p<0.1), although the significance of tenure is slightly decreased. Furthermore, being

religious increases the likelihood of expecting to have a child (OR=0.2.63 p<0.1); whereas perceiving children as being a burden decreases this likelihood (OR=0.363 p<0.1).

Adding the new group membership variable to the regression model in Table 5.2 generates some interesting results. In addition to significantly influencing the likelihood of expecting to have a first birth, it is clear when we compare the results in Models A, B, and C that the difference in the odds ratios of expecting to have a child in the future has increased among religious people relative to non-religious people. Thus, in the next model (D) another attitude variable, 'financially secure before starting a family' is entered. However, although this variable showed significant results when combined with many other variables in the bivariate analysis, it does not seem to do much for the regression model that explains expected parenthood. This model shows tenure type, age, religion, and shared attitudes regarding the impact of children as significant indicators of fertility expectations. Being religious is again found to be a significant indicator of expected fertility (OR=2.67 p<0.1). Entering the attitude variables into the model has an interesting effect on the odds for religion: including these variables in the regression models increases the odds of expecting to have a child more for religious people that for non-religious people. This trend is also visible when people in social housing are compared with homeowners.

Up to this point all of the models show that the housing tenure variable has a significant impact. It is, however, possible that expected fertility may be related to the neighbourhood in which an individual lives. Therefore, the last model (Model E) regresses in addition to the already mentioned variables a measure of perceived local area quality for bringing up children. Although the overall model fit improves, this last variable is not significant for the explanation of expected fertility. It does, however, have a small effect on the statistics for social housing, which became slightly less significant (OR=0.21 p<0.05). In this last model the square of age is again significant (OR=0.992 p<0.1), as are the squares of being religious (OR=0.301 p<0.1) and of attitudes towards the impact of having children on a person's life (OR=0.301 p<0.1).

All of the regression models show significant results for tenure type, religion, and shared social attitudes; and age is found to be an important indicator for fertility expectations in most of the models. Age seems to be an important indicator for the expectation of becoming a parent. Younger people were more likely to say they expect to become a parent than older people,

principally because fertility is connected to biology, and they had the most time to procreate. Furthermore, the young adults had more time to find a partner, a job, and a house in a nice area.

A key question is why partnership status seems to have no effect on fertility expectations. According to other studies, fertility expectations are influenced by partnership status and are 'dynamic and change over time' (Mitchell and Gray 2007). However, the logistic regression model does not show any significant influence of partnership status on fertility expectations. Below in Table 5.4, a subsample of Table 5.1, is shown: partnership status by expected parenthood. From the descriptive analysis of partnership and fertility expectations, it is clear that the individuals who were single or cohabiting had similar expectations regarding future parenthood, while a rather large proportion (45 per cent) of married individuals without children did not expect to ever have children. This difference is statistically significant (χ^2 (3)=12.22 p<0.01). A possible explanation for why this statistically significant difference did not show up in the logistic regression models is the age of the respondents. The main difference between the single and the cohabiting respondents and the married respondents is their age, with singletons and cohabiters being younger on average than married and separated/divorced/widowed individuals. As age is controlled for in the regression model, we might find that age is the reason why partnership status has not been shown to significantly influence the likelihood of expecting to have a child in the future.

Table 5.4 Expected parenthood by partnership status

	Yes	No
Never married	75%	25%
Cohabiting	69%	31%
Married	55%	45%
Separated/Divorced /Widow	36%	64%
Total count	156	75

Source; SSAS 2005. χ^2 (3) =12.22 p< 0.01. N=231

Another interesting result from the regression models is the impact of religion. Previous research has shown that religious individuals tend to have higher actual, ideal, and intentional fertility (Philipov and Berghammer 2007). This has also been found in the current research; however, after attitudes regarding fertility and family formation were added, religion became very important. In the last models the individuals who are religious were 2.6 times more likely to say they expect to have children than the non-religious individuals. This large gap after the

addition of attitudes that could predict compliance with social norms seems to imply that normative behaviour is more important for religious than for non-religious individuals.

Religious individuals are not the only group who tend to have more children; when we look at the category 'employment status' in Table 5.1, we can see that most of the respondents with children were unemployed. It is therefore slightly surprising that employment status was not found to be a significant indicator of expected future parenthood. It is likely that age is the reason why employment status was significantly related to expected future parenthood in a bivariate analysis but not in the regression models. For example, people in education tend to be younger than people in employment. Age was found to be significant in most models, and in several cases it can be used to explain why another variable did not appear to have significant effects on expected fertility. As the findings clearly indicate that the likelihood of expecting to become a parent in the future declines with rising age, does this mean that people lose their ideals as they gain life experience? Younger individuals seem to be more optimistic than older people about their chances of becoming a parent in the future. Younger individuals are also more likely than older individuals to believe that <u>financial security is important</u> before having a child. When we look at the responses to the statement that people should not have a child until they are financially secure, the numbers show a clear pattern Figure 5.6. Three possible answers could be given: agree, neutral, and disagree. The proportion of individuals answering neutral was, except among the oldest age group, consistently around 20 per cent. But while the proportion of individuals under age 25 who agreed that people should not have a child until they are financially secure was almost 60 per cent, this share dropped to 43 per cent in the next age group, and fell to around 25 per cent for the 35-44 age group.
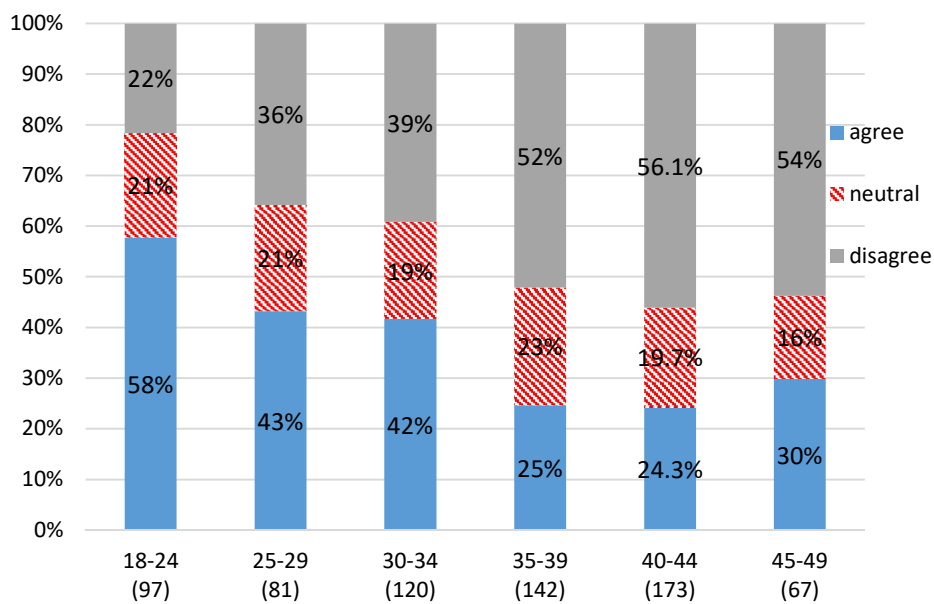
Figure 5.6 Age-group by 'no child until financially secure'
Source; SSAS 2005. $\chi^2(10)$=50.94 p< 0.001. N=680

Looking at employment status by financial security, shown in Figure 5.7, we can see that when asked their opinion regarding the statement 'you should be financially secure when having a child', only 30 per cent of the employed respondents agreed, compared with 61 per cent of the unemployed respondents. Is it possible that the respondents who were working had come to the realisation that 'This is as good as it gets', and that if they want to have a family, they had better not delay until they can meet the standards of society, because time might run out. Perhaps these more fatalistic ways of thinking are linked to the results for the tenure type. Individuals in social housing usually have less income and are more likely to be unemployed (p<.001) than private renters or homeowners, but the social renters are also more inclined to say that they cannot afford to have more than two children. These results seem to stem from a social norm regarding financial *security*, according to which parents need to be able to offer their child a certain standard of living; this norm has been found in attitudinal research in Australia as well (Mitchell and Gray 2007). However, there may be some kind of a turning point; or, as Ralston (2012) calls it, a 'threshold' when the limit of improvement is reached. This is the moment when individuals let go of their willingness to comply with social norms and go after what they really want.
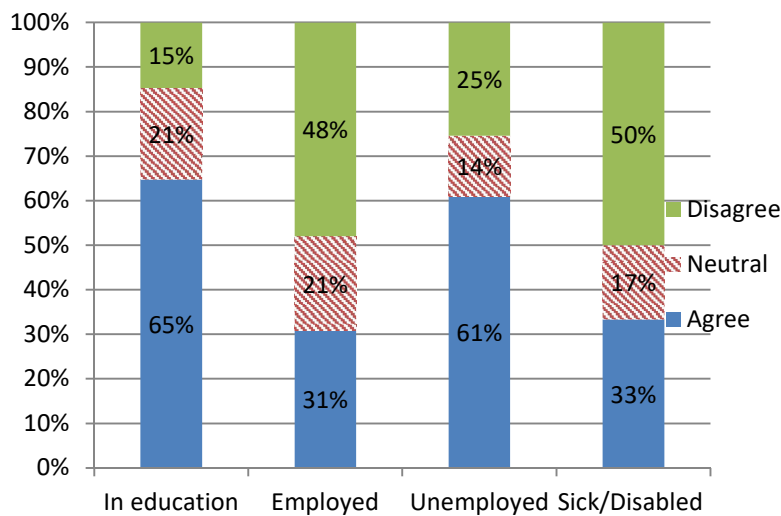
Figure 5.7 Employment status by 'no child until financially secure'
Source; SSAS 2005. $\chi^2(6)=38.40$ p< 0.01. N=680

It is therefore clear that a large proportion of individuals believe that a person should be financially secure before having children. However, if we do a bivariate analysis on being or not being a parent and agreeing or disagreeing with the statement 'No child until financially secure', a relationship *is* visible. In Figure 5.8, we see that many more parents disagreed with this statement than childless individuals; individuals who did not have children tended to agree with this statement. Furthermore, when the information in the previous Figure 5.7 is split up for individuals with and without children, the statistical test becomes unreliable due to sparseness, but we still see a similar pattern. Individuals with and without children who were engaged in the same 'economic activity' had the same views regarding financial security and fertility. It seems that certain ideas about the 'ideal' situation for having a child only apply to childless individuals, whereas experienced parents have a more relaxed attitude towards achieving a 'proper established family situation'.
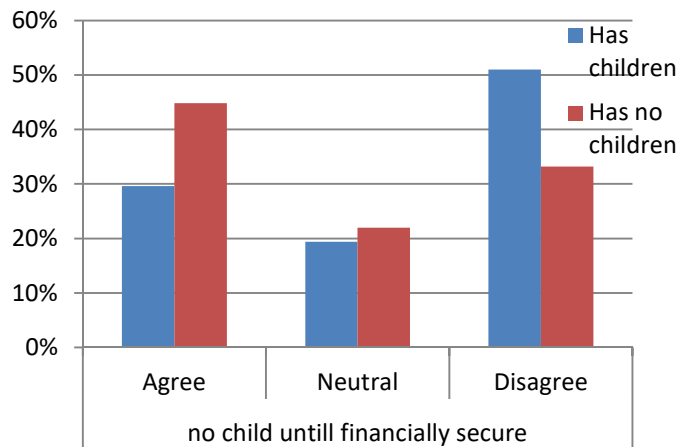
Figure 5.8 Being a parent by 'no child until financially secure'
Source; SSAS 2005. χ²(2)=21.87 p< 0.01. N=680

The associations between being a parent and attitudes regarding being financially secure raise two questions: Do individuals remain childless because they agree with this statement, or do childless individuals in general see financial security as being more important than individuals who have children (and who therefore have more knowledge about the financial effects of having children)? Moreover, does this difference in attitudes between parents and childless individuals mean that all of the individuals with children who agree on the importance of being financially secure have a secure income? To further explore these issues, I added 'view on household income' to the analysis. Individuals seemed to behave according to their views on financial security. The individuals who reported that they were coping or struggling with their income had fewer children, in line with their view on financial security before having a child. Unfortunately, the logistic regression did not really shed more light on this issue, as adding financial security makes employment status insignificant.

In addition to financial security, housing is very important in Scotland. Just how important housing is becomes clear when we study Appendix C, which shows that tenure is significantly related to nearly every tested variable in the SSAS data. Moreover, all of the regression models in Table 5.2 confirm that housing tenure is an important indicator of whether potential parents think they will have children in the future. Social housing tenants were much less likely than homeowners to say they think they will have children in the future. This result is at odds with the actual levels of fertility in owned and rented houses, and with the findings from Chapter 4, in which the link between housing tenure and the chances of having a first birth was discussed.

Actual fertility was higher among people who were living in social housing than among people living in private rented housing and in owner-occupied houses.

There are several possible explanations for this gap between actual and expected fertility. To start with, it is easier for women or couples with a family to secure a social housing unit than it is for childless individuals. Thus, a relatively large proportion of social housing tenants are families. As the housing needs of childless individuals are considered less urgent, childless people must wait much longer for a social housing unit, or they might end up in private rented housing (Anderson 1999). There is another noteworthy issue concerning tenure in the SSAS data: significantly more men than women were homeowners (χ^2=6.15 p<0.05), while tenure seems to have been most important for women, and owning seems to have been the desired tenure status. These findings might be related the earnings gap between men and women. Finally, for some individuals fertility expectations and actual fertility behaviour might not be related, possibly because the pregnancy just 'happened' instead of being planned. However, another possible explanation for the results is connected to the social norm of needing to fulfil certain conditions before starting a family (Ralston 2012). In a study conducted in the US, Lauster (2010) found evidence of a connection between individuals' perceptions of the need to own a family home before having children and fertility behaviour. In the Scottish case, these findings could be attributed to a similar social norm.

Although there seems to be a general opinion in Britain that prospective parents should own a home before starting a family (Clark and Moss 2011), there is no recent research on whether and, if so, how this norm influences (decisions regarding) family formation and size. Research in the early 1980s found evidence that potential buyers in the United Kingdom were postponing having children (Ineichen 1981). However, there has been no subsequent research on the topic. There have been studies on the concept of 'home', which seems to have a special value in British culture. Although perceptions of what constitutes a home are ambiguous, most individuals agree that a home means at least a 'roof over one's head' or a relatively safe place to live. But in addition, many people seem to think that this 'safe place' can be created only under an owned 'roof' (Saunders 1989, Clark and Moss 2011), and that renting a house has less value (Gurney 1999). This is not the case in some other European countries, like Germany and the Netherlands.

For most individuals, buying a house is the biggest purchase they will make in their life. For many people it is not easy to save enough money to cover the deposit on a mortgage. Buying a home

is not easy, especially for individuals with a temporary work contract. When we look at the SSAS data, the abovementioned phenomena also seem apparent. As individuals have to save for a deposit, the proportion of owners increases with age. Furthermore, a strong relationship between tenure and employment status can be observed. Almost 80 per cent of the respondents who were employed owned a home (with or without mortgage); whereas of the unemployed respondents, 60 per cent were living in social housing. Employment status and education were, of course, also strongly related.

Table 5.5 Tenure by 'delay child until better home'

| | | Tenure | | |
		Owns	Rents	N
Delay child till better home	Yes	9%	21%	24
	No	91%	79%	165
Total		100%	100%	189

Source; SSAS 2005. $\chi^2(1)$=4.82 p< 0.05. N=189

The difference between renters and owners is also visible in Table 5.5, which shows an analysis of the SSAS variables tenure and 'delay child until better home'. The proportion of renters who said that they would delay having a child was significantly larger than the proportion of owners. Since houses are located in a specific neighbourhood, the last regression model in Table 5.2 includes the variable 'local area quality for bringing up children'. A bivariate analysis showed that there was a significant relationship between tenure type and local area quality (χ^2=90.14 p<0.01). Figure 5.9 shows that almost 85 per cent of the homeowners characterised their local area as good for children, compared with just over 50 per cent of the social housing tenants. The numbers in Figure 5.9 basically show that compared to the homeowners and the private renters, the renters of social housing had the most negative view of their neighbourhood.

As local area quality is related to tenure type, the quality of the local area could have an impact on fertility expectations. Although the significance of tenure in the models changes, the clear bivariate link between area quality and fertility expectations does not prove to be significant in the logistic regression model. However, an analysis of the variable 'Would you want to move area when having a child?' by tenure type (χ^2=11.10 p<0.05) again suggests that individuals want to improve their housing tenure or neighbourhood situation before starting a family. Thus, while

indications of the importance of the local neighbourhood were found, no sound statistical connection can be made.
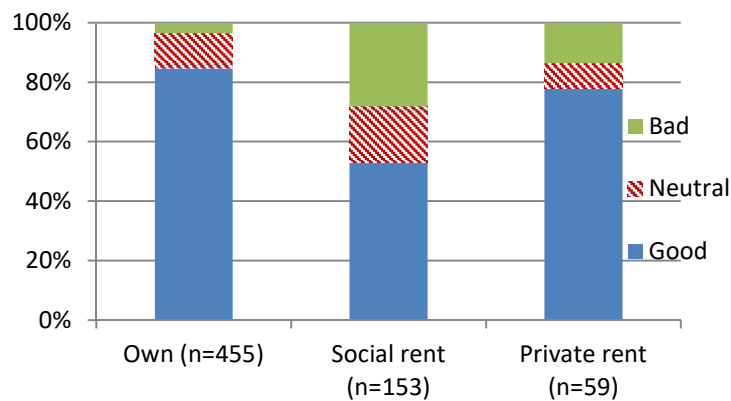
Figure 5.9 Perceived area quality for bringing up children by tenure
Source; SSAS 2005. $\chi^2(4)=90.14$ p<0.01. N=677

5.6.   Conclusion

In the current chapter, I have attempted to tease out the possible social norms about family formation in Scotland by exploring shared social attitudes related to desired family housing and family formation. The findings point to the existence of attitudes that might be linked to social norms on proper family housing. Individuals in Scotland perceive that they need to purchase a house before they start a family.

Fertility expectations in Scotland are mainly determined by tenure type, age, and religion; as well as by shared social attitudes in the Scottish society. From the standpoint of fertility, living in a social housing unit can mean one of two things: either you have children, or you have a small chance of expecting to have them in the future.

The importance of these shared social attitudes towards proper housing for family formation depends to a large extent on a respondent's personal characteristics. For example, young individuals seem to be more idealistic than older individuals, with young people placing more emphasis than older people on having the right house and the proper income. Furthermore, it seems that the individuals who do not fulfil certain perceived preconditions for having children are also the individuals who have the strongest attitudes about these conditions. In the case of housing, most of the individuals who are renting believe they should buy a home before starting a family.

According to the Theory of Planned Behaviour, social norms and attitudes influence fertility intentions, which in turn lead to fertility behaviour (Ajzen and Klobas 2013). However, in the current chapter the direction of the relationship could not really be investigated. A question that could not be answered fully was whether individuals postpone having children because they agree that a person needs to have a stable basis for raising children; or whether these childless individuals are a selective group who in general perceive financial/housing security as being more important than the individuals who have children. To investigate this question further, information over a longer time frame is needed. Therefore, the remainder of this thesis will make use of the BHPS data, which does not have the wealth of attitudinal information regarding family formation that is available in the SSAS 2005, but does follow up on respondents on an annual basis. Furthermore, as its sample of the Scottish population is slightly larger than that of the SSAS, it might be possible to explore possible gendered nuances.

Investigating how gender influences expected fertility was outside the scope of this chapter. However, some of the findings in the chapter suggest that men and women have different fertility expectations. Both Dey and Wasoff 2010 and Boyle et al. 2007 found evidence that pointed to a gendered element within the reasons for high or low fertility. It is possible that some of the differences between men and women are related to normative behaviour. Having established the existence of shared social attitudes related to family formation and desired family housing using the SSAS data, in the next chapter I will expand on shared social attitudes using the BHPS data, and will investigate a possible gendered element of shared social attitudes.

6. Fertility Intentions in Scotland: Gender Differences, Social Norms, and Family Formation.

6.1.   Introduction

In the last 50 years, fertility rates in Scotland have generally fallen, with the lowest TFRs of about 1.5 recorded in 2000 and 2002 (ONS 2011). A possible explanation for this trend is that during this time of political and economic change, norms, values, and attitudes about family formation and the role of men and women within a family changed as well. Whereas in the past marriage was the major threshold for starting a family, today the most important barriers seem to be related to having a good job (Aassve et al. 2006), a finished education (Berrington 2004), and the right house (Lauster 2010). A question is, however, whether these barriers with respect to family formation are the same for men and for women.

Fertility in Scotland displays clear spatial patterns that are related to partnership and housing; housing choices are influenced by opportunities and constraints, and within that framework location might also have an effect. In Chapter 4, using data from the Scottish Longitudinal Study, I demonstrated how patterns of fertility, housing tenure, and partnership can influence each other. I examined actual childbearing (rather than intended, or expected, future fertility), which enabled me to investigate the associations between tenure, location, individual characteristics, and fertility outcomes. I found evidence that differences in actual fertility and housing tenure can be linked to relationship status. Furthermore, in Chapter 4 I found that the availability of specific types of housing tenure in an area is significantly related to geographical differences in fertility.

In Chapter 5, I analysed fertility expectations using the Scottish Social Attitude Survey. In this chapter I shifted my focus to expected fertility to investigate the associations between housing tenure, relationship status, and fertility expectations. In the current chapter, I will use the term fertility intentions for the same period. The shift in terminology is survey-driven. Although there are theoretical differences between expected and intended fertility (Miller 2011), because the wording of the survey questions that refer to these terms was the same in the SSAS and the BHPS, it is unclear whether there are real differences between the answers given on expected fertility in Chapter 5 and on intended fertility in Chapter 6.

In Chapter 5 I found that, like actual childbearing, expectations about future parenthood are associated with housing tenure. Childless people living in social housing tend to be less likely to expect to have children in the future than childless people living in owner-occupied or privately rented housing. Interestingly, the (relatively dated) literature on this issue does not reflect this finding, as a number of studies have suggested that people who live in social housing tend to have more children than owner occupiers and private renters (Murphy and Sullivan 1985). In addition to uncovering an association between fertility expectations and housing tenure, I found that shared social attitudes towards family formation are associated with fertility expectations. I identified three main population groups who share attitudes regarding fertility and family formation: (1) people with more negative attitudes about the impact of having children (especially in terms of money and stress); (2) people with more ambivalent attitudes about the impact of having children, and (3) people with more positive attitudes about the impact of having children. Compared to the group with ambivalent attitudes, the group with the most negative attitudes, who perceived children as a burden, were significantly less likely to say they expect to have children in the future.
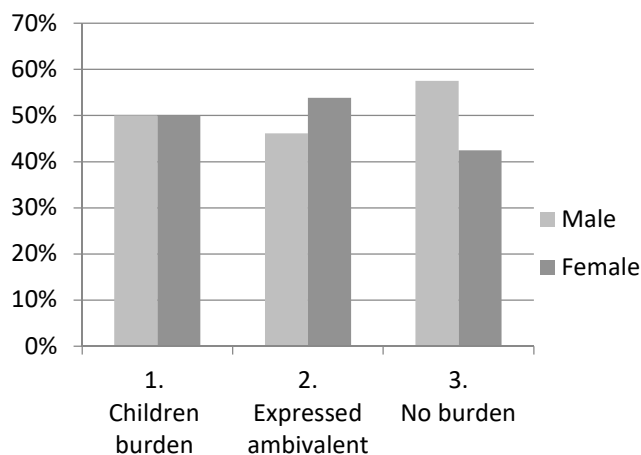
Figure 6.1 Attitudes on the impact of children by gender
(In Scottish Social Attitude Survey)
Source; SSAS 2005, N=227

The results from Chapter 5 also indicated that the influence of the shared social attitudes was related to a person's socio-demographic and economic characteristics. In this chapter I was unable to examine gender differences due to the small sample size. But as other socio-demographic indicators have been shown to be influential, gender differences may be as well. When we look at Figure 6.1, we can clearly see that men and women are not evenly spread over the different groups with shared social attitudes. Therefore, in this chapter I turn to a different

dataset that will allow me to investigate further whether there are gender differences in intentions to have children, and how these differences relate to possible social norms.

In this chapter, I continue to explore the associations between partnership, housing tenure, and shared social attitudes in the context of family formation; however, unlike in the previous chapter, in this chapter I include gender in order to determine whether there are differences between men and woman in the ways in which these three factors influence fertility intentions (rather than actual fertility behaviour). Furthermore, I use a different set of shared social attitudes. Previous studies, which do not agree on the question of whether the fertility intentions of men and women are similar (Berrington 2004, Jamison 2010) or different (Dey and Wasoff 2010), have noted that the factors that affect fertility decisions, such as education and labour force status, tend to have different effects for men and women. However, there has so far been little research on the impact of social norms on fertility intentions, or on the gendered dimensions of these norms. In this chapter I aim to address this research gap by analysing data from the British Household Panel Survey. This dataset is larger than the SSAS dataset, but it is less detailed in terms of the information it provides on attitudes regarding fertility and family. Because the survey asked no detailed questions on attitudes, questions that are less specifically targeted at having children need to be used. Nevertheless, the data are the best we have available for researching gender differences and social norms related to family formation.

In the analyses, I use these data to address my third research question:

Do partnership, housing tenure, and shared social attitudes regarding family formation impact on the fertility intentions of childless men and women in similar ways?

To answer this question, I first use latent class analysis to generate groups with shared social attitudes. Next, I enter these attitudinal groups, along with other potential determinants, into two multinomial logistic regression models that predict fertility intentions for men and for women.

This chapter is divided into six sections. In the next section I describe the literature that has been most influential on the topic. I then describe the data and the methods used in the chapter; in this section I also introduce the variables used in the models and provide a short rationale for their inclusion. In the next section I explore shared social attitudes and the outcomes of the

latent class analyses. In the following section I highlight the outcomes of the multinomial regression. Finally, I end with a discussion and a conclusion in which I discuss how the findings can help us better understand of the gender differences in the relationship between social attitudes and family formation.

6.2.   Indicators of Intention

Several researchers have argued that (fertility) **intentions** can be used as predictors of (fertility) behaviour (Ajzen 1991, Miller and Pasta 1994, Schoen et al. 1999, Ajzen and Fishbein 2005, Ajzen and Klobas 2013). As I mentioned in Chapter 2, Ajzen's widely used Theory of Planned Behaviour explains deliberate behaviour (which could be 'having a child') using four concepts: the intention to perform a certain behaviour, attitudes towards the behaviour, subjective norms, and perceived behavioural control. The last three of these four concepts (attitudes, subjective norms, and perceived behavioural control) all influence a person's intentions, and can also influence each other (Ajzen 1991).

Billari, Philipov, and Testa (2009) employed the TPB in their research on fertility intentions. They found that intentions could indeed be explained using Ajzen's concepts of attitudes, subjective norms, and perceived behavioural control; however, they found that gender differences had limited effects on these concepts (Billari et al. 2009). Building on these studies, in the current chapter I examine the intention to have children or not, using the concepts of attitudes, subjective norms, and perceived behavioural control.

Ajzen (Ajzen 1991, Ajzen and Fishbein 2005) argued that **attitudes** towards certain behaviour involve a person's positive or negative assessment of that behaviour; this definition is similar to the definition used by Van de Kaa in his work on postmodern fertility preferences (Van de Kaa 2001). In terms of family formation, these are the attitudes regarding the positive and/or the negative effects of having a child. For instance, a potential negative effect for a woman is the impact that caring for a child can have on her career development (Langdridge, Sheeran and Connolly 2005, Liefbroer 2005); while the potential positive effects of having a child include the feeling of self-fulfilment (Van de Kaa 1987) and enhanced relationship security (Langdridge et al. 2005, Liefbroer 2005).

If attitudes regarding certain topics are shared by a group then they could be pointing towards a **social norm** (Liefbroer and Billari 2010), or, as Ajzen (Ajzen 1991, Ajzen and Klobas 2013) put

it, '*Subjective norms* are the perceptions of the social pressure endured to show certain behaviour'. Social norms tend to be influenced by the perceived expectations of significant individuals or groups of people. There is no specific number of people who have to share an attitude to make it a norm, especially as it is a perceived norm and each individual has a different set of significant 'others'. An example of a social norm that is currently widely held also illustrates that there can be exceptions to the dominant 'rule': i.e., the social norm that a family should have at least two children. Most Scots want to have two or three children (Dey and Wasoff 2010), and in the rest of Europe the ideal number of children is also around two (Testa 2006). In addition, there are social norms that are not as obvious but are still influential, such as the norms surrounding the type of housing (Murphy and Sullivan 1985, Riley and McCarthy 2003, Lauster 2010) or the type of job (Aassve et al. 2006) people should have before they start a family. It appears that people have pictures in their head of the prerequisites for starting a family, of which having a certain kind of job and a certain type of accommodation are important features. These images might influence people's family formation behaviour, and may cause them to postpone having a family until after they acquired the 'right' house and job.

Another important example of subjective social norms is the tendency to assign gender-specific roles to men and women within a family (Rindfuss et al. 1996, Billari et al. 2011). According to survey data, around half of the British public still believe that the man should be the main breadwinner in the family; and although female labour participation is rising fast in Britain, nearly half of survey respondents say women should stay home if she has preschool-age children (Crompton 2006). As a result of these attitudes, women still shoulder a large share of the family care role, in addition to participating in the labour force (McDonald 2006). One of the few research projects on fertility with a focus on men was conducted by Jamison et al. (2010). They found that the idea of the man as the main provider is still apparent; moreover, they found that for men, having financial security seems to be a prerequisite for family formation (Jamison et al. 2010). These findings lead me to expect that being employed may be a more important prerequisite for having children for men than for women.

Ajzen mentioned in his theory that behaviour is, in addition to attitudes and subjective norms, also dependent on '**perceived behavioural** control' (Ajzen 1991, Bandura 1997), which in the current context can be thought of as obstacles and resources that influence the decision to have a child (Ajzen and Klobas 2013). In laying out his theory, Ajzen stressed the difference between perceived control and actual control; however, he also argued that, at least for fertility research,

'perceived' control is a good proxy for actual behavioural control (Ajzen and Klobas 2013). An example of how norms and environment influence fertility and perceptions about parenthood opportunities can be found in research conducted by Nathanael Lauster (2010). In his examination of how cultural norms influence the evaluations of proper motherhood in the United States, Lauster showed that women believe that in order to be considered a 'proper' mother, they need to own a family home; and that middle-class women in particular are less likely to have a child if they lack this 'proper' family home, because they do not feel prepared for motherhood. He did not, however, include men in his research. As the male breadwinner model is still in force in a large part of the population, it may be the case that not owning a 'proper' family home makes men feel unprepared for parenthood as well.

According to the TPB, fertility intentions can predict fertility behaviour. However, fertility intentions are not fixed over the life course; rather, they tend to change as individuals pass through different life stages (Liefbroer 2009, Miller 2011). Numerous research projects have found that a person's age highly influences his/her fertility intentions (see, for example, MacInnes and Dias 2007, Ralston 2012). Furthermore, a person's relationship status (Lachance-Grzela and Bouchard 2009, Jamieson et al. 2010) and relationship quality (Hewlett 2004, Rijken and Liefbroer 2009) at a certain stage in life are important for fertility intentions. In addition, my research on the SSAS data in Chapter 5 and other literature (Mulder 2006, Murphy 1987) have found that tenure type, which changes over the life course, is also related to family formation. Finally, the level of education plays a large role in fertility (Berrington 2004, Liefbroer and Billari 2010).

When examining fertility intentions, it is important to keep in mind that not all pregnancies are planned. Furthermore, intentions are related to plans. But do people have the feeling they can plan their future and make their own choices? These perceptions of self-determination likely differ between individuals, and are hard to study. However, if we agree that the 20-year-old population of Kirkcaldy are representative for Scotland (Anderson et al. 2005), we can assume that most young Scots indeed believe that they can plan their future and make their own choices. However, not everyone plans his or her family (Jamieson et al. 2002). In general it seems that middle-class people (fairly wealthy, but not rich), are more likely than others to engage in family planning; like Lauster's women who perceive that they should wait to have a child until they own the 'right' kind of house (Lauster 2010).

In addition to wealth, age also seems to play a role in pregnancy planning, as fertility plans tend to change over the life course. Older women are more likely than younger women to actively plan a pregnancy (Hawkes, Joshi and Ward 2004), most likely because they are aware that 'time is running out'. However, the postponement of family formation until later in the life course could be seen as a form of family 'planning' in itself. To explore this phenomenon, Berrington (2004) researched women over age 30 in the BHPS data; she found that partnership status was, contrary to expectations, not the main indicator of fertility intentions; but that age was important. Ralston (2012) attempted to replicate Berrington's analyses, and extended them with a focus on Scotland and with measures for occupational stratification. He also found that age had an effect.

Fertility ideals have also been shown to be related to age. Dey and Wasoff (2010) found for example, that younger couples tend to want to have more children than older couples. Another reason why fertility intentions can change over the life course is that, in addition to age, a person's partnership status can change over time. For example, a woman's intentions may change if she believes she is too old to become a mother (even though she is still biologically able to have children) (Billari et al. 2011). Furthermore, Lachance-Grzela and Bouchard (2009) found that married women are more likely to plan their children than cohabiting women; although the difference between married and cohabiting couples can be context-dependent. Lachance-Grzela and Bouchard (2009) conducted their research among French-Canadian couples, among whom cohabiting is likely less common than among Dutch couples, who were studied by Rijken and Liefbroer (2009). The results of Rijken and Liefbroer's study of the association between relationship quality and the decision to have (more) children generated contradictory results: they found that positive as well as negative communication between the two partners in a relationship had a postponement effect on having a child, regardless of whether it was the couple's first child or a higher order birth. In seeking to explain why positive communication might lead to postponement, they speculated that having a(nother) child could be viewed as a threat to a good relationship. They also pointed out that couples tend to postpone having a(nother) child until both partners agree (Rijken and Liefbroer 2009). People tend to place importance on forming a stable co-residential partnership before entering into parenthood (Hewlett 2004, Jamieson et al. 2010). Not having a partner limits the opportunities for having children for both men and women. From the reported research, it is possible to conclude that partnered people are more likely to say they intend to have a child than people

who are not in a relationship. Again, these studies did not find a distinction between men and women. The question of whether partnership status has the same effect on the intentions of men and women has yet to be answered.

In earlier chapters in this thesis I showed that homeowners are more likely to expect to have children (Chapter 5). This finding is line with those of Mulder (2006) in her research titled, 'Home-ownership and family formation'; and of Lauster, who found that housing tenure has a significant impact on the start of family formation. A number of studies have also suggested that a couple's decision to move from the city centre to the suburbs may be related to the decision to start a family (Kulu et al. 2009). Moves from the city centre to the suburbs might be made because peri-urban areas are perceived as being more favourable places to raise children (Mulder and Lauster 2010). Individuals who are moving into owned accommodation can, to a much larger extent than individuals in social rented housing, choose which area they want to live in. Therefore, I expect that the BHPS data will also show that men and women in owned accommodation are more likely to intend to have a child than people living in other kinds of tenure, especially social housing tenants.

Finally, women tend to postpone having children until they have finished their education (Berrington 2004, Liefbroer and Billari 2010). It is unclear whether this tendency to postpone actual fertility until after finishing their education influences the fertility intentions of women with different levels of education; however, it seems that individuals with a high level of education are more likely than those with less education to plan their family (Benzies et al. 2006). This gap might be related to the relatively high opportunity costs associated with having a child for highly educated women. Because women with a higher level of education have better chances than less educated women of getting a well paid job, I expect that highly educated women are also more likely than less educated women to intend to have children. Furthermore, based on the small body of research regarding shared attitudes about family formation, I assume that highly educated people are more likely than people with less education to favour an equal division of household tasks. This means that highly educated couples should be able to earn more than other couples, as both partners are able to take up full-time employment. On the other hand, highly educated women may have demanding careers, and may therefore have less time to raise children. Thus, Berrington (2004) has hypothesised that women with more egalitarian attitudes might have fewer children in future. When considering shared social attitudes about having children, I therefore expect that if a person is convinced that s/he needs

to meet the previously mentioned conditions, such having as a house and a finished education, before having a child, then s/he might postpone childbearing until these goals are within reach.

The paragraphs above are based on the available literature on fertility intentions and actual fertility, and are intended to provide a preview of the contents of this study. However, there have so far been very few studies on the fertility intentions of men. The few studies that have examined men's fertility do not agree on whether the fertility intentions of men and women tend to be similar or different. Moreover, these studies did not examine whether men and women are equally able to achieve their fertility intentions. Therefore, in this chapter I attempt to shed more light on the drivers of the fertility intentions of men and women, and to explain possible similarities and differences. (Whereas in the next chapter I will investigate possible fertility realisations).

6.3.   Data and Methods

To find out whether people plan to have children in the near future, researchers study fertility intentions (Miller and Pasta 1994, Ajzen and Klobas 2013). Information about fertility intentions has been collected in several datasets, but to answer the research question posed in this chapter, and thus also tease out possible gender differences, the British Household Panel Survey is likely the best choice. The BHPS collects a wide range of information about respondents, and asks them about their fertility intentions. Compared to other surveys, it also has a reasonably large Scottish sample. Therefore, the BHPS is the most appropriate dataset for the analyses in this chapter.

The research population used to examine fertility intentions consists of men and women of childbearing ages (16-49 for men and 16-45 for women) who live in Scotland and who do not yet have children yet (N=697). Berrington (2004) treated pregnancies as intended births; however, it can be argued that a pregnancy is past the stage of intention, as the process of deciding whether to have a child has finished, and the 'decision' to start having children has been made. Therefore, in the current analyses respondents who reported being pregnant, or whose partner was pregnant, are omitted from the sample. The resultant analytical sample contains more men (N=402) than women (N=295). One of the reasons for the different numbers of men and women could be that men tend to under-report non-resident biological children (Rendall et al. 1999). Different age ranges are also used for men and for women. In addition,

because the variables about attitudes were not answered by all of the respondents in the sample, in the last models the sample is somewhat smaller, N=655 (378 men and 275 women).

Research about fertility intentions is very much dependent on how the questions about intentions are asked in a survey (Miller 2011). The exact phrasing of the question about intentions in the BHPS is: *Do you think you will have any (more) children?* The possible answers are *yes / no / don't know / self or partner pregnant.* This question was asked in three consecutive BHPS waves, Wave K–2001, Wave L–2002, and Wave M–2003; and again four years later in Wave Q-2007. The answer to this question is the outcome variable in the multivariate regression models that will be employed in Section 6.5 of this chapter.

As intentions tend to develop over time, I decided to use the explanatory variables from the year prior to the year that the intentions were measured. Wave M-2003 is the baseline for intentions; whereas for the explanatory variables the answers from Wave L-2002 are used. However, if there was a non-response in Wave L, the information was taken from the following wave M. This imputation was conducted for a number of variables to between 21 and 36 respondents. Imputations were made to all groups of explanatory variables except for age and sex. I had two reasons for choosing Wave M, and not wave Q, as a base for the current regression of fertility intentions. First, the year 2003 fits better with the years studied in the previous chapters; i.e., 2001-2010 in Chapter 4 and 2005 in Chapter 5. Additionally, in the next chapter, I will continue to explore fertility intentions by researching which respondents go on to actually have a birth. If Wave Q, which was conducted in 2007, had been used, too few years would have passed to allow me to do meaningful research on subsequent behaviour.

In this chapter I conduct a latent class analysis, and then enter the latent class variables into a multinomial logistic regression model that predicts fertility intentions. The LCA analysis is employed to identify groups of respondents with shared attitudes; it is used to identify a latent variable that is responsible for a relationship between variables that appear to be unrelated. The latent class model estimates the probabilities of group membership, and for the specific answers it models group-specific probabilities (McCutcheon 1987, Collins and Lanza 2010). If a LCA model can be fitted, then a variable can be created, which can in turn be entered into a multinomial logistic regression. I chose a multinomial logistic regression because the outcome variable, fertility intentions, has three meaningful answers. Using this regression method, I model the probabilities of a pair of answers versus the other answer (Agresti and Finlay 2009, Treiman

2009) or the baseline category. In this study, the answer 'no' is taken as the baseline category; thus, the answers 'yes', and 'don't know' are modelled against the answer 'no'. The multinomial regressions are fitted separately for men and women in order to explore possible gendered effects.

Table 6.1 reports the frequencies of fertility intentions (from variable mlchmor, without the pregnant respondents/partners of pregnant respondents) by possibly important indicators. Drawing on BHPS data, Berrington (2004) also looked at fertility intentions in relation to gender role attitudes, but only for women in England and Wales. As in many previous studies, she included age, partnership status, level of education, and income in her models, as I do here. Furthermore, as I demonstrated in Chapter 4, housing and social attitudes are important indicators of expected fertility; I have therefore also taken those variables into consideration while examining fertility intentions in Scotland. In the next sections, I will introduce the independent variables one at a time.

Table 6.1 Possible indicators of fertility intentions for currently childless men and women

		Male				Female			
		Yes	No	Don't know	N	Yes	No	Don't know	N
Age	16-24	81.8%	7.9%	10.3%	165	81.9%	11.4%	6.7%	149
	25-34	57.3%	22.9%	19.8%	131	63.6%	17.8%	18.7%	107
	35+	17.0%	70.8%	12.3%	106	10.3%	82.1%	7.7%	39
Relation-ship status	Partnered	43.0%	46.1%	10.9%	128	54.5%	31.3%	14.3%	112
	Divorced/ separated/widowed	20.0%	60.0%	20.0%	10	40.0%	40.0%	20.0%	5
	Single/never Married	64.8%	20.1%	15.2%	264	73.6%	17.4%	9.0%	178
Tenure	Own	54.4%	34.0%	11.6%	250	62.7%	24.9%	12.4%	185
	Social rent	50.0%	36.2%	13.8%	58	75.0%	18.8%	6.3%	48
	Private rent	60.3%	17.5%	22.2%	63	71.1%	18.4%	10.5%	38
	Live with parents	80.6%	3.2%	16.1%	31	59.1%	27.3%	13.6%	22
Employ-ment status	Full-time	54.8%	33.0%	12.2%	279	62.2%	23.9%	13.8%	188
	Part-time	41.7%	50.0%	8.3%	12	62.5%	33.3%	4.2%	24
	Student	78.1%	6.3%	15.6%	64	80.3%	12.1%	7.6%	66
	Other (not working)	42.6%	34.0%	23.4%	47	52.9%	41.2%	5.9%	17
Educa-tional attainment	No/basic education	49.1%	29.8%	21.1%	57	45.8%	45.8%	8.3%	24
	Secondary	64.4%	23.9%	11.7%	188	68.8%	19.4%	11.8%	144
	Tertiary	51.0%	34.8%	14.2%	155	66.7%	23.0%	10.3%	126
Total		56.7%	29.4%	13.9%	402	65.8%	23.1%	11.2%	295

Source; BHPS 2002/2003

When considering fertility, it is important to take into account that men and women have (biologically) different abilities: i.e., a woman can have a child without being in a co-residential partnership with a man, and a man can have children at older ages. Other less well known differences might be apparent as well. Therefore, the fertility intentions of men and women are considered separately. As we can see in Table 6.1, about 55 to 65 per cent of currently childless men and women (56.7 per cent of men and 65.8 per cent of women) intend to have at least one child; moreover, more women than men intend to have children. A little over 23 per cent of the women do not intend to have children; while this figure is almost 30 per cent for men (23.1 per cent of women and 29.4 per cent of men). In addition, more men than women do not know whether they intend to have children. Thus, men appear to be more ambivalent about parenthood than women.

Most women have their first child in their late twenties (ISD, 2014); however, as Figure 4.11 in Chapter 4 shows, first children are born over a wide range of ages. In this chapter the variable age is divided into three groups: 16-24, 25-34, and 35 and older. Respectively, these age groups represent women who had their first child at a relatively young age, at an average age, and at a relatively late age. When we look at the different age groups and their fertility intentions in Table 6.1, we can see that future fertility depends on age. Other research (Berrington 2004, Jamieson et al. 2010, Ralston 2012) also found a relationship between age and fertility intentions. However, as there is no time limit on the question asked in the BHPS, there is some ambiguity. Because the question has no time limit, an 18-year-old respondent is being asked about his/her fertility intentions for the next 30 years; whereas a 40-year-old respondent who is close to the end of his/her childbearing years is being asked about the near future.

Besides age, partnership status is typically an important indicator of fertility. Berrington (2004) and Ralston (2012) used a binary variable for partnership status that distinguishes between partnered and unpartnered; in the current research I include an additional category for 'single, never been partnered', and a category for people who have been in a partnership, but are no longer partnered (i.e., widowed, divorced, separated). I chose these distinctions as I found in my research on the SLS and the SSAS data that single people tend to behave differently than people who have been in a partnership, even when they are no longer in a partnership. In the remainder of the chapter I use the term 'separated' to refer to single people who have been, but are no longer in a partnership. When we look at the frequencies for partnership status in Table 6.1, it becomes clear that respondents in this group were the most likely to answer 'no' or 'don't know'

when asked about their fertility intentions. Meanwhile, the men and women who were single and never married were the most likely to say they intend to have children. The large proportion of the partnered individuals who answered 'no' or 'don't know' is somewhat surprising, but this may be attributable to some selection effect. The childless partnered people might be older, and may have chosen to remain childless. Furthermore, the large proportion of singles who said 'yes' is likely related to the significantly younger ages of these single people.

The next variable in Table 6.1 is housing tenure, which is sometimes divided into a binary variable that distinguishes between owners and renters (Blaauboer 2010, Ralston 2012). However, as housing tenure is an important variable in the current research, it is preferable to use a more detailed categorisation. In the current research, I follow Fiori et al. (2014) by operationalising housing tenure as the three categories of ownership, social renting, and private renting; in addition, I created a fourth category, 'living with parents', as a considerable number of young people might still be living with their parents, and without this category the housing tenure of the respondents' parents would be measured instead of their own. As we can see in Table 6.1, a very high proportion of the men who still live with their parents intend to have children, and only 3.2 per cent of them do not intend to have children.

Table 6.1 shows as well that over 60 per cent of men in privately rented accommodation intend to have children in the future, compared with only 50 per cent for social renters. Higher proportions of women in all of the housing tenures intend to have children, but those in social renting are the most likely to intend to have a child. In Chapter 5, the results seemed to indicate that owning a house is the most favoured situation for starting a family, while living in a social rented accommodation is the least favoured situation. If this is also found to be the case in the BHPS data, it could explain the finding that a lower proportion of men in social housing intend to have children than men who are owners or private renters in Table 6.1. However, for women the opposite situation is visible: the highest proportion of women who intend to have children are in social housing, this theory cannot explain their figures. Thus -owning house is essential for having a child- does not appear to apply for women

Being in or out of employment does not appear to be related to fertility intentions in the same way for men and women. Whereas for some people being in part-time employment means they have not been able to find a full-time job, for others it can mean that they combine work with another activity (Mills et al. 2005). Therefore, in the current study I distinguish four categories

for employment status: full-time employed, part-time employed, student, and other not working. This categorisation does not follow the more conventional approach of combining all employment categories (see, for example, Aassve et al. 2006). The reason for operationalising this variable with a different level of detail is that there seems to be a gender difference in employment. Because men have a higher average income than women, the relationship between employment status and fertility intentions is likely sensitive to gender differences. Most of the men in the sample were in full-time employment, while a smaller share were students, and an even smaller share were in part-time employment. The pattern for women was rather different: more women were in part-time employment and a slightly larger proportion of women were still in education. For this analysis, the respondents who reported being sick or unemployed were combined into one category, which was named 'other not working', as the numbers were relatively small (six sick and eight unemployed for women; 18 sick and 30 unemployed for men). Compared to the individuals who were unemployed or in part-time employment, a higher proportion of the individuals who were in full-time employment and the students said they intend to have a first child.

Central to an individual's future employment opportunities is his or her level of education (Easterlin 2006). As women tend to postpone having children until they have finished their education (Berrington 2004, Black et al. 2008), fertility intentions might be influenced by level of education as well. Hence, I chose to include the level of education in the research, and to divide it into three categories, following Fiori et al. (2014), who also researched fertility using the BHPS data. From Table 6.1 it becomes clear that for women there is only a very small proportional difference between the fertility intentions of those with secondary and tertiary educational attainment; whereas for men there is a larger difference between those groups, with men with tertiary educational attainment having the highest proportion of intenders. Men and women with no or only basic education were the least likely to say they intend to have a child; and men with no or only basic education were the most likely to say they don't know. Among women with no or only basic education, 45 per cent said they intend to have a child, and 45 per cent said they do not intend to have a child. It is possible that these individuals with very low levels of education might wish to avoid having children because they are unlikely to pass the thresholds (e.g., having family housing and a secure job) that are perceived being necessary for having a family (Ralston 2012).

6.4.   (Shared) Attitudes

Fertility intentions are shaped by shared social attitudes (Liefbroer and Billari 2010, Ajzen and Klobas 2013). In the BHPS, the respondents are asked for their opinions on several topics, including the importance of health, money, job, house, having children, and friends. Many of these topics are directly or indirectly related to family formation. For example, a person who highly values children might be inclined to have a large family; whereas, a person who highly values having a good job might be less inclined to risk possible career sacrifices to have children. The BHPS variables that plausibly relate to family formation are entered into a LCA model. These are:

- The importance of having children
- The importance of having a good job
- The importance of being independent
- The importance of owning your own home

The importance of health was also considered. However, the overwhelming majority of respondents (97.3 per cent) said that health was important, so this variable would not yield any explanatory value in differentiating shared attitudes related to family formation. Figure 6.2 shows the answers to the questions included. Originally, these variables all had answers varying from 1 (not important at all) to 10 (very important). For this analysis, they were collapsed into three-category variables, whereby all of the answers below 5 are combined as 'not important', the former 5 and 6 answers are included in the category 'neutral', and everything over 6 is combined in the category 'important'. As we can see in Figure 6.2 the answers to the questions regarding the importance of having a good job and the importance of being independence are especially skewed towards importance. This makes it even more interesting to explore whether there are groups of individuals who hold different attitudes.
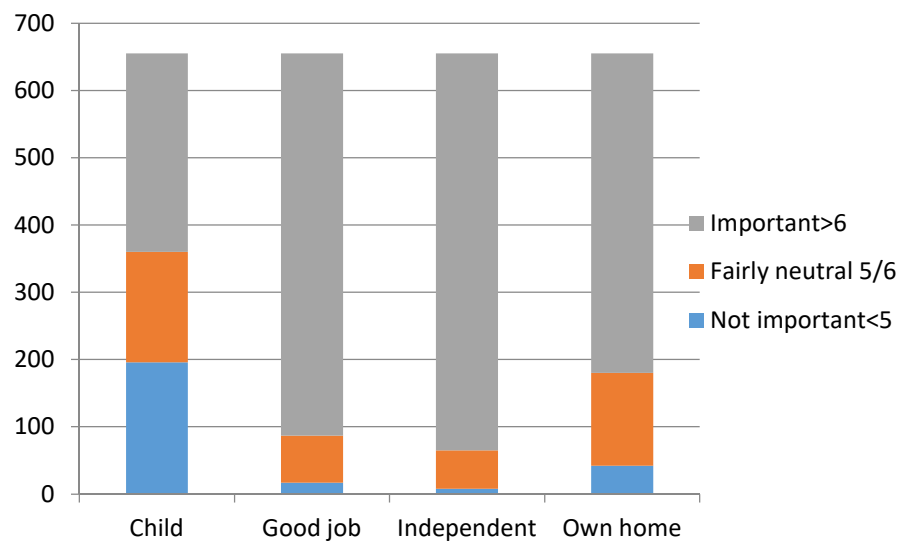
Figure 6.2 Frequencies of responses to latent class questions
Source; BHPS 2003, N=655

Using a latent class analysis, I identified three groups of people who share attitudes regarding certain topics. Models with one, two, three, and four classes were identified, and based on the lowest BIC and AIC the three-class model was identified as the best fit. The three-class model can be found in Table 6.2. Using a probabilistic model the classes are assigned to respondents, and these classes can then be divided into three mutually exclusive groups. The groups are named after the main variable or variables that distinguish them from the other groups. Respondents in Group 1, the *stability seekers*, share not only attitudes regarding the importance of owning their own home, but also about the importance of having a good job and of being independent. The respondents in Group 2, the *alternative lifestylers*, share the opinion that independence is important; however, they are also distinctive in that they think having children is not important. The respondents in the last group, Group 3, the *independent consumers*, highly value having a good job and having independence. They are also distinctive in their shared fairly neutral opinion regarding the importance of homeownership. The groups with their descriptions are listed below.

- Group 1: *Stability seekers.* Homeownership, a good job, and independence are important; having children may be as well.

- Group 2: *Alternative lifestylers*. Having children is not important; however, being independent is.

- Group 3: *Independent consumers.* A good job and independence are important; homeownership could be.

Table 6.2 Sizes of latent classes and conditional response probabilities

	Group 1 (Stability seekers)	Group 2 (Alternative lifestylers)	Group 3 (Independent consumers)
Proportional class size	0.638	0.067	0.294
	Conditional probabilities		
Importance of having children			
Not important	0.21	0.76	0.38
Fairly neutral	0.20	0.09	0.40
Important	0.59	0.15	0.22
Importance of having a good job			
Not important	0.00	0.39	0.00
Fairly neutral	0.06	0.36	0.16
Important	0.94	0.26	0.84
Importance of being independent			
Not important	0.00	0.07	0.02
Fairly neutral	0.02	0.26	0.19
Important	0.98	0.67	0.79
Importance of owning your own home			
Not important	0.03	0.54	0.03
Fairly neutral	0.04	0.06	0.61
Important	0.93	0.40	0.36
Chi-squared	81.3088 (p = 0.0095)		
BIC (log-likelihood)	3458.7076		
AIC (log-likelihood)	3342.1071		

Source; BHPS 2003, N=655
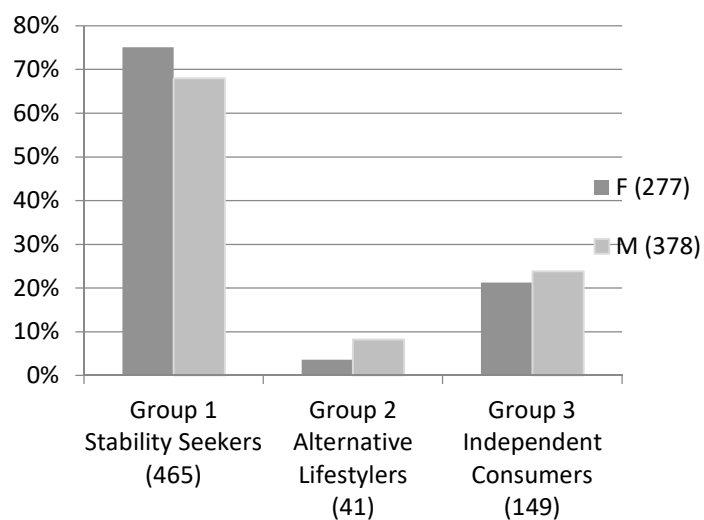
Figure 6.3 Latent classes by gender
Source; BHPS 2003, N=655

As group membership is mutually exclusive, a respondent can be part of one group only. Hence, it is possible to create a variable that shows which group a respondent belongs to, as was done in the previous chapter. Men and women are entered together into the same latent class model. If men and women have very different attitudes, this will be visible in the assigned group membership; in such cases, a group will consist nearly exclusively of men or women. Figure 6.3 shows this new LCA variable separated by gender; of the total sample, nearly 60 per cent are men (57.7 per cent) and 40 per cent are women (42.3 per cent). When we look at the figure, it is clear that most of the *alternative lifestylers* are men; and that slightly more men than women are *independent consumers*. In the *stability seeker* group, who share the opinion that having a good job and having independence are important, we find the largest proportion of women.

These gender differences in latent class group membership raise the question whether the LCA outcomes would have changed with a sample that consists of only men or only women. Therefore, the models were fitted separately for men and women as well. A group similar to Group 1, the *stability seekers,* and to Group 3, the *independent consumers,* are found in the models for both men and women; yet, a group comparable to Group 2, the *alternative lifestylers* appears in the male LCA models only (for the LCA models see Appendix E). Both men and women have a range of attitudes. If a certain attitude was very specific to either of the genders, this would show up as a separate latent class that was dominated by one gender only. Indeed, this is visible in Figure 6.3. However, when comparing men and women within the same framework it is better to employ the information of the latent class model in which the sample was kept together.

It is, however, interesting that the group that is dominated by women is also the group with the shared attitude that owning your own home is important. To investigate this finding further, I examined how the LCA groups are divided by both gender and housing tenure. Hence, in Figure 6.4, I present the LCA groups, separated by housing tenure and by gender. Overall, the men and women in the sample have a comparable tenure composition. Of the women in the sample, 64 per cent are homeowners, 16 per cent are social renters, 12 per cent are private sector renters, and eight per cent live with their parents. Of the men in the sample, 63 per cent are homeowners, 14 per cent are social renters, 15 per cent are private sector renters, and eight per cent live with their parents. A glance at these figure makes clear that the different tenures are not evenly spread over the groups of people with shared social attitudes. In general, homeownership and social renting could be considered more permanent housing tenures,

whereas living with parents and private renting tend to be shorter term living arrangements. Compared to Group 1, fewer men and women in Group 3 are living in a more permanent tenure type: almost 70 per cent of the men (68.9 per cent) and 75 per cent of the women (74.5 per cent) in Group 3 are either social renters or homeowners; whereas, these proportions are 10 per cent larger in Group 1 (men 79.8 per cent; women 81.5 per cent). If we compare the different tenure types we can see that most of the homeowners are in Group 1, the *stability seekers,* and in Group 3, the *independent consumers,* and that there are no marked differences between men and women. However, when we look at Group 2, the *alternative lifestylers*, we see a different picture. In comparison to the other groups, there are two main differences. First, men and women do not have the same tenure patterns; and, second, the proportion of (social) renters is much larger in this group than it was in the other groups.
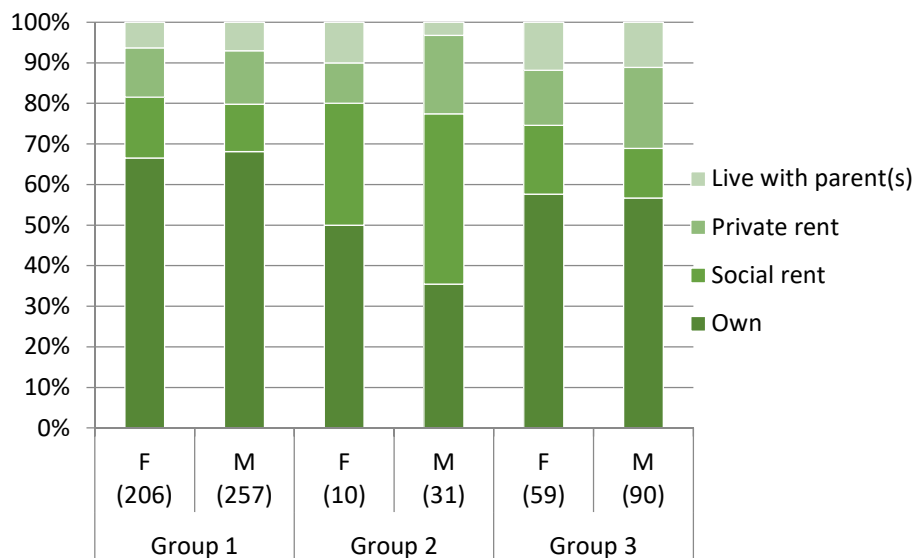
Figure 6.4 Latent class model by tenure and gender
Source; BHPS 2003, N=653

Most notably, in Group 2, the proportion of men in social rented accommodation (42 per cent) is large whereas, the proportion of men who are homeowners (35.5 per cent) is particularly small, compared to the 68 per cent in Group 1. Moreover, the proportion of men in private rented housing (13.2 per cent) is relatively large, although it is not as large as the proportion of private renters (20 per cent) in Group 3. The group (Group 2, *alternative lifestyle*) with the distinctive tenure composition is also the group in which children are seen as not important. Thus, the question of whether housing tenure and fertility intentions are related arises. It is impossible to establish a causal link related to intentions; however, it is possible to wonder whether these people just happen to be in social housing, or whether being in social housing

influences their attitudes about having children Furthermore, there is research that supports the idea that housing tenure and fertility are related (Murphy and Sullivan 1985, Mulder and Billari 2010, Vignoli et al. 2011).

Fertility intentions by groups with shared attitudes and the same gender is presented in Table 6.3, below. The within-group proportions of people who intend to have a child, who do not intend to have a child, and who do not know whether they will have a child in the future are not the same for men and women. For women, the differences are more pronounced. Group 1, the *stability seekers*, includes the largest proportion of intenders for both men and women; almost 70 per cent of women from Group 1 (69.8 per cent) intend to have a child, and about 60 per cent of men in Group 1 have this intention (60.2 per cent). Consequently, the figures for 'no' and 'don't know' for women in this group are small, with over 22 per cent of women in Group 1 saying they do not intend to have children, and a little under eight per cent saying they do not know (no 22.3 per cent, don't know 7.9 per cent). Among men, just under 28 per cent (27.6 per cent) do not intend to have children, and a little over 12 per cent (12.2 per cent) do not know whether they will have children. It is interesting that, as we saw when looking at Figure 6.3, the women in Group 1 are especially distinctive.

When considering the men and women in Group 2, the *alternative lifestylers*, we can see that this group is male dominated (Figure 6.3). Furthermore, it is the only group in which relatively large differences regarding housing tenure could be found (Figure 6.4). When we look at fertility intentions, we can see for men as well as for women that the largest proportion of non-intenders can be found in Group 2 (men 38.7 per cent, women 60.0 per cent). Among women, the share how say they do not intend to have a child is double the size of the proportion who say they intend to have a child (no 60 per cent, yes 30 per cent), whereas for men the proportion of intenders is larger (48.4 per cent) than the non-intenders (38.7 per cent); although, compared to the other groups, the smallest proportion of intenders is found in this group for men as well. It is, however, important to keep in mind that as the number of women in Group 2 is small, we cannot draw any conclusions from those figures. Still, the large proportional differences raises the question of who these women in Group 2 are. It is likely that they are different from the other women, and it is possible that they are deliberately childless. The potential reasons for this difference between men and women will be discussed later in this chapter.

Table 6.3 Shared attitudes in relation to fertility intentions

		Male				Female			
		Yes	No	Don't know	N	Yes	No	Don't know	N
Shared attitudes	Group 1 *(Stability seekers)*	60.2%	27.6%	12.2%	254	69.8%	22.3%	7.9%	202
	Group 2 *(Alternative lifestylers)*	48.4%	38.7%	12.9%	31	30.0%	60.0%	10.0%	10
	Group 3 *(Independent consumers)*	52.2%	32.2%	15.6%	90	62.1%	20.7%	17.2%	58

Source; BHPS 2003, N=655

Finally, regarding Group 3, *independent consumers*, I initially expected to find that in a group of people who share the attitude that a job and independence are both important, starting a family would not be high on the agenda. However, when we look at the figures in Table 6.3 we can see that a large proportion of women in this group (62.1 per cent) intend to have children. The *independent consumers* stand out a little because of the relatively large proportions of men and women who say they don't know whether they will have children (15.6 per cent of the men and 17.2 per cent of the women). The reasons for these figures are likely to be different for men and women. It is possible that the men are a little older or that their employment status is insecure, and that this could be why a large share of them do not know whether they want to have children. It may also be the case that the women are comparatively young, are still living at home, are still in education, and are in privately rented accommodation; and therefore have insecure fertility intentions.

6.5. Indicators of Fertility Intentions

To really tease out the main drivers of fertility intentions, looking at descriptive statistics is not enough, because these drives might be interrelated. Thus, in this section the different explanatory variables and groups of shared attitudes are entered into multinomial regression models, which have the answer 'no' as the base category. In the first models (Model A), presented in Table 6.4 for women and Table 6.5 for men, age, partnership status, and housing tenure are entered as explanatory variables. Age and partnership status are included because these variables generally have a strong explanatory power when researching fertility, and the previous chapters showed that housing tenure also tends to be associated with fertility plans and fertility outcomes (Chapter 4 showed the relationship between housing tenure and actual fertility, whereas, Chapter 5 showed the link between housing tenure and fertility expectations). Age, partnership, and tenure type are confounders of the relationship between shared attitudes

and fertility intentions. Without adjusting for age, partnership status, and tenure type, the relationship between shared social attitudes and fertility intentions can be biased.

The second models (Model B) then add employment status and educational attainment to the initial model. Employment status is included because this has been proven to be an important explanatory variable regarding fertility, especially, for men (Aassve et al. 2006). The same is true for the level of education, but this time for women, as different levels of education tend to influence the timing of entry into motherhood (Berrington 2004, Liefbroer and Billari 2010). I also considered running these second models with a measure of socio-economic status (NS-SEC) included, but decided against doing this (herewith following Berrington 2004 and Aassve et al. 2006). The inclusion of this variable would have raised problems of multi-collinearity; as for both men and women socio-economic status is correlated with both education and employment, which means that all three of the variables cannot be included in the same model.

Attitudinal variables have rarely been included in past research on fertility intentions even though there is evidence that attitudes do influence behaviour (Langdridge et al. 2005, Liefbroer and Billari 2010, Ajzen and Klobas 2013). Hence, in the third and last set of models (Model C), an additional explanatory variable derived from the LCA analysis is included. This variable captures shared social attitudes, and the models therefore test whether such attitudes influence respondents' fertility intentions. The questions about attitudes were not answered by all respondents in the sample; therefore, in this last model the sample is somewhat smaller, N=655 (378 men and 275 women). As attitudes regarding gender role behaviour have been found to influence the fertility behaviour of women with different levels of education (Berrington 2004), an interaction between educational attainment and the shared attitude variable, derived from the LCA analysis, was included in the final models. However, as this addition did not yield any statistically significant results, the final model is presented without interactions.

Table 6.4 and 6.5 report the relative risk ratios (RRR) from the fitted models, and the relative risk ratios are exponentiated multinomial logit coefficients. An RRR >1 indicates that the outcome is more likely in the group compared to the reference group, an RRR<1 means that in the reference group the outcome is more likely than in the group compared. By looking at the model outcomes we can learn the characteristics of women and men who intend to have children. From Table 6.4 it is apparent that childless women have the highest risk of intending to have children if they are young (between 16 and 24 years); currently partnered, but not

divorced, widowed, or separated; living with their parents; have at least a secondary level education; and do not share the attitudes of the *alternative lifestylers.* Indeed, the women who share the attitudes of the *stability seekers* group are more likely than the *alternative lifestylers* to say they intend to have children.

In Model A two explanatory variables returned significant results: age and tenure. When women are older, the relative risk of answering 'yes' compared to 'no' declines, and the likelihood of a 'don't know' answer increases. At age 35 and above there is a significantly smaller relative risk of answering 'yes' (RRR = 0.01) than of answering 'no', and the relative risk of not knowing whether they intend to have children is also significantly smaller (RRR = 0.08) than of knowing that they do not intend to have children. This effect for age was found in all models, regardless of which other variables were controlled for. The finding of decreasing fertility intention with age is in line with the results of Berrington (2004) and of Ralston (2012) in their research on women over age 30. They also found that older women are far less ambivalent in their fertility intentions than younger women.

I also find in all of the models that the relative risk of intending to have a child is very small for a woman when she lives with her parents, compared to when she is in owner occupation (RRR = 0.20). This finding is slightly surprising as it is likely most of the women who live with their parents are young and or in education, and that these women tend to be the women who *do* intend to have children. There are two possible reasons for this finding: some of these women who live with their parents might have moved in after a relationship breakup. The proportion of separated women who intend to have a child is small compared to the share of partnered women. Another reason could be that over time women become increasingly aware of the sacrifices, for instance workwise, they will have to make if they want to have children. Thus, women might be more likely to say they intend to remain childless than in the past.

Additional findings from Model B show that in addition to being relatively young and less likely to be living with her parents, the childless female intender tends to be better educated. Relative to a woman with secondary educational attainment, a woman with higher education is much more likely to say she intends to have children (RRR = 2.48). It is remarkable that educational attainment yields significant results in the model; while for employment status no results were found. This finding for employment could be related to the fact that intentions refer to a person's ideas regarding the future: whereas educational attainment is relatively fixed,

employment status can be more easily changed. Thus, if it is important for a woman to have a stable life situation, her level of education has a clearer impact than her (more fluid) employment situation.

In Model C, in addition to the already mentioned variables, shared social attitudes are added to the model. While the results for age and tenure remain the same, in Table 6.4 new results for partnership and education are visible. Model C shows that in addition to being relatively young, a women who intends to have children is less likely to be separated from a previous partner (RRR = 0.13), and is more likely to be partnered. This result is not in line with Berrington (2004), who found no significant relationship between partnership and women's fertility intentions; however, it is likely that this difference is due to Berrington's operationalisation of partnership status, in which she does not distinguish between single women who have never been in a relationship and women who are divorced, widowed, or separated. Furthermore, from my inspection of the age ranges of the single women, it appears that the single women are younger than the women who have separated. Regarding education, women with a tertiary education again have a significantly higher relative risk of intending to have a child than women with a secondary education (2.54). In addition, Model C shows that a woman with no or only a basic education has a much smaller risk of intending to have a child relative to a woman with a secondary education (RRR = 0.28).

Model C yields another very interesting result. So far in this research, the influence on fertility intentions of shared social attitudes that might point to possible normative behaviour have not been investigated. However, in Model C the significance of shared social attitudes on a woman's fertility intentions is found. If a woman is in Group 2, the *alternative lifestyle group,* who place a high value on independence and do not consider having children to be very important, then her risk of intending to have a child is very low (RRR = 0.09) relative to a woman Group 1, the *stability seekers* who place a high value on having their own home, independence, a good job, and, possibly, children. Since, the women in Group 1 are distinguished by the high value they place on homeownership, and Group 2 had a different tenure composition than the other latent class groups, it is possible that this outcome is related to a woman's tenure status.

For women, some of the modelling results were expected, while others were less anticipated. Table 6.5 presents the modelling results for men. Models A, B, and C are again built up, starting with age, partnership, and tenure type in Model A. Model B also includes employment status

and educational attainment, and in Model C shared social attitudes are added. The modelling results for men are not the same as for women. Based on the results reported in Table 6.5, men who intend to have children are relatively young (between 16 and 24 years old), are more likely to be in full-time than in part-time employment, and are more likely to belong to the *stability seeker* group than the *alternative lifestyle* group, who share the attitude that independence is important, whereas having children is not.

All of the male models show a significant relationship between fertility and age. Young men are more likely than older men to intend to have children (RRR 25-34 = 0.28, RRR 35+ = 0.03), irrespective of which other variables are controlled for in the models. This result is at first somewhat surprising, as men can have children at older ages than women; however, as only childless people are selected for the research population, it is possible that some older men in the sample are deliberately childless, whereas the men who intended to have children might already have fulfilled this desire. Age also has a significant influence on the probability of men (and women) saying they do not know whether they will have children, compared to the likelihood they will say they do not intend to have children. Furthermore, this effect is stronger for men in the oldest age group. As many people aged 35 or older likely already have children and are consequently are eliminated from this research, the relative risk that childless men aged 35 or older will say they intend to have a child is very small (RRR = 0.03), as is the risk that they will say they don't know (RRR = 0.20), compared to the reference group aged 16 to 24. The finding that men in the older age groups (35 and above) are especially likely to say they do not want to have children is in line with the findings of Jamieson et al. (2010) in their research using data from the Scottish household survey. From their interviews, they also learned that at a certain point in time a 'sense of the pleasures of living alone' develops for childless men who live alone at slightly older ages, which makes them less likely to participate in a co-residential partner relationship.

Table 6.4 Multinomial regression fertility intentions of childless women in Scotland

		Model A Yes	Don't know	Model B Yes	Don't know	Model C Yes	Don't know
Age	16-24	-	-	-	-	-	-
	25-34	0.39** (0.18)	1.48 (0.95)	0.31** (0.16)	1.32 (0.95)	0.32** (0.18)	1.52 (1.23)
	35+	0.01*** (0.01)	0.11*** (0.09)	0.01*** (0.01)	0.10** (0.09)	0.01*** (0.00)	0.08** (0.09)
Partnership status	Partnered	-	-	-	-	-	-
	Divorced/separated /widowed	0.28 (0.29)	0.46 (0.59)	0.18 (0.20)	0.38 (0.50)	0.13* (0.14)	0.42 (0.57)
	Single/never married	1.09 (0.46)	0.86 (0.47)	1.18 (0.53)	0.94 (0.53)	0.96 (0.47)	0.77 (0.50)
Tenure	Own	-	-	-	-	-	-
	Social rent	0.73 (0.36)	0.43 (0.33)	1.28 (0.74)	0.68 (0.56)	1.35 (0.82)	0.66 (0.64)
	Private rent	0.65 (0.35)	0.56 (0.41)	0.61 (0.34)	0.43 (0.34)	0.70 (0.43)	0.16 (0.19)
	Live with parents	0.19*** (0.12)	0.60 (0.54)	0.18** (0.13)	0.56 (0.56)	0.20** (0.16)	0.29 (0.33)
Employment status	Full-time			-	-	-	-
	Part-time			0.37 (0.23)	0.17 (0.19	0.35 (0.23)	0.00 (0.00)
	Student			1.28 (0.81)	0.74 (0.66)	1.60 (1.10)	1.26 (1.20)
	Other (not working)			0.63 (0.49)	0.39 (0.48)	1.16 (1.07	0.00 (0.00)
Education	Secondary			-	-	-	-
	No / basic education			0.35 (0.23)	0.37 (0.35)	0.28* (0.19)	0.21 (0.25)
	Tertiary			2.48* (1.16)	0.90 (0.52)	2.54* (1.27)	0.78 (0.50)
Shared attitudes	1 Stability seekers			-	-	-	-
	2 Alternative lifestylers					0.09** (0.09)	0.51 (0.66)
	3 Independent consumers					0.70 (0.33)	1.83 (1.13)
	N	293		292		267	
	χ^2	(df=14)=99.83		(df=24) = 117.01		(df=28) = 129.69	
	Log likelihood	-202.63		-191.84		-158.87	
	Pseudo R^2	0.20		0.23		0.29	

Source; BHPS 2002/3. *p<0.1; **p<0.05; ***p<0.01
Standard error between parentheses

Table 6.5 Multinomial regression fertility intentions of childless men in Scotland

		Model A		Model B		Model C	
		Yes	**Don't know**	**Yes**	**Don't know**	**Yes**	**Don't know**
Age	16-24	-	-	-	-	-	-
	25-34	0.26*** (0.10)	0.96 (0.48)	0.27*** (0.12)	1.30 (0.73)	0.28*** (0.13)	1.33 (0.78)
	35+	0.03*** (0.01)	0.23*** (0.12)	0.02*** (0.01)	0.26** (0.15)	0.03*** (0.01)	0.20** (0.13)
Partnership status	Partnered	-	-	-	-	-	-
	Divorced/separated /widowed	0.76 (0.72)	1.77 (1.65)	0.78 (0.74)	2.16 (2.04)	0.75 (0.73)	2.88 (2.79)
	Single/ never married	1.02 (0.33)	1.94 (0.79)	1.15 (0.38)	2.01* (0.85)	1.26 (0.44)	2.28* (1.06)
Tenure	Own	-	-	-	-	-	-
	Social rent	0.77 (0.31)	1.07 (0.53)	0.73 (0.32)	0.71 (0.39)	0.98 (0.46)	0.87 (0.51)
	Private rent	1.77 (0.75)	2.90** (1.40)	1.59 (0.70)	2.36* (1.18)	1.81 (0.84)	2.10 (1.14)
	Live with parents	4.52 (5.01)	8.03* (9.50)	3.96 (4.56)	5.63 (7.00)	3.98 (4.82)	6.00 (7.77)
Employment Status	Full-time			-	-	-	-
	Part-time			0.17** (0.12)	0.25 (0.28)	0.16** (0.12)	0.25 (0.29)
	Student			1.19 (0.75)	2.41 (1.76)	1.43 (0.91)	2.45 (1.85)
	Other (not working)			0.38** (0.18)	1.19 (0.61)	0.49 (0.25)	1.39 (0.79)
Education	Secondary			-	-	-	-
	No/basic education			1.61 (0.79)	2.49* (1.37)	1.66 (0.86)	2.42 (1.43)
	Tertiary			0.95 (0.32)	0.90 (0.39)	0.87 (0.31)	0.74 (0.34)
Shared attitudes	1 Stability seekers					-	-
	2 Alternative lifestylers					0.34* (0.19)	0.39 (0.28)
	3 Independent consumers					0.60 (0.22)	0.89 (0.39)
	N	402		400		374	
	χ²	(df=14) = 157.90		(df=24) = 173.74		(df=28) = 169.33	
	Log likelihood	-305.37		-294.99		-268.57	
	Pseudo R²	0.21		0.23	0.24		

Source; BHPS 2002/3. *p<0.1; **p<0.05; ***p<0.01
Standard error between parentheses

In addition to age, in Model A fertility intentions were modelled by relationship status and tenure type. Relationship status did not significantly influence the fertility intentions of men in the research sample. However, for housing tenure significant results can be observed. For men, Model A shows significance for those who are living with their parents and say they don't know whether they want to have children; the relative risk of men who live with their parents not knowing their fertility intentions is high (RRR = 8.03); indeed, it is eight times as high as for men who are homeowners. Furthermore, the figures for tenure type indicate that men in privately rented accommodation also have a high risk of not knowing their fertility intentions compared to homeowners (RRR = 2.90).

A high relative risk of men not knowing their fertility intentions was also found in Model B (RRR = 2.36). These results for men in private rented housing in Model A and in Model B are similar to the findings of a significant effect for housing tenure on fertility intentions in a previous study (Ajzen and Klobas 2013), and may be related to having a more fluid lifestyle. Some men in private rented housing might have (had) to move relatively often for employment-related reasons, which makes renting the logical choice of tenure. However, such a lifestyle is likely hard to reconcile with having a family.

Like in Model A, Model B also includes partnership status. An unwillingness to participate in a co-residential partnership could be one of the reasons why, for men, being unpartnered means having a significantly higher risk than partnered men of not knowing their fertility intentions (RRR=2.01); thus the relative risk of single men saying they don't know whether they want to have children is more than twice as high as for currently partnered men. Although it is possible that a man could be actively seeking to become a single father, this hardly seems to happen in practice (Jamieson et al. 2010).

In addition to age, partnership status, and tenure, Model B also includes employment status and educational attainment. Both variables have a significant relationship with men's fertility intentions. Men who work part-time have a lower relative risk (RRR = 0.17) of intending to have a child compared to men in fulltime-employment. Men in the category 'other', which consists of people who are not working, also have a lower risk of intending to have a child (RRR = 0.38). In terms of education, men who have no or only a basic education are more than twice as likely as men who have a secondary education to not know their fertility intentions (RRR = 2.49). These findings supports the idea that men believe that they need to have a certain job or income

before they can take the next step and start a family. This perception may be related to the persistence of the general attitude in Britain in which many people still see the man as the main breadwinner of the family (Crompton 2006).

The findings in Model C also demonstrate an effect for men who work part-time, as these men have a lower relative risk of intending to have children than men in full-time employment (RRR = 0.16). Furthermore, like in Model B, in Model C single men have a significantly higher risk ratio of answering 'don't know' when asked about their fertility intentions (RRR = 2.28). However, an effect for tenure type or level of education was not found in Model C. After employment, age, partnership status, tenure, and education, the last variable included in Model C is shared social attitudes. From the descriptive statistics it is clear that men dominate the second latent class *alternative lifestyle.* Model C in Table 6.5 demonstrates a significant effect in fertility intentions for men in Group 2. The men who shared the *alternative lifestyle* attitudes have a smaller relative risk ratio of intending to have children compared to the men who are in the *stability seeker* group (RRR = 0.34).

When we compare the modelling results for both women (Table 6.4) and men (Table 6.5), can observe some interesting differences. For women, the parameters hardly change between Models A, B, and C; the results by variable are fairly stable, and adding extra variables does not change the effect from the earlier added variables. For men, we detect differences in significance levels when we compare Models A, B, and C. The variables for which the categories change from significant to insignificant, or vice versa, are partnership status, housing tenure, and education.

When we look at the effect of partnership status in Model A, which included only age, partnership, and housing tenure, we find that this variable does not significantly influence the respondents' fertility intentions. However, in Models B and C, we find that after the addition of employment and education single men have a significantly higher risk than partnered men of saying they don't know when asked about their fertility intentions. Women who are divorced or separated have, after the inclusion of shared social attitudes (Model C), a significantly lower risk than partnered women of intending to have children.

We now compare the results for housing tenure. All three models show that women who live with their parents have a much smaller relative risk of intending to have a child

(RRR=.19/.18/.20) than women who are homeowners, but no such effect is found for men. For men living with their parents was the only significant variable that is shown to influence fertility intentions in Model A. In this model, we find that these men have a significantly higher risk of answering 'don't know' (RRR = 8.03) than men who are homeowners. In both Models A and B, we find that men in privately rented accommodation have a higher relative risk of not knowing their fertility intentions compared to homeowners (Model A RRR = 2.90, Model B RRR = 2.36). Living in privately rented accommodation is generally considered a temporary situation; however, for young childless men it is not easy to acquire socially rented accommodation (Fox 2009); thus, we can wonder whether the finding that male private renters are significantly more likely than male homeowners to say they don't know whether they will have children among is rooted in housing policies, which leave men in a less secure position than women. The significant effect of men in private rented housing disappears when shared social attitudes are entered into the model; a phenomenon which I will comment on later in this section.

Now we consider employment status and education. The employment status variable for women was insignificant for all models. For men both Models B and C yield significant results for men in part-time employment, whereas only Model B shows a significantly lower risk for men in 'other' employment. A similar effect is apparent when we look at the level of education in relation to fertility intentions; for women the effect of education is nearly unchanged. Women in tertiary education have a significantly higher likelihood of intending to have children. The category no/basic education also becomes significant (less likely to say 'yes') in Model C only. However, for men the relative risk of answering 'don't know' is higher for men with no or basic education than for men with secondary level education in Model B only, and not in the other models.

It is interesting to note that when shared social attitudes are entered into the model (Model C), the effects for no or basic education and private renting disappear completely for men; whereas, for women the effects for education and housing tenure persist. This change in significance levels after the inclusion of shared social attitudes is a clear example of the importance of incorporating shared social attitudes into research on fertility intentions, and the potential for different effects by gender.

Additionally, It is fascinating to see that in Model C, even after the inclusion of the more common explanatory variables, the latent class variable, which shows shared social attitudes, yields

significant results for men and women in the *alternative lifestyle* group, Group 2, for whom the relative risk of intending to have children is lower compared to people who do not intend to have children (RRR = 0.09 for women; RRR = 0.34 for men). For women a significant effect of education is found, and as there is some tentative research that has found a relationship between attitudinal variables, level of education, and fertility (Berrington 2004), I included an interaction between education and shared attitudes in the model; however, including this interaction did not add explanatory power.

Overall, the modelling results lead us to conclude that among women, the variables with lasting impact, such as education, may be most likely to influence fertility intentions. Furthermore, shared attitudes have a significant impact on fertility intentions. Intentions seem to be less related to current circumstances than to attitudes and levels of education, and may therefore be linked to people's assessments of their future prospects.

6.6.   Discussion and Conclusions

In the current chapter I explored the following question: Do partnership, housing tenure, and shared social attitudes regarding family formation impact on the fertility intentions of childless men and women in similar ways? Following the Theory of Planned Behaviour, I researched intentions by examining shared social attitudes regarding family formation and housing. Groups of people with shared social attitudes were derived from latent class analysis, after which the intention to have a (first) child was modelled using a multinomial logit model that included measures of partnership, housing, shared social attitudes, and other socio-demographic variables commonly related to fertility. The variables with the strongest explanatory power are age, partnership status, and shared social attitudes; as well as housing tenure and education for women and employment for men.

Many previous studies have found that age influences fertility intentions (Berrington 2004, MacInnes and Díaz 2007, Ralston 2012), and in this research I found an age effect as well. However, unlike Ajzen and Klobas (2013), I did not find that the age effect disappeared when attitudes were included; although this finding might be attributable to differences in the operationalisation of attitudes. By contrast, Langdridge, Sheeran, and Connolly (2005) researched fertility intentions and found that, even though no other predictor is as strong as attitudes, age and length of marriage are also important predictors of fertility intentions.

Based on previous research (see Hewlett 2004 and Jamieson et al. 2010, among others), I expected to find that partnered people would be more likely than unpartnered people to intend to have a child. This expectation was confirmed for women in the sense that separated women have a much smaller risk of intending to have children than partnered women; while for men, the models did not yield sufficient significant results regarding partnership. The models did, however, show that single men are much more likely than partnered men to say they do not know their fertility intentions. It would have been helpful to have included in the current research a measure for the length of the relationship; however, the sample in the BHPS data did not allow for this.

I furthermore expected that men and women in owner-occupied accommodation would be more likely to intend to have a child than people living in other tenure types, especially in social rental housing. However, I found only partial support for this assumption; the first two models (A and B) showed that men in privately rented accommodation are more than twice as likely as homeowners to say they don't know when asked about their fertility intentions. Nevertheless, the last model for men, which included all of the explanatory variables, did not render significant results for tenure. For women, on the other hand, Model C showed that women who are living with their parents are less likely than homeowners to be intenders. Thus, while the results do not support the expectation based on social renting, they do suggest that homeowners are more likely to be intenders than the other tenure types.

Finally, I assumed that women with higher education are more likely to intend to have children than women with no or a low level of education. The modelling results confirmed this assumption. Women with a higher level of education are more than twice as likely to intend to have children than women with a secondary level of education; nevertheless, women in this last category are more likely to intend to have children than women with no or a basic education only.

The analysis has shown that fertility intentions are related to shared social attitudes; and, furthermore, that intentions can be explained by different explanatory variables depending on gender. The attitudinal results might point towards differences depending on socio-economic status; moreover, other research found signs that specific normative ideas have a different impact depending on a person's wealth or job (Brannen and Nilsen 2006). In addition to shared attitudes, age and education are the most important variables for women; whereas for men the

most important explanatory variable after attitudes and age is employment status. These different results for men and women highlight once more the importance of taking gender into account in research on family formation.

Among the shared social attitudes groups, the *alternative lifestyle* group stood out. The members of this group share the attitudes that having children is not important, whereas independence is. It is possible that the members of this group value individualism more than the members of the other groups. This hypothesis would be in line with the Second Demographic Transition theory, which argues that fertility rates have dropped because men and women have become more individualistic. The other latent class groups, the *stability seekers,* and the *independent consumers,* seem to share more conventional attitudes; this finding is more in line with the argument put forward by Billari and Liefbroer (2010) that measures for norms should be incorporated into fertility research. As the majority of both the male and the female respondents are in Group 1 or 3, we can conclude that most of the population still share conventional social norms.

As we can see in the conceptual model presented in Chapter 2 (Figure 2.2), fertility intentions are only part of the process of family formation. Fertility intentions are likely important predictors of fertility behaviour; therefore, in the next chapter I will explore whether the men and women who intend to have a child actually realise these intentions. Are the men and women who intend to have children also the ones who are having them? Who are the people who realised their intentions, and who are the people who did not? Do intentions change over time? These are some of the topics I will discuss in the next chapter, in which I will take a more dynamic view of fertility by researching the process of family formation in a longitudinal way.

7. Intentions and Actual Behaviour

In the previous chapters, I found evidence that partnership, gender, housing tenure, and shared attitudes about family formation behaviour are related to fertility intentions. In this chapter, I investigate family formation behaviour, with the aim of teasing out whether partnership, housing tenure, and shared social attitudes have a similar impact on fertility behaviour as they do on fertility intentions; a discussion I will return to at the end of this chapter. As in the previous chapter, in Chapter 7 the focus will be on having a first birth.

The main research question I will be address in this chapter is:

Do partnership, housing, and shared social attitudes influence whether childless men and women realise their intention to have a first child?

In the following section I start with a short discussion of the research literature on family formation behaviour and the link between intentions and behaviour so far. In the next section I start with an explanation of the construction of the data and variables and then discusses the main methods used in this chapter. In the following section I will show the models that demonstrate which indicators are essential for explaining fertility behaviour. In the fifth section I investigate the influence of fertility intentions on fertility behaviour. In the penultimate and the last sections I will elaborate on and discuss the fitted models, and will then present my conclusions stemming from the modelling results, and a discussion of their wider impact.

7.1. Fertility Behaviour

Fertility behaviour has been extensively researched, and has been found to be associated with a range of variables; generally, researchers have agreed that partnership status, age, employment (Aassve et al. 2006), education (Berrington 2004), and religion (Philipov and Berghammer 2007, Ralston 2012) are among the important determinants of fertility behaviour. Additionally, some researchers have included measures related to the parents, such as parental income or the father's employment type (Barber 2001, Aassve et al. 2006, Hobcraft 2008)). As they were specifically interested in studying context and geography, Kulu (2013) and Ralston (2012) also included measures for urbanisation and measurement related to the housing tenure, and Fiori et al. (2014) added mobility episodes and more specific measures of tenure (tenure type and size).

In many studies, age and partnership have been found to be very important indicators of fertility behaviour. Depending on the focus of the research, other explanations for particularly high or low fertility have been found. Berrington (2004), for instance, who researched fertility among women aged 30 to 39, found that education is an important indicator of the timing of having children. Whereas Aassve et al. (2006), who focused on the economic aspects of family formation behaviour, found that measurements of employment were strongly associated with partnership formation and with having a birth. They found that being employed negatively affected the likelihood of having a birth for women, whereas being employed positively affected the likelihood of having a birth for men. Barber (2001) took a somewhat different approach in her study of marital fertility rates following the TPB. In her research, she included the usual indicators for fertility, like age and partnership; but she also included attitudes towards childbearing, because according the TPB fertility behaviour can be explained by fertility intentions, which in turn are explained by norms and attitudes regarding childbearing and by perceived behavioural control. Interestingly, she also added 'attitudes towards careers and luxury goods', which led her to conclude that competing behavioural attitudes are essential for explaining fertility, and thus need to be added to the TPB. Interestingly, neither Aassve et al. (2006), nor Ralston (2012), nor Barber (2001) has included fertility intentions as an explanatory variable in their model for fertility behaviour. The failure of Barber (2001) to include this variable is especially surprising, as fertility intentions are a central part of the TPB (Fishbein and Ajzen 1975, Ajzen 1991), and are likely very important for modelling family formation behaviour.

From intention to behaviour

Although there has been some criticism in the literature that fertility intentions are not very good predictors of behaviour (Morgan and Rackin 2010), the small number of studies that have analysed fertility intentions and subsequent fertility behaviour tend to agree that fertility intentions can predict subsequent fertility behaviour (Miller and Pasta 1995, Berrington 2004, Testa and Toulemon 2006, Ajzen and Klobas 2013). Following up on this premise, Berrington (2004) and Testa and Toulemon (2006) found that age, partnership, and education are among the most important indicators of whether women (and men) achieve their fertility intentions. Berrington (2004) investigated indicators of remaining childless among women in the UK, and found that the main indicators that predict whether a woman will have a child are partnership and the fertility intentions of the partner. Testa and Toulemon (2006) researched fertility desires, intentions, and subsequent behaviour, and concluded that individuals with higher levels

of education are the most accurate in predicting their future fertility, and that age and partnership are the main indicators that predict involuntary childlessness.

According to the TPB, 'attitudes towards having a child', 'subjective norms about having a child', and 'perceived behavioural control over having a child' influence fertility intentions, but not the fertility behaviour itself (Ajzen and Klobas 2013). This could mean that fertility intentions operate as a mediator through which the background characteristics influence fertility behaviour.

Most existing research has either neglected to include measurements related to attitudes (Berrington 2004, Testa and Toulemon 2006), or has included attitudinal indicators but neglected the longitudinal aspects of family formation decision-making, and failed to include fertility intentions in research about actual behaviour (Barber 2001). In this chapter I address this issue by including in my research on fertility realisations measures of shared social attitudes and of fertility intentions. If I had neglected to include fertility intentions in a model of realisations, this would mean that I still did not know which indicators are more influential for intentions, and which ones are more influential for realisations. Figure 2.2 presents the conceptual model for fertility behaviour, which shows the process of family formation behaviour. Specifically, the model shows how shared social attitudes and fertility intentions relate to actual fertility behaviour. In this chapter, I examine whether fertility intentions, as well as shared social attitudes and housing, influence fertility realisations.

7.2. Transitions to First Births

In examining fertility intentions and subsequent fertility behaviour, I turn once more to the data of the British Household Panel Study. To study the fertility intentions and the subsequent behaviour of the same individual I need time series data, starting with the record of the respondent's fertility intentions and ending in a child being born (or not being born) to that respondent or to the respondent's partner. This information is provided in the data from the BHPS, which followed respondents annually over several years.

I start with the same sample of respondents that I used in the previous chapter: childless men and women of childbearing ages (16-45 for women, 16-49 for men) who stated their fertility intentions in 2003, or Wave M. After this point in time, the respondents were followed annually for five years. To allow me to determine whether they had had a birth, the respondents had to

have been interviewed in at least one of the following waves (N-2004, O-2005, P-2006, Q-2007, R-2008). As we can see in Table 7.1, 10 people who stated their fertility intentions in 2003 were either pregnant or their partner was expecting a child. As my interest in the current research lies in investigating the process through which people decide whether and, if so, when to have a first child, the analytical sample does not include pregnant respondents or respondents whose partner was pregnant, as they had already completed the process of interest. The total sample size is therefore 645 respondents. Of these individuals, 15 per cent had a child within five years of the interview. The respondents who did not have a birth in the five years after they stated their fertility intention, or who left the research without having a child before the five years had passed, are right-censored.

To investigate both the occurrence of a birth and the situation leading up to this birth, I use a survival model (Box-Steffensmeier and Jones 2004). For the current analysis, a Cox model is fitted. As the dependent variable is the hazard of having a birth, the time between the statement of the intention and the first birth is measured. Time is measured in months and the total amount of measured time is five years.

Table 7.1 Recorded fertility intention in 2003

	Freq.	%
yes	395	60.3
no	174	26.6
don't know	76	11.6
self/partner pregnant	10	1.5
Total	655	100

Source; BHPS 2003

Both the time-constant and the time-varying variables are entered into the model. The time-constant variables are fertility intentions as defined in Chapter 6, age at the statement of the intention, and shared social attitudes. The time-varying variables are partnership status, family housing, and employment status. The fertility intentions, which were broken down into a three-category variable in Chapter 6, are now divided into two categories: the respondents who answered 'yes' (61 per cent of the sample), and the respondents who answered either 'no' or 'don't know' (39 per cent of the sample). The categories of the intention variable have been combined because the focus of research on fertility realisations is on positive intentions. Each respondent's age at the time of the statement of the fertility intention is assigned to one of three age groups: 16-24, 25-34, and 35 and over. The variable that represents shared social

attitudes is the final time-constant explanatory variable in the Cox model. As I explained in Chapter 6, the shared attitude variable was obtained by conducting a latent class analysis on a group of attitudinal variables. The variable that was obtained had three categories, and will also be used in the current chapter. The shared attitude variable thus has the following three categories: the *alternative lifestyle* category (6.3 per cent of the sample), the *stability seekers* category (70.7 per cent of the sample), and the *independent consumers* category (22.5 per cent of the sample).

In addition to the explanatory variables that remain constant during the time period under investigation, I also included explanatory variables that do not remain constant over time. These are partnership status, family housing, employment status, and settlement size. Partnership status has been shown to be important in research about family formation behaviour. The models in the previous chapters showed that for partnership status the most important categories are being partnered (either married or cohabiting) or not being partnered. Therefore, in the current models partnership status is entered as a two-category variable: partnered and unpartnered. The category partnered includes all of the respondents who live with a partner while either married or unmarried; whereas the unpartnered category includes the respondents who are single, but also those who are divorced, widowed, or have split up from a partnership. This classification system is in line with that of Toulemon and Testa (2005), who found that when controlling for certain other variables, the likelihood of having a child does not differ between cohabiting and married couples.

The family housing variable is partly based on the housing tenure variable used in Chapter 6. In that chapter, the housing tenure variable was split into four categories: owning or renting (private or social) a house suitable for a family, or living with parents. Some studies have found evidence that women perceive that they cannot be a 'proper' mother without living in a 'proper' family house (Lauster 2010). Moreover, in the analysis in Chapter 6, individuals in the living with parents category were found to be significantly less likely to say they intend to have children. Therefore, in the current analysis the previous living with parents category is combined with new information about the whether the house is suitable for a family. Houses with at least three rooms (plus a kitchen) are deemed suitable for a family, while houses with fewer rooms are considered unsuitable. The new variable is called family housing and has two categories: living in a family house and not living in a family house/living with parents.

As in the previous chapter, employment status is divided into four categories: full-time employed, part-time employed, student, unemployed/carer/sick. My main reason for using this categorisation system is that it allows me to investigate possible gender differences. Research on full-time and part-time employment in the UK has shown that women are more than 15 times more likely than men to work part time (Bardasi and Gornick 2000). Moreover, in the previous chapter different, and sometimes opposing modelling results on full-time and part-time employment were found for men and women. Thus, it is important to make the distinction between full-time and part-time employment in the current Cox survival model.

Finally, a measure for settlement size is included. Fertility rates vary depending on population density (Kulu 2013). Following the categorisation system of Chapter 4, in Chapter 7 the variable settlement size is divided into three categories: (1) large urban areas with a population of over 125,000; (2) accessible rural areas and towns with a population between 10,000 and 125,000, and smaller towns and rural areas within half an hour drive of a settlement of more than 10,000 people; and (3) remote towns and rural areas that have a population of less than 10,000 and are more than half an hour drive to a larger settlement.

Table 7.2 shows the distribution of events and exposure over the different explanatory variables. As we can see, there are clear differences in the distribution of births over partnership and employment status, and especially over the shared attitudes. A closer examination of the data reveals that there were eight births among the respondents who said they don't know their fertility intention, and 10 births among the respondents who clearly stated that they do not intend to have a child. These results could lead us to wonder how much control an individual has over childbirth.

Table 7.2 Exposure-occurrence of explanatory variables

		person months	%	Births
Gender	Male	21,360	58.1	50
	Female	15,432	41.9	47
Age-group	16-24	14,556	39.6	28
	25-34	12,768	34.7	52
	35+	9,468	25.7	17
Partnership status	Unpartnered	20,136	54.7	8
	Partnered	16,656	45.3	89
Employment	Full-time	26,472	72.0	71
	Part-time	2,772	7.5	11
	Student	3,708	10.1	1
	Unemployed	3,840	10.4	14
Educational attainment	Secondary	15,840	43.1	32
	no/basic	3,864	10.5	12
	Tertiary	17,028	46.4	53
Settlement size	Urban	23,605	64.3	53
	Town	6,816	18.6	26
	Rural	6,289	17.1	18
Shared attitudes	Stability seekers	26,028	70.7	77
	Alternative lifestyle	2,484	6.8	2
	Independent consumers	8,280	22.5	19
Family house	No fam house	6,480	17.6	7
	Fam house	30,312	82.4	90
Fertility intention	Yes	21,684	58.9	79
	No / don't know	15,108	41.0	18
	Total	36,792	100.0	97

Source; BHPS 2003-2008

7.3.   First Births

In this section, I investigate the effects of shared social attitudes, housing, and settlement size on the family formation process. As is shown in Table 7.3, several Cox models are fitted for these analyses. The coefficients reported in Table 7.3 are the log-hazards for having a first birth. The first model, Model A, shows the explanatory value of the variables gender, age group, partnership status, employment status, and educational attainment on having a first birth. This model is fitted to establish a base model to which the next models can be compared. In addition to the variables from the base model, the second model, Model B, includes shared social attitudes. In Model C, family housing and an urban rural classification are added to these variables. This modelling strategy is used in order to show the influence of specific indicators, and how the indicators change as new variables are added.

Model A applies to the type of empirical work presented by, for example, Berrington 2004, Aassve et al. 2006, or Ralston 2012. Like them, the current analysis shows that age, partnership status, and employment status are significant indicators of having a first birth. In Table 7.3, we can see that individuals who are aged 35 or older have a significantly smaller hazard of having a first birth. In seeking to explain this finding, it is important to note that as the sample consists of childless individuals, some of these respondents might be childless by choice. We can assume that the higher the age of the respondents, the greater the proportion of the sample who wanted to have a child will have had a child; thus, it seems likely that a relatively large share of the older childless respondents in the sample will be childless by choice. Being partnered is, unsurprisingly, also a very important indicator of having a first birth: the log-hazard for men and women in a partnership is nearly three times that for unpartnered individuals. This is a relatively straightforward result, as children tend to be born to individuals in a partnership (Kiernan 2004, Jamieson et al. 2010). It is, however, interesting, to look at z-scores, which allow us to compare the results between different variables. The z-score for being partnered is 7.62, which is more than double the next highest z-score (related to age). Furthermore, employment status is also significantly related to the hazard of having a first birth. Interestingly, the respondents in the part-time employed or the other/unemployed categories have a higher hazard of having a first birth than the individuals in full-time employment. Based on the literature, I knew that a large share of the women in part-time work are mothers (Bardasi and Gornick 2000); the presented result is, however, based on a sample of childless men and childless women combined. Is it possible that they started working part time in anticipation on having a child? Educational attainment is not shown to have a significant impact on the hazard of having a first child.

Table 7.3 Cox Proportional hazard results, for having a first birth

		Model A			Model B			Model C		
		Coef.	s.e.	z	Coef.	s.e.	z	Coef.	s.e.	z
Gender	male	ref			ref			ref		
	female	-0.042	0.208	-0.20	-0.048	0.208	-0.23	-0.092	0.210	-0.44
Age	16-24	ref			ref			ref		
	25-34	0.267	0.245	1.09	0.247	0.245	1.01	0.204	0.245	0.83
	35+	-1.033 ***	0.316	-3.27	-1.035 ***	0.315	-3.28	-1.229 ***	0.328	-3.74
Partner ship	unpartnered	ref			ref			ref		
	partnered	2.879 ***	0.378	7.62	2.867 ***	0.378	7.58	2.907 ***	0.384	7.57
Employ ment	fulltime	ref			ref			ref		
	part-time	0.890 ***	0.330	2.70	0.897 ***	0.331	2.71	0.888 ***	0.336	2.64
	student	-1.243	1.016	-1.22	-1.233	1.017	-1.21	-0.979	1.019	-0.96
	other unemployed	0.941 ***	0.334	2.82	1.052 ***	0.340	3.09	1.238 ***	0.341	3.63
Education	secondary	ref			ref			ref		
	no/basic	0.347	0.367	0.95	0.321	0.372	0.86	0.500	0.369	1.35
	tertiary	0.232	0.231	1.01	0.220	0.231	0.95	0.246	0.235	1.04
Attitudes	stability seekers				ref			ref		
	alternative lifestyle				-1.198 *	0.724	-1.66	-1.130	0.729	-1.55
	independent consumers				-0.108	0.264	-0.41	-0.034	0.265	-0.13
Family house	no family house/live with parents							ref		
	family house							1.101 ***	0.411	2.68
Settlement size	urban >10.000							ref		
	town 3000<>10000							0.500 **	0.250	2.00
	rural <30000							0.166	0.278	0.60
	Births	97			97			97		
	Log likelihood	-520.316			-518.2833			-510.998		
	N	643			643			642		

Source; BHPS 2003-2008.*p<0.1; **p<0.05; ***p<0.01

Having established the outcomes of the base model, I then add in Model B the shared social attitudes variable. Research in the US found that positive attitudes towards children and childbearing are associated with a higher rate of marital childbearing (Barber 2001). Model B explores whether this is also the case for childless individuals in Scotland. As we can see in Table 7.3, in this model age, partnership status, and employment status are shown to significantly influence the hazard of having a first birth; while the coefficients and the z-scores differed only slightly from those of Model A. However, the newly added shared social attitudes variable also appears to have some significance. Compared to reference group of the *stability seekers,* who share the attitude that having a good job, owning a home, and having children are important; the log-hazard of having a first birth is significantly smaller for the *alternative lifestylers,* who believe that being independent is important, while having children is less important. The significantly smaller coefficient associated with having a first birth found among this group might suggest that they have a more individualistic lifestyle, as Lesthaeghe and Van de Kaa (1986, 1987) predicted in the Second Demographic Transition theory.

As the *alternative lifestylers* are significantly different from the *stability seekers,* who place importance on owning a home; the next model, Model C, includes family housing as another explanatory variable. Furthermore, as houses are linked to a specific location and the availability of certain types of housing tends to differ between more urban and more rural areas, a measure for settlement size is also included. When we look at Table 7.3 again, we can see that age, partnership, and employment are significantly important for the hazard of having a first birth. The z-scores in Model C differed marginally from those in Model A, and for unemployed respondents adding shared attitudes, housing, and an urban-rural classification to the model increased the hazard of a first birth relative to that of respondents in full-time employment. Perhaps surprisingly, education remains insignificant for explaining the hazard of having a first birth. Shared social attitudes are not shown to be significant in this model, but living in a family house and the location of that house are. Living in a family house is associated with a significantly higher hazard of having a first birth than not living in a family house. Meanwhile, living in a town with between 3000 and 10,000 inhabitants significantly increases the hazard of having a first birth compared to living in a more populated urban area (>10.000 inhabitants). When all of the z-scores in the model are compared, the score for being in a partnership stands out; thus, even after several other variables are accounted for, being partnered is the strongest predictor of having a first birth. Until family housing and settlement size were added the *alternative*

lifestylers were the least likely to have had a child. In the previous chapter it became clear that compared to the *alternative lifestylers,* the *stability seekers* were significantly more likely to say they intend to have a child. It will be interesting to explore what the influence of fertility intentions on these processes is. Therefore, in the next section I investigate whether fertility intentions are stable over time, and whether the degree of stability influences fertility behaviour.

7.4. Achieving Fertility Intentions

Fertility intentions are not always fixed over the life course (Iacovou and Tavares 2011); they may change across different life stages (Mitchell and Gray 2007), and they are shaped by different social attitudes (Liefbroer 2009, Miller 2011). However, it seems that the more stable an individual's intentions are, the higher the chances are that the individual will realise his or her intentions (Monnier 1989). Furthermore, in the investigation of fertility realisations based on intentions, the results are most reliable in a relatively short time span after recording of the intention (Ajzen and Klobas 2013). Thus, in this section I will investigate the stability of fertility intentions among the BHPS respondents, and I will model fertility realisations using stable fertility as an explanatory variable.

The BHPS respondents were asked about their fertility intentions in three consecutive years, and again after six years. To find out how much the respondents' fertility intentions changed over a short period of time, I examined the fertility intentions of childless BHPS respondents over three consecutive years (2001, 2002, 2003). Since there may have been a gender difference in the stability of fertility intentions, I will examine the intentions of childless men and childless women separately. As my goal is to measure the stability of fertility intentions, only the respondents who stated a fertility intention in all three waves could be included in the analysis; therefore, the stability of fertility intentions is measured on a total sample of 425 individuals.

Table 7.4 shows the proportions of men and women whose stated fertility intention was consistent over all three years (stable intention), and the proportion who changed their minds (unstable intention). When we look at Table 7.4, it is clear that in the three years measured a majority of the respondents had not changed their minds about whether they intend to have children. Over 60 per cent of respondents had stable fertility intentions (61.4 per cent of men and 64.9 per cent of women), and over 40 per cent of these childless people stated repeatedly that they intend to have a child. Furthermore, a chi-square test revealed that there is no

significant difference between men and women in relation to the stability of their fertility intentions ($\chi2$ = 0.53, p = 0.47).

Table 7.4 Stability of fertility intentions over 2001, 2002, 2003 by gender

	Male	Female
Unstable	38.6%	35.1%
Stable	61.4%	64.9%
Total	254	171

Source; BHPS 2001, 2002, 2003. $\chi2$ (1) =0.53 p=0.47. N=425

Table 7.5 Stability of fertility intentions over 2001, 2002, 2003 by age group

	16-24	25-34	35+
Unstable	28.7%	47.6%	36.5%
Stable, yes	64.4%	42.2%	7.7%
Stable, no	3.4%	6.8%	54.8%
Stable, don't know	3.4%	3.4%	1.0%
Total	174	147	104

Source; BHPS 2001, 2002, 2003. $\chi2$ (6) =172.24 p< 0.001. N=425

It could be argued that a three-year period is too short to properly measure the stability of fertility intentions. However, Gray et al. (2013) researched for Australia the fertility intentions of childless individuals related to life course events over a 10-year period, and concluded that the overall intentions were fairly stable for both men and women. They also found that the changes that did occur were mostly associated with changes in age and partnership status. In light of their findings, I assume that it is advantageous to measure a short time period during which relatively few life-changing events would have taken place. Moreover, the findings in Chapter 6 confirm previous research that found evidence of a relationship between fertility intentions and age, whereby intentions tend to become more stable with increasing age (Berrington 2004). Table 7.5 shows the stability of fertility intentions for the current BHPS sample by age group. As we can see, the stability of fertility intentions among childless men and women is related to the age of the individual. From the statistically significant (p<0.001) results of the chi-square test in Table 7.5 , we can see that the majority of the people who said 'yes' consistently are in the youngest age group, whereas the majority of the respondents who said 'no' consistently are in the oldest age group. Meanwhile, the middle age group has the largest proportion of members with unstable fertility intentions. These figures are somewhat in line

with the findings of Gray et al. (2013), who found a downward trend in fertility desires related to increasing age.

Table 7.6 Cox proportional hazard results for having a first birth depending on stable fertility intentions and age

	Coef.		z-score	Se
Unstable	ref			
Stable yes	1.433	***	4.44	0.323
Stable no/don't know	-2.178	**	-2.08	1.048
16-24	ref			
25-34	1.239	***	4.21	0.294
35+	0.845	*	1.76	0.479
Births	60			
Log likelihood	-313.43			
N	425			

Source; BHPS 2001-2008. *p<0.1; **p<0.05; ***p<0.01

The stability of fertility intentions is significantly related to age, but a question remains as to how they are associated with actual fertility. Monnier (1989) found in his early study among mothers in France that the more stable a fertility intention is, the more likely it is that this intention will be achieved. Is a similar pattern visible among childless individuals in Scotland? To answer this question, I fitted a Cox proportional hazard model for predicting first births depending on the stability of fertility intentions and age. The sample consists of 425 childless men and women whose fertility intentions were recorded in 2001, 2002, *and* 2003. Unless they were right-censored, these individuals were followed until 2008. Of this sample, 60 individuals had a birth. As the group of individuals who had a stable intention of 'don't know' is very small, the categories stable 'don't know' and stable 'no' are combined.

The results presented in Table7.6 seem to confirm my assumption that the stability of fertility intentions is associated with a higher chance of achieving the stated intention. Compared to those with unstable fertility intentions, the log-hazard of having a first birth among the respondents who consistently said they intend to have a child is positive (β = 1.4), whereas the log-hazard of having a first birth among the respondents who consistently said they do not intend to have a child or don't know whether they will have a child is negative (β = -2.2). If we look at the influence of age in this model, we can see that being in the 25-34 group is associated with a larger hazard of having a first birth than being in the 16-24 age group (β = 1.2). Once the stability of fertility intentions is accounted for, the group of respondents aged 35 and over have

a lower hazard of having a first birth than the youngest age group; this was also the group with the largest proportion of individuals who had a stable intention of not having a child (Table 7.5). Table 7.5 also showed that, in this older age group, a relatively large proportion of respondents had unstable fertility intentions over the three years measured; however, the proportion of respondents in the 25-34 age group who had unstable fertility intentions is even larger. In the previous chapter of this thesis (Chapter 6), I found that people in the oldest age group were significantly less likely to say they intend to have a child than those in the youngest age group; and that they were also less likely to have answered 'don't know' (Table 6.4 and Table 6.5). Thus, among these people, and possibly among others as well, the stability of fertility intentions seems to be a less important indicator of the likelihood of having a first birth, as their age or another factor is likely to be just as or even more important.

To account for fertility intentions and age, but also for other possible drivers of fertility realisations, I now turn back to my analytical sample used in Models A, B, and C. In Model C, the Cox model used to predict fertility realisations was fitted with the explanatory variables: gender, age, partnership, employment, education, shared social attitudes, family housing, and settlement size. However, as my sample consists of childless individuals, some of these respondents might be childless by choice. The older the age group, the more likely it is to include deliberately childless individuals. As deliberately childless individuals are likely to have negative fertility intentions, in Model D fertility intentions are included in the model that explains fertility realisations, along with the explanatory variables that were already included in Model C. Thus, in Model D fertility realisations are explained by the following variables: gender, age, partnership, employment status, education, shared social attitudes, family housing, settlement size, and fertility intentions.

The prospect that individuals will have children is likely influenced by a combination of socio-demographic and economic indicators, as well as by indicators such as shared social attitudes, settlement size, and fertility intentions. To investigate whether partnership, housing, and shared social attitudes influence the realisation of fertility intentions of men and women, I use Cox proportional hazard models to predict the likelihood of having a first birth depending on an individual's age, partnership status, employment, education, shared social attitudes, living in a family house, settlement size and fertility intentions. The results of these models, shown in Table 7.7, include three sets of results for Model D, all of which include the same variables, but are fitted on three different samples. The models are called Model D because they are built on

Models A, B, and Model C in Table 7.3. The first model includes all of the childless BHPS respondents who stated their fertility intention in 2003, and could be followed up afterwards (this is the same sample as in Model C), while the second model shows the results for women only, and the last model shows the results for men only.

The literature is not in agreement on the question of whether the fertility intentions of men and women are similar (Berrington 2004, Jamieson et al. 2010) or different (Dey and Wasoff 2010). Therefore, in Chapter 6 I investigated fertility intentions separately for men and women, and the modelling results showed that different indicators influence the fertility intentions of men and women. So far in the current chapter men and women have been modelled together for reasons of sample size; however, it is possible that different indicators influence the likelihood of having a first birth among men than among women. Therefore, Model D is fitted again, but this time separately for men and women. Table 7.7, Model D for the combined sample, shows that, in line with the findings in the literature (Schoen et al. 1999, Ajzen and Klobas 2013), intentions are found to be an important variable for explaining first births. In the model with the combined sample both the non-intenders and the individuals who said they don't know whether they want to have children differ significantly from the intenders. Furthermore, as in the model in Table 7.6, when socio-economic and contextual variables are controlled for in the current model, the age group 25-34 is shown to have the highest hazard of having a first birth. The factors in addition to fertility intentions and age that are shown to contribute significantly to the hazard of having a first birth are being in a partnership, being in full- or part-time employment or being unemployed (and thus not being a student), and living in housing suitable for a family. When fertility intentions and the other factors are controlled for, education, shared social attitudes, and living in an urban versus a rural area do not seem to have an impact on the likelihood of having a first birth. An initial conclusion we can draw from these results is that partnership and housing influence the likelihood that an individual will realise his or her fertility intentions. While we could also conclude that fertility intentions are vital for predicting the likelihood of a first birth, when we look at the z-scores we see that fertility intentions score high, but that partnership status scores even higher.

Table 7.7 Cox proportional hazard results, for having a first birth including intentions

		Model D				Model D women				Model D men			
		Coef.		s.e.	z	Coef.		s.e.	z	Coef.		s.e.	z
Gender	male	Ref											
	female	-0.073		0.215	-0.34								
Age	16-24	Ref				ref				ref			
	25-34	0.465	*	0.250	1.86	0.759	**	0.364	2.09	0.097		0.363	0.27
	35+	-0.127		0.375	-0.34	0.429		0.582	0.74	-0.599		0.516	-1.16
Partnership status	unpartnered	Ref				ref				ref			
	partnered	2.837	***	0.382	7.43	1.740	***	0.445	3.91	4.643	***	1.024	4.54
Employment status	fulltime	Ref				ref				ref			
	part-time	0.851	**	0.341	2.50	1.295	***	0.419	3.09	-0.443		1.024	-0.43
	student	-1.015		1.020	-1.00	n.a.		n.a.	n.a.	-0.159		1.047	-0.15
	other unemployed	1.115	***	0.350	3.19	1.594	***	0.479	3.33	0.562		0.507	1.11
Education	secondary	Ref				ref				ref			
	no/basic	0.429		0.387	1.11	1.031		0.679	1.52	0.561		0.485	1.16
	tertiary	0.087		0.239	0.36	0.237		0.361	0.65	0.142		0.337	0.42
Shared attitudes	stability seekers	Ref				ref				ref			
	alternative lifestylers	-0.769		0.729	-1.06	0.045		1.090	0.04	-1.020		1.029	-0.99
	independent consumers	0.053		0.267	0.20	0.101		0.399	0.25	0.023		0.375	0.06
Family house	no fam house/live with parents	Ref				ref				ref			
	family house	1.197	***	0.420	2.85	2.159	***	0.794	2.72	0.787		0.521	1.51
Settlement size	urban >10.000	Ref				ref				ref			
	town 3000<>10000	0.313		0.258	1.21	0.141		0.398	0.35	0.482		0.371	1.30
	rural <30000	0.260		0.280	0.93	0.098		0.424	0.23	0.258		0.378	0.68
Fertility intention	yes	Ref				ref				ref			
	no	-1.809	***	0.395	-4.58	-2.647	***	0.727	-3.64	-1.397	***	0.499	-2.80
	don't know	-0.804	**	0.390	-2.06	-1.474	*	0.756	-1.95	-0.348		0.462	-0.75
	Births	97				47				50			
	Log likelihood	-496.897				-197.103				-220.321			
	N	642				269				373			

Source; BHPS 2003-2008. *p<0.1; **p<0.05; ***p<0.01

The significant results for employment status, and especially the result that unemployed respondents have a higher hazard for having a first birth, is unexpected, and is not in line with the literature. For instance, Sobotka et al. (2011) argued that as unemployment rises, fertility rates fall, possibly because unemployed people may have difficulties finding a partner. My results might differ from theirs because my model controls for partnership. As I found in Chapter 6, employment status has different effects on the fertility intentions of men and women, and this may also be the case when modelling first births. If we look again at the modelling results in Table 7.7, but this time at the separate models for men and women, we can see that the results are indeed different. Employment status has no significant impact on fertility realisations among men; whereas among women the results from the combined model persist.

The Cox proportional hazard model fitted for women shows very different results than the model fitted for men. Indeed, the only similarity is the direction of the significant effects of being partnered versus being unpartnered, and of the fertility intention 'no' versus 'yes'. Among women, both saying they do not intend to have a child and saying they don't know are associated with a lower hazard of having a first birth. Moreover, among women being in part-time employment is associated with a significantly higher hazard of having a first birth than being in full-time employment. As there were no births to female students, these respondents were excluded from the model. However, women who are unemployed or sick or otherwise not working, as well as women in part-time employment, are significantly more likely to have a first birth than women in full-time employment. At first glance these results may seem to contradict the finding of Sobotka et al. (2011) that unemployment is linked to lower birth rates. However, Sobotka et al. (2011) noted that this result may be attributable to the difficulties unemployed people are likely to face in finding a partner, and that partnership appears to be an almost essential prerequisite for having a first birth. Furthermore, it is possible that women who are either unemployed or working part-time have fewer trade-offs to make, as they do not have to give up a potential career to have a family.

In addition, men and women are found to be influenced differently by the family housing variable. For women, living in a family house significantly increases the likelihood of having a first birth, compared to living with their parents or in a house not suitable for a family. Yet this effect is not visible for male respondents. Can shared social norms be one of the reasons for these findings?

7.5.   Discussion

The results in the previous section showed that age, partnership, employment, housing, and fertility intentions influence whether childless men and women have a first child. The results were not, however, similar for men and women, and they were not all completely as expected.

For women age, partnership, employment status, family housing, and fertility intentions were all shown to influence the likelihood of having a first birth. For men, by contrast, the only variables that seem to influence the hazard of having a first birth are being partnered and having a positive or a negative fertility intention. At first glance it would appear that for women, unlike for men, having the right job and the right house are important; a finding that is in line with Ralston's (2012) threshold theory. However, upon closer inspection of the results, we can see that women who are in part-time employment or are in the 'other, not working' category have a higher hazard of having a first birth. Other factors that were shown to increase a woman's likelihood of having a first child are being relatively young, being partnered, having a positive fertility intention, and living in a house large enough for a family. I found in Chapter 6 that women's fertility intentions are related to education, while Berrington (2004) found that a woman's level of education determined the likelihood that she would achieve her fertility intentions. However, in the current chapter this finding could not be confirmed.

Surprisingly, I found that for men living in a family house is not significantly related to the likelihood of having a first birth; whereas my reading of, for instance, Mulder and Billari (2010) had led me to expect that the opposite would be the case. For men, only partnership and fertility intentions were found to be significantly related to fertility realisations. These findings were slightly surprising, as in the previous chapter variables such as age were also found to be significant. A second slightly unexpected result was that when I looked at the z-scores, I found that for a man being partnered is the most important indicator of the likelihood of having a first birth. The z-score for being partnered is larger ($z = 4.54$) than the z-score for a negative fertility intention ($z=-2.80$). My finding that being partnered is so much more important than just fertility intentions, but also than variables such as age or employment status, for the likelihood of having a first birth, is somewhat surprising. While it of course the case that a man needs a female partner to have a child, it seems strange that all of the indicators that explained men's fertility intentions in Chapter 6 (age, family housing, employment, shared attitudes) seem to have disappeared with the inclusion of fertility intentions. According to some scholars, individualism and personal choice are among the main drivers of fertility rates in contemporary society (Van

de Kaa 2001). Thus, we would expect to see that some of the previously mentioned indicators (i.e., age, family housing, employment, shared attitudes) were significant when modelling first births. My finding that male fertility is completely dependent on whether a man is partnered seems to contradict the idea that personal choice plays an important role, and the 2DT theory's claim that fertility declines as a result of the deterioration in the importance of social norms and values. However, other qualitative research regarding family formation has found that fertility decisions are in many cases guided by social norms and by the partner (Hogan 1985). Thus, in assessing family formation behaviour we should, perhaps, pay more attention to "*bringing norms back in*" (Liefbroer and Billari 2010)?
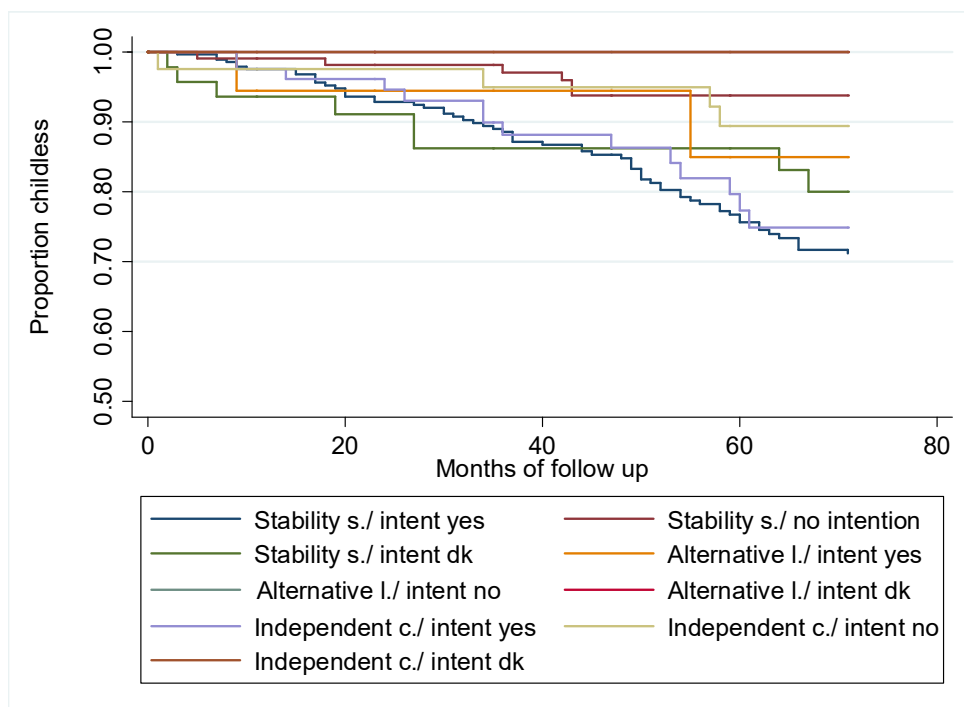
Figure 7.1 Survival graph for first births by shared social attitudes and fertility intentions
Source BHPS 2003-2008

Like Liefbroer and Billari, I believe it is important to take shared social norms and shared social attitudes into account when studying fertility, as these norms might be important for explaining family formation behaviour. In Chapters 5, 6, and 7 of the current study I used the variable of shared social attitudes as one of the variables for testing for the possible existence and influence of social norms related to family formation. In Chapter 6 I found that shared social attitudes are indeed related to fertility intentions. Furthermore, Model B in Table 7.3 shows that, at first glance, shared social attitudes also seem to be significantly related to having a first birth; however, after fertility intentions were included this effect disappeared. An illustration of how

intentions can interfere with the shared social attitudes variable in the realisation of first births is shown in Figure 7.1. The figure also shows that shared social attitudes are relatively influential for the likelihood of having a first birth. If we look at Figure 7.1, we can see that both the *stability seekers* who said they intend to have a child, as well as the *stability seekers* who said they don't know whether they will have a child are among the groups who had the most births. In this group, even those who said they did not intend to have a child had a relatively high chance of having a child. Perhaps these respondents were more inclined than the respondents with an *independent lifestyle* to continue with an unintended pregnancy.

After the addition of intentions to the sample, the effect of shared social attitudes seems to have disappeared; although why this happened is not entirely clear. The TPB suggests that the answer could be found in mediation. A mediator is a mechanism through which an independent variable can influence an outcome variable (Toulemon and Testa 2005). As shared attitudes were found to significantly influence intentions, and to influence behaviour, but only when intentions were not controlled for, mediation might be a possibility. After examining the literature on fertility and social attitudes, Ralston (2012) suggested that the complications involved in measuring the impact of social attitudes on fertility might be a reason why this issue is seldom further explored. Due to small numbers, it is not possible in the current research to specify a model with, for instance, an interaction between social attitudes and fertility intentions.

Further exploration of the effects of fertility intentions and shared social attitudes is not possible due to the limited size of the sample. It may be possible to increase the number of respondents in the survival models by, for instance, including not jus first, but second births. However, in this thesis I specifically focus on first births, as the process of deciding whether to have a second child has been shown to differ from that of deciding whether to have a first child (Fiori et al. 2014). Thus, the explanatory value gained with the larger sample size would likely be lost with the extra complication of higher parities.

Limited sample size is also partly the explanation for some of the substantial standard errors found in the modelling results. However, to a certain extent these large figures were to be expected as Table 7.2 shows that there are variables for which the number of respondents who have had a birth within a given category is relatively small. These categories have not been merged with others, as based on the literature these small number of births are to be expected. For example, as young adults rarely have children while still in education, it makes sense to keep

students in a separate category; but this does result in large standard errors. I suspect that a similar process can be seen when we look at the respondents in the *alternative lifestyle* shared social attitudes category. As these people share the opinion that children are not very important, it makes sense that not many of them had children; hence the large standard errors.

7.6. Conclusion

In this chapter, I investigated whether partnership, housing, and shared social attitudes influence the likelihood that childless men and women would realise their intention to have a first child. The results confirm that the chances of fertility realisation are not influenced by all of the same drivers for men and women. For both men and women having a positive fertility intention and being in a partnership increases the likelihood of having a first child. Furthermore, for women being young, not working full-time or being a student, and living in a house suitable for a family increase the likelihood of having a first birth.

The overall findings of a strong effect of fertility intentions, but also of strong effects of other explanatory variables, seem to be line with Toulemon and Testa (2005), who concluded that intentions have only a limited influence on fertility realisations. They also argued that since many other factors are important, we should place less emphasis on intentions when analysing behaviour. This last claim is not in agreement with, for instance, Rinesi et al. (2005) who found a very strong effect of fertility intentions on fertility behaviour for mothers in Italy. However, other findings of this chapter do not appear to support Toulemon and Testa's (2005) claim, as especially for men fertility intentions seem to have a rather strong effect.

A tentative conclusion that could be drawn from the analyses presented in this chapter is that fertility intentions are likely to have a mediating effect on variables such as shared attitudes and family housing. Furthermore, partnership is, especially for men, a very strong indicator of the risk of having a first birth. Some studies have suggested that being unemployed may lead to difficulties in finding a partner; thus, partnership may be a mediator for effects of employment status for men.

8. Conclusion

8.1. Introduction

Since the end of the Second World War, the age composition of the Scottish population has changed significantly. The postponement of childbearing and increasing longevity have negatively affected the dependency ratio, such that currently higher numbers of older people are 'dependent' on smaller numbers of working-age people than in the past. As current projections suggest that the situation will worsen in the next quarter century, the dependency ratio has become a key issue in policy debates. Because fertility rates are a significant driver of population ageing, gaining a better understanding of fertility will help to inform both academic and policy debates. In this thesis, I sought to contribute to our understanding of fertility events by placing them within processes of family formation, while putting particular emphasis on the roles of partnership, social norms, and housing in the decision to have a (first) child. My goal in this concluding chapter is to connect the findings in the different empirical chapters by reviewing the answers to my four main research question in the light of the broader literature in which this thesis is rooted, while also critically reflecting on both the limitations and the contributions of the work, making suggestions for future research in this area, and outlining the policies issues that arise.

This thesis borrows from three main theories: the Second Demographic Transition theory, the Theory of Planned Behaviour, and the life course paradigm. In short, the 2DT theory informs explanations of fertility trends at the macro level, whereas the TPB can be used to explain fertility decision-making behaviour at the micro level. The life course paradigm places behaviour into a context of time and place, and thus provides a rationale for connecting issues such as housing tenure and fertility intentions, which are rarely connected in the extant literature.

Recognising the advantages of the different theories, Billari (2015) argued that in order to explain macro-level developments such as decreasing or stagnating fertility rates, it is necessary to research these processes at the micro level, while taking into account the life course paradigm. In the current research I follow this trajectory by first providing a macro-level overview of fertility in Scotland, and then moving to the micro level in order to investigate different aspects of the family formation process. In each of the four empirical chapters I provide answers to a research question that I derived from my review of the literature and my decision to frame the research within the main concepts of the Theory of Planned Behaviour.

The first research question posed was:

RQ 1.   How is housing, as well as partnership, related to fertility variations in Scotland?

As fertility has many aspects, in Chapter 4 I provide an overview of housing, partnership, and fertility variations in Scotland, using data from the Scottish census of 2001 and the SLS. In this chapter I studied spatial variations in fertility rates alongside the geographies of partnership and housing tenure in Scotland. The findings suggest that there are indeed relationships between housing, partnership, and fertility variations in Scotland.

In addition to finding associations between location, housing tenure, and fertility rates at the macro scale, I also established in this chapter a significant relationship between first births, partnership, and housing at the macro scale. The empirical results show that first births are significantly related to the housing tenure type at the micro scale, with women in social housing being more likely to have a first birth than women who are homeowners. This finding does *not* support the results of previous work done by Mulder and Billari 2010 and Lauster 2010, which showed that homeowners are more likely than renters to have a first birth. By contrast, my research suggests that homeownership is not perceived as a prerequisite for starting a family by people in the social housing sector. My findings also point to a selection effect influenced by the access criteria for social housing, whereby individuals who are expecting a child are more likely to allocated social housing. It may therefore be the case that residents of residualised social housing are a minority group, and that for the majority who are not eligible for social housing, owning a 'proper' house before forming a family is more important.

In order to explore further the association between fertility and housing tenure, and drawing on the literature that attributes this association to social norms, the second research question covers the time when the decision to have a child might be made. Therefore, in the second research question the focus is shifted from first births to fertility intentions:

RQ 2.   To what extent do shared social attitudes regarding having children impact on the fertility intentions of childless men and women?

Shared social attitudes could point to normative behaviour, which may in turn explain family formation behaviour. My findings in Chapter 5 suggest the existence of three main population groups who share attitudes regarding fertility and family formation, but are distinct from each

other: (i) those with more negative attitudes towards the impact of having children, (ii) those with more ambivalent attitudes towards the impact of having children, and (iii) those with more positive attitudes towards the impact of having children. Indeed, individuals in the first group (i.e., those with more negative attitudes towards having children) are significantly less likely than individuals in the last group to say they intend to have children in the future. Population groups that share certain social attitudes are also identified in Chapter 6, although in this case the groups are distinguished by the importance they place on certain lifestyle choices: (a) those who place importance on homeownership, having a good job, personal independence, and, possibly, having children; (b) those who place importance on personal independence and not on having children; (c) those who place importance on having a good job and personal independence, and, possibly, homeownership. Members of the second group (i.e., those who place importance on personal independence and not on having children) are significantly less likely to say they intend to have children than members of the other two groups, who place importance on owning their own home, having a good job, and being independent.

In both the groups based on shared attitudes regarding the impact of having children (Chapter 5) and the groups based on the importance placed on certain lifestyles (Chapter 6), the individuals who share the attitude that children will have a negative impact on their life and those who share the attitude that personal independence is important are significantly less likely to say they intend to have children than the other shared attitude groups. While I expected to find this general pattern, I did not anticipate the relative sizes of these groups. In particular, I found that the percentage of individuals who share the attitude that personal independence is important is relatively small, whereas the literature on the increasing importance of post-materialistic values (e.g., Van de Kaa 2001) led me to expect that the percentage of the sample who place considerable emphasis on self-fulfilment would be large.

As very few existing studies have researched the gender dimension of shared norms and values related to family formation, my third research question, which also focused on fertility intentions, was:

RQ 3.   **Do partnership, housing tenure, and shared social attitudes regarding family formation impact on the fertility intentions of childless men and women in similar ways?**

There is disagreement in the literature about whether the fertility intentions of men and women are different or the same. Moreover, research on men's fertility is scarce. Therefore, in my third research question I raised the possibility that partnership, housing, and shared social attitudes regarding family formation have different effects on the fertility intentions of men and women. Some of my findings confirm those of previous studies. For example, as Berrington (2004) showed for England and Wales, tertiary education is an important predictor of female fertility intentions. Other findings were less expected, especially the strong age effects found for men.

In general, I found that the fertility intentions of men and women are associated with some, but not all of the same indicators. Both men and women become less likely to express a positive fertility intention with increasing age. For women this was anticipated, as the extensive research examining fertility intentions has shown that women become less likely to say they intend to have a child as they grow older (e.g. Ralston 2012, Berrington 2004). This pattern may reflect the age-related biological limitations on female reproduction. For men, who are able to father children at much higher ages, this finding is slightly surprising, although Miettinen and Paajanen (2005) found similar age effects in Finland when they separated their sample by gender. It is possible that the significant age effect found for men is due to the fact that men tend to be in a relationship with a women of a similar age; thus, the effect may reflects the age of the female partner.

In contrast, education and employment influence the fertility intentions of men and women in differently. Women with a higher level of education are more likely to say they intend to have children, whereas there is no association between level of education and fertility intentions among men. Moreover, the forms of employment that are most closely associated with positive fertility are part-time for women but full-time for men. The 2DT theory suggests that the women who prioritise independence and self-fulfilment over having a family contribute most to low fertility rates. However, the finding that a higher level of education is related to positive fertility intentions among women contradicts the 2DT theory, as women with a higher level of education are more likely to work full-time (Bardasi and Gornick 2000). Together, these findings suggest that gendered roles in family formation persist in Scotland, with the male breadwinner model continuing to influence fertility.

Thus, partnership, housing tenure, and shared social attitudes regarding family formation affect the fertility intentions of childless men and women in similar and different ways. Relative to

being partnered, being single/divorced or separated significantly decreases the likelihood that women will say they intend to have children. This pattern was not found for men. As partnership has been shown in the extant literature to influence fertility intentions (Billari et al. 2009), my failure to find this effect among men was slightly surprising. Moreover, my findings indicate that housing tenure has a significant influence of the fertility intentions of women but not on the fertility intentions of men; compared to women who are homeowners, women who live with their parents are significantly less likely to say they intend to have children. Finally, I found that shared social attitudes have similar effects on the fertility intentions of both men and women. Both the men and the women in the group who share the attitudes that personal independence is important and having children is not very important were significantly less likely to say they intend to have children than the individuals who place importance on owning their own home, having a good job, and being independent. However, the group who said they do not intend to have children constitute a minority of the total sample. As the majority of the individuals studied place value on having a good job and homeownership, my findings seem to contradict the theories that argue that postmodern values are becoming increasingly important (Van de Kaa 2001).

The last two research questions asked about fertility intentions, with the final research question focusing on the last step in the conceptual framework illustrated in Chapter 2: investigating which members of the study sample would go on to have a first birth. According to both the TPB and the Traits-Desires-Intentions-Behaviour framework (Miller and Pasta 1995, Miller 2011), fertility intentions are the most important predictors of fertility behaviour. While my findings related to the previous research questions provide answers regarding which variables influence fertility intentions, the last research question investigates which individuals among the childless adults studied realised their intention to have a first birth. The final research question was:

RQ 4.   Do partnership, housing, and shared social attitudes influence whether childless men and women realise their intention to have a first child?

The findings suggest that there is no simple answer. Different indicators are important for the realisation of fertility intentions for men and for women. Furthermore, there are indicators that may have effects that do not directly influence fertility realisations, but are likely influential for either fertility intentions or partnership. There are many more factors that influence the chances of having a first child among women than among men. For women, having a positive fertility

intention, living in a family house, being partnered, and not being in full-time employment have all been found to be highly significant factors in the chances of having a first child. Interestingly, for men the results are rather different: the main determinants of the likelihood of having a first child are, in order of importance, being partnered, and having a positive fertility intention. Shared social attitudes were not found to influence significantly the chances of the realisation of a first birth for either men or women.

Three of my findings on the determinants of the chances of having a first birth in Scotland are new, and cannot be derived in a straightforward manner from other research. First, I found that shared social attitudes, which are related to social norms, influence fertility intentions. Second, although other studies have pointed out the importance of partnership for family formation, the analysis in this thesis shows that for men, partnership plays a bigger role in the realisation of fertility intentions than a positive intention in itself; whereas for women other indicators are more important for fertility intentions and fertility realisations. Third, I found that living in a family house is significantly related to realising fertility intentions for women but not for men. These findings—which suggest that the main factors that influence family formation differ by gender—will be discussed in more detail in the contributions section of this chapter.

8.2. Limitations

Conceptually connecting issues like social norms, housing, family formation, and the life course within a coherent theoretical framework is challenging. However, efforts to test these conceptual connections using statistical research methods have raised a number of issues, as Aldous (1990) and Mayer (2000) observed in their reviews of 20 years of life course research. In the current research I also encountered some of these issues.

The empirical research of this thesis on family formation, social norms, and partnership is based entirely on quantitative methods of analysis, which have certain limitations. Although in the current study I attempted to make the best possible use of the available quantitative resources, my ability to operationalise the core concepts—and especially the idea of 'social norms'—was limited given the available data. The largest data source for Scotland is the decennial census, from which an anonymised sample, the SLS, is made available to researchers. As the individual records of the SLS extend the core information from the census through linkages to vital registration, the SLS is useful for fertility research. The advantage of using data based on the census (Chapter 4) is that these data ensure national representation. However, the census is

carried out only once every 10 years, and provides no information about the respondents between census years. Even with the linked data in the SLS, most of the measures that can be derived for individuals are restricted to the main census topics, and do not allow for the investigation of certain potentially important determinants of fertility within a life course framework. As the central argument of this thesis is that social norms and attitudes, along with changes in partnership status and housing tenure across the life course, are implicated in processes of family formation, the SLS sample, despite its large size, proved to be useful only for providing a general overview of spatial variations in the more easily measured dimensions of fertility, partnership, and housing tenure.

In order to gain insight into shared social attitudes, I turned first to the Scottish Social Attitudes Survey. The SSAS is an annual survey, but not a panel survey. Moreover, a special module on fertility attitudes was included in one year only, 2005. As this module contained specific attitudinal questions about the positive or negative impact of having children, the SSAS-2005 provides data on individual attitudes related to family formation. These data allowed me to use latent class analysis to derive measures of *shared* social attitudes in Chapter 5. The survey questions used to derive the shared social attitudes measurement asked the respondents about their views on the financial burdens and stress associated with having children, and on how long children are dependent on their parents. The final shared attitude variable I derived had three categories: agreed that children are a burden (the respondent agreed with all three statements), ambivalent on the question of whether children are a burden (the respondent had no clear negative or positive opinion), and disagreed that children are a burden (the respondent disagreed with all statements). Ideally, questions that asked respondents about their attitudes regarding the preferred conditions for raising children would have also been included, as this information would have given us an even clearer insights into social norms regarding having children.

Although the responses to the attitudinal questions in the SSAS are very valuable, because the dataset is not longitudinal, it is of limited value in the current study as it cannot be used to test aspects of family formation from a life course perspective. To include a longitudinal element in the research and to examine fertility realisations, I used data from the BHPS that followed childless individuals for a period of five years after stating their fertility intentions. However, in the BHPS it is more problematic to operationalise 'shared social attitudes' related to having children. Although the BHPS contains a wealth of information on family formation, it does not

include in-depth attitudinal questions specifically about having children. Therefore, the analysis of Chapter 5 is not strictly comparable to the analyses of Chapters 6 and 7, as the measure of shared social attitudes in the first analysis is based on a different set of questions than in the other two analyses.

The shared social attitudes questions in the BHPS asked respondents to rate the importance of having children, having a good job, being independent, and homeownership. Whereas in the SSAS the attitudinal questions were directly related to having children, in the BHPS the attitudinal questions were about more general lifestyle preferences. Shared attitudes that influence fertility intentions would be ideally measured by asking questions directly related to the positive or negative impact of having children (Ajzen and Klobas 2013). This was done by Billari, Philipov, and Testa (2009) in their research on fertility intentions in Bulgaria. Whereas the shared attitudes questions in the SSAS were directly related to having children, the questions in the BHPS were not. This discrepancy between the datasets might have influenced our regression outcomes, but given the paucity of attitudinal data related to family formation, this limitation could not be avoided. Nevertheless, latent class analysis on both datasets found three distinctive groups, of which one in particular seemed to stand out.

More generally, the use of particular sub-samples from national sample data raises issues of selection bias. Selection bias is a common issue in fertility research, and the current research is no exception. To investigate both fertility intentions and the likelihood of having a first child, I selected a sub-sample of childless individuals. This means that deliberately childless individuals were included in my research on the determinants of the probability of having a first birth. Moreover, this deliberately childless group could be expected to increase gradually with age, as greater numbers of prospective parents would have already had children. An effect of the sample selection might be visible in the research on fertility intentions, as negative intentions may be expected to increase with age. However, my investigations of the realisation of fertility intentions are unlikely to have been affected by these negative intentions because in my analyses of fertility realisations positive and negative intentions were taken into account.

Most of the limitations noted above were unavoidable given the available data. However, further issues arise in relation to the more theoretical aspects of the thesis. A substantial part of the research is informed by the conceptual framework of the Theory of Planned Behaviour (Chapter 5, Chapter 6, and Chapter 7), in which fertility realisations are explained by fertility

intentions (Ajzen and Klobas 2013). Operationalising this framework in which fertility intentions are dependent on attitudes, social norms, and perceived behavioural control—variables which are in turn influenced by the background characteristics of individuals, such as age or partnership status—is challenging. Furthermore, the framework itself is open to criticism. According to the TPB, the social attitudes and norms should refer strictly to the behaviour (Ajzen and Klobas 2013). While the shared attitudes derived from the SSAS data are all related to having children, those derived from the BHPS data refer more to lifestyle in general. This means that in the chapters that measured gendered differences in family formation behaviour some attitudes directly linked to having children may not have been accounted for, and this could have introduced an unknown bias into the results.

Furthermore, in the chapter in which I analysed the realisation of intentions, the tentative evidence points to a mediator effect of fertility intentions on the influence of some of the background variables on fertility outcomes. It is possible that this analysis could have been strengthened by the incorporation of tests for mediation effects (e.g., a Sobel test). However, others scholars who were employing more sophisticated analytical methods than the ones I used here to investigate fertility behaviour within the framework of the TPB have also encountered problems.

Recently, after much of the analysis of this thesis had been completed, two studies attempted to test fertility intentions using the TPB (Mencarini 2015, Dommermuth 2015). Mencarini et al. (2015) specifically tested the hypothesis that if background characteristics influence attitudes, norms, and behavioural control, then they do not influence fertility behaviour directly. In their analysis they found that, contrary to their hypothesis, the background characteristics of individuals did directly influence fertility behaviour; but they also concluded that this effect might not be of great importance when considering the usefulness of the TPB for researching fertility intentions and outcomes. By contrast, Dommermuth et al. (2015) focused on positive fertility intentions in the short term (three years), and looked at the possible mediation effects of fertility intentions using attitudes towards having a child as an explanatory variable that distinguishes between positive and negative attitudes. They indeed found that the effects of the background variables on fertility outcomes were mediated by fertility intentions. However, the findings of Mencarini et al. (2015) are not in line with these results, as they found that the so-called background factors—i.e., the 'well-established' factors like age, education, income, employment, and religion—directly influence fertility outcomes, and have effects via fertility

intentions. These examples show that even when more sophisticated methods for examining mediating effects are employed, problems with the operationalisation of the TPB model can arise.

A further limitation of the current work is that 'social norms', which are defined as the rules a group lives by, cannot be directly measured at the micro level. Establishing which norms exist in a group, and then determining whether an individual is more or less influenced by these norms, requires a combination of research at the micro and macro levels. In this thesis, I measured social norms indirectly through associations at the individual level. Systematic associations between housing tenure or 'family housing' on the one hand and fertility intentions or behaviour on the other hand are only indicative of normative ideas relating to 'proper' housing for family formation. Similarly, shared social attitudes may point to underlying normative influences, but are not a direct test of the influence of social norms. A better way of measuring social norms might have been to employ a specially designed survey that included questions that would have allowed me to test for social group membership and intergroup rules about appropriate (normative) behaviour. Such a survey would, however, have been time-consuming and costly to conduct, especially as it would have entailed interviewing a representative sample of the Scottish population. As conducting a new survey was beyond the scope of the current thesis research, I adopted the only practical alternative: making the best possible use of the available secondary data sources.

8.3. Contributions

In this thesis I have argued that in order to understand and explain fertility behaviour at the micro scale, it is necessary to take a more holistic approach by investigating the process of family formation within a life course perspective; and that this approach should be informed by the conceptual framework of the TPB. The current research makes several contributions to the fertility literature. While a number of researchers have argued that even in the more individualistic societies of today, more research on the influence of social norms on fertility behaviour is needed (Kohler 2000, Kohler 2001, Billari, Philipov and Testa 2009, Liefbroer and Billari 2010). However, very few empirical studies on this topic have been attempted, and none for Scotland. The current research thus makes an original contribution to knowledge by demonstrating for the first time in the UK context that fertility intentions are dependent on shared social attitudes related to having children; and, moreover, that a majority of the Scottish

population have attitudes regarding lifestyle that cannot clearly be connected to the main ideas of the 2DT theory.

Research on fertility and family formation in Scotland is relatively scarce. This is especially the case for the last decade or so, when, having long followed the fertility trends in England and Wales, the trends in Scotland started to diverge from fertility trends in these countries. By placing this research on family formation in the longitudinal perspective of the life course paradigm, the thesis makes contributions to the current literature on fertility and family formation in three main areas. First, my results demonstrate the importance of considering social norms and shared social attitudes when investigating fertility intentions as well as realisations. Second, my finding that there are gender differences in the indicators that influence fertility intentions as well as realisations suggest that more work on men's fertility is needed. Finally, the connections I established between family formation behaviour, housing tenure, and family housing are indicative of the importance for a majority of the population of social norms that stipulate that homeownership and having a 'proper' family home are prerequisites for starting a family.

A number of scholars have argued that social norms influence fertility decisions. However, to date there has been little empirical evidence to support their arguments, with one notable exception. Billari et al. (2009) tested the influence of social norms on fertility intentions in Bulgaria, using network theory concepts. They found that social norms are more likely to influence intentions of having a first birth than of having a higher parity birth. Social norms shape attitudes and behaviour. Thus, by investigating the influence of shared social attitudes on family formation, the current study adds further empirical support—albeit indirect support—to claims that social norms remain important, even in an era of heightened individualism. Also, as social norms shape attitudes and behaviour, attitudes that are shared by a particular group in a population may be indicative of (changing) social norms. For Scotland, Ralston (2012) used similar methods to investigate attitudes regarding the financial consequences of having children, but he did not link this research explicitly to debates about the role of social norms in contemporary society, and he did not incorporate the latent classes he derived in his analysis into models that predict fertility intentions and first births. By using measures of shared social attitudes in predictive models, my thesis makes a unique contribution, as to my knowledge, this approach has not been used before in demographic fertility research.

One of the population groups identified as having shared attitudes is of particular interest. The members of this minority group place a high value on independence and less importance on having children, and are less likely than the other respondents to say they intend to have children. The 2DT theory argued that fertility rates fell due to an ideational change in which the value of children shifted from quantity to quality; and because societies became less concerned with economic and physical security and more concerned with self-expression and quality of life (Van de Kaa 1987, Lesthaeghe 1995). The members of this shared attitude group seem to place a high value on the self (independence) and on the quality of life. The attitudes of these individuals therefore appear to best represent the ideas of the 2DT theory that relate to a desire for having a more individualised lifestyle and fewer children; yet these individuals appear to be still very much in the minority in Scotland. This finding challenges the 2DT theory, as either Scotland is one of the laggards in Europe despite its moderately low fertility, or ideational changes are not the main reason why fertility rates are declining, as the theory claims. Of even greater interest is the gender composition of this minority group, as most of the members are male. Berhardt (2004) argued that gender differences should be included in the 2DT; my finding of a gender imbalance in one particular shared social attitude group supports her argument, and suggests the need for further research.

Gender is important not only in relation to the 2DT theory. My thesis also contributes to research in the area of gender differences and fertility. Research on men's fertility is relatively scarce, and in Chapters 6 and 7, family formation among men is investigated separately from family formation among women. My findings show that in Britain the male breadwinner model still plays an important role in family formation among men, in line with earlier research on Britain (Crompton, 2006). While many of the differences between men and women found in the current research confirm the findings of other research (i.e., Aassve 2006, Miettinen and Paajanen 2005), this is among the first studies on Scotland to examine gendered differences in fertility intentions and fertility behaviour.

Unsurprisingly, partnership was revealed to be an important predictor of fertility behaviour in Scotland. As has been found in other studies, my results showed that partnered men and women with a positive fertility intention were more likely to have a first birth. Slightly less expected was my finding that being in a partnership was *more* important than having a positive fertility intention for men, but not for women. However, in light of the life course paradigm and the concept of 'linked lives', this result should have been expected, as men are not as likely as

women to become a single parent. Thus, being in a partnership seems to be the most important prerequisite for having a child among men.

The third contribution of this thesis is related to housing. For women I found that family housing is a significant indicator of first birth realisations. Furthermore, among the individuals in the SSAS dataset, homeowners were found to be more likely than social renters to have a positive fertility intention. This finding is likely attributable to the social norm that an individual should live in a 'proper' house when starting a family. In the UK there is a persistent social norm that people should strive to buy a home (Gurney 1999). However, there has so far been little research for the UK on how this behaviour affects the family formation process. The current research makes a contribution to the now dated literature on housing and family formation in the UK by demonstrating that housing is a predictor of family formation behaviour.

In addition to being a homeowner—which is not achievable for everybody—living in a family house was shown to be a prerequisite for having a first birth in Scotland. Moreover, living with parents was found to have a negative influence on an individual's fertility intentions. Thus, especially for a woman, living in a family house (a house with more than one bedroom) and away from her parental home significantly increased her chances of realising her intention to have a first birth. This finding is new for Scotland, and is in line with the findings of Kulu and Vikat (2007) for Finland, as well as the findings of Lauster (2010) for the US.

Two of my findings seem to be at odds with each other: on the one hand I found that living in family housing is an important influence on the family formation behaviour of women, while on the other I found that fertility levels are high among women in social housing. These results seem to be contradictory until we recognise that they probably refer to somewhat different groups of women. The large number of mothers among the women in social housing is likely related to the fact that mothers with children are given priority by the local government when applying for social housing. The finding that family housing significantly influences fertility realisation for women only seems to suggest that having a house deemed to be fit for a family is more important for women than for men.

The findings regarding living in a 'proper' house are in line with Ralston's (2012) ideas about the existence of a fertility threshold, whereby individuals perceive they need to have fulfilled a certain number of requirements before they can start a family. He argued that these

requirements include finishing education, finding a secure job, having a partner, and securing a house. Based on the results from this thesis I would propose a slight revision of these ideas. I agree with him that for those individuals who plan their family, there are certain prerequisites for starting a family. However, my findings suggest that Ralston's ideas mainly apply to women, who are more likely than men to see securing a (family) house as important. For men, the main prerequisites for fertility realisations are being in partnership and having a positive fertility intention. Although I also found for men that being in full-time (compared to in part-time) employment has a positive influence on fertility intentions, it may be assumed that being in employment has a positive effect on starting a relationship (Aassve et al. 2006). However, when researching fertility realisations I did not find these effects, possibly because these effects are mediated by being partnered and having a positive fertility intention. Since I found gendered differences in the most important drivers of fertility intentions and fertility realisations, the explicit inclusion of gender differences would have been a useful addition to the framework of the TPB, which informed my research.

8.4.   Further Research

This research could be taken forward in several ways. In Chapter 4, most of the spatial differences in TFRs are apparent within cities. It is unclear why this is the case. A simple answer might be related to population density, as the high numbers of people in cities increase the likelihood of outliers. However, that explanation seems a little too simple. As well as having spatial differences, urban areas with high population densities were found to have the lowest TFRs overall (Sato 2007). It is therefore likely that the process of family formation is driven by slightly different indicators in urban areas than in rural areas. The availability of certain types of housing tenure might also play a role, as there may be clusters of similar types of housing tenure in different parts of a city, whereas some of these tenure types might not be available at all in the countryside. A question that therefore requires further investigation is whether the spatial distribution of different housing tenures is the main reason for fertility variations in urban areas.

 In addition to being the places where the widest range of housing tenure types are available, cities are also places where relatively large numbers of young adults live; thus, cities are the places with the largest pools of potential partners. All the findings in this thesis show that partnership is one of the main indicators for fertility intentions and for first birth realisations. More work should therefore be done to explain why fertility rates are lower in large urban areas than in other places. Do couples who meet in a city perhaps move to a more rural area before

having children, possibly because of the availability of more affordable housing in peri-urban areas, or because rural areas are seen as more suitable for raising a child? Or do young adults who live in cities fail to form lasting relations, despite (or possibly because) they have access to a large pool of potential partners of a similar age? In the latter case, investigating relationship duration might be important. An empirical focus on fertility within cities might give further valuable insights into the family formation process.

A second area in which this research could be taken further is regarding shared attitudes. I found three main population groups in Scotland with shared social attitudes that were distinct from each other. This finding and the association of these groups with different fertility intentions provide indirect evidence for the existence and the influence of social norms in Scotland. Future research could seek to provide further insights into the factors that underlie the behavioural patterns of the population. My research could be expanded by investigating social norms and shared social attitudes across the UK. This would allow for a comparison of countries such as England, Wales, and Scotland, and could help to explain why the fertility trends in England and Scotland no longer seem to be following the same trajectory. It would be interesting to investigate whether the same shared attitudes groups are found in the other countries of the UK. Comparative research could be carried out using the BHPS (or its successor, the UK Household Longitudinal Study) in combination with the British Social Attitude Survey.

This research also uses concepts and ideas from the Theory of Planned Behaviour. In the TPB, fertility behaviour is explained by fertility intentions, which in turn are influenced by attitudes and norms related to fertility behaviour and by perceived behavioural control. These patterns are influenced by so-called background factors, which include socio-demographic and economic variables. I have already suggested that the TPB could benefit from the addition of a gender element. However, the framework in its current state also raises questions for empirical research. For example, social norms related to childbearing are very hard to conceptualise precisely and to measure in ways that would be useful to quantitative analysis. Nevertheless, qualitative work on social norms related to family formation could help to inform future statistical modelling.

Furthermore, the TPB framework assumes that births are planned. However, we know from qualitative research that not all births are planned. Moreover, the discrepancy between fertility intentions and realisations in the US has been investigated quantitatively by Morgan and Rackin

(2010), who concluded that many births are unplanned. It is therefore important to investigate possible differences in the influence of social norms among planners and non-planners. Unfortunately, the currently available data sources for the UK do not provide the information that would be needed to distinguish between individuals who do and do not plan their births. Thus, to gather these data, new questions would have to be added to a national survey. Again, qualitative work might be used to inform the question design. For example, a recent qualitative study by Chen (1985) gives interesting insights into how individual men and women in Scotland think about fertility decision-making, with some men deferring to women in matters of whether and when to have a child. The incorporation of insights from such a qualitative work, which allows for in-depth questioning, might be the best way to improve a large quantitative survey, as it could inform the improvement of survey questions related to both (un)planned pregnancies and, more generally, family formation behaviour related to social norms.

8.5.   Policy Implications and Concluding Remarks

In this thesis I have argued for the importance of viewing fertility events within the more dynamic framework of family formation across the life course. I have extended our knowledge of fertility in Scotland by demonstrating empirically the significant influences of housing, social norms, shared social attitudes, and partnership on both fertility intentions and first birth realisations over time. As a major driver of population ageing, low fertility and the accompanying threat of worsening dependencies ratios have important implications for policy-makers concerned with social welfare policies and migration policies, and with meeting Scotland's population target.

As the dependency ratio increases, more older people will be 'dependent' on fewer people of working age, which means that the costs of health services and social care for an increasing number of older people will need to be borne by a smaller number of people of working age. According to a recent government report, keeping the current system going without making any changes is unsustainable (Murphy and Staples 1979). From a demographic perspective, population ageing and increasing dependency ratios can be tackled by changing the relative balance of the population age structure, either by encouraging immigration of working-age people, or by increasing fertility among the current population, both of which would decrease the dependency ratio by 'creating' a larger number of people in the working age groups. Although increasing immigration would have the most immediate effect, it is unclear whether such a strategy would be politically acceptable or sustainable over the long term. Ensuring a

positive net migration of people in the right age group is, therefore, only a temporary solution. A positive net migration flow might slow down population decline, but is unlikely to stop the ageing of the population ageing over the longer term (Wilson and Rees 2003). Therefore, a policy focus on increasing fertility would be preferable. The Scottish government has recognised the ageing challenge, and in 2007 Scotland set a population target of maintaining population growth at the European (EU-15) average over the period from 2007 to 2017 (Ní Bhrolcháin et al. 2010). A key component of achieving this aim is to keep Scottish fertility rates at least at the European average. As this thesis is about fertility and family formation, I will elaborate further on policy solutions related to fertility. Increasing the proportion of people within the working-age population is essential to any policy designed to reduce the rate at which the Scottish population is ageing. All other things being equal, higher fertility rates would result in a larger working population after about two decades, as the larger birth cohorts joined the workforce. Higher fertility rates might be achieved by making it easier for potential parents (especially mothers) to have children and to work at the same time. In urban areas especially, where fertility rates are generally lower than in more rural areas, the reduction of barriers to combining work and family could have a significant effect.

In this thesis, I uncovered a clear link between housing tenure and fertility expectations. Furthermore, I found tentative evidence that homeownership is seen by many Scots as a prerequisite for starting a family. However, since the credit crunch of 2007, purchasing a house in Scotland has become difficult for many young adults, and poses a particular challenge for young prospective parents. The inability of many young adults in Scotland to afford to buy a home is the subject of much debate, but it also has implications for the future age structure of Scotland's population, as young adults might postpone having children until they are able to buy a house. To make combining work and parenthood easier, Graham et al. (2007) has proposed increasing the child-friendliness of cities, especially city centres, so that potential parents are able to live relatively close to their place of employment while also raising a family. My research suggests that the availability of family housing in the city centre would need to increase for this to become possible.

Policy-makers typically identify problems at a macro level (as in the challenges of population ageing), whereas policy interventions tend to target individual behaviour. Thus, a requirement of policy development is to link the macro and the micro. Equally, to explain fertility trends at the macro level, micro level behaviour needs to be studied (Billari (2015). At the same time, it is

often difficult to specify what the links might be. Billari (2015) took the macro level to be the aggregate demographic trends over time. However, when spatial variation is included as well, the division becomes less clear.

The conceptual model that underpins this thesis interprets 'social norms' as a contextual indicator and housing as an indicator that is partly contextual, and partly individual. As the findings of this thesis indicate, social norms are defined by the social group they influence, and a national population may contain more than one such group. Furthermore, even the most powerful social norm does not influence every person. The evidence presented in this thesis suggests that a majority of the Scottish population holds fairly traditional values regarding family life, but that there are subgroups with different attitudes. Family housing, a good job and children are deemed important for many people but for a minority children are less important than personal independence. Most importantly, social norms and shared social attitudes do influence men and women's fertility intentions and realisations. Thus, a more holistic approach to understanding the process of family formation must extend the range of variables included in statistical models beyond well-established indicators such a partnership to incorporate the influence of normative prerequisites such a family housing.

References

Aassve, Arnstein, Francesco C. Billari, Stefano Mazzuco & Fausta Ongaro (2002) Leaving home: A comparative analysis of ECHP data. *Journal of European Social Policy,* 12**,** 259-275.

Aassve, Arnstein, Simon Burgess, Carol Propper & Matt Dickson (2006) Employment, family union and childbearing decisions in Great Britain. *Journal of the Royal Statistical Society: Series A (Statistics in Society),* 169**,** 781-804.

Agresti, Alan & Barbara Finlay. 2009. *Statistical methods for the social sciences*. New Jersey: Upper Saddle River, NJ: Pearson/Prentice Hall.

Ajzen, Icek (1991) The theory of planned behavior. *Organizational Behavior and Human Decision Processes,* 50**,** 179-211.

---. 2005. *Attitudes, personality and behaviour*. Maidenhead: Open University Press.

Ajzen, Icek & Martin Fishbein. 2005. The influence of attitudes on behavior. In *The Handbook of Attitudes,* eds. D. Albaracin, B. T. Johnson & Z. M. P., 173-222. Lawrence Erlbaum Associates Publishers.

Ajzen, Icek & Jane Klobas (2013) Fertility intentions: An approach based on the theory of planned behavior. *Demographic Research,* 29**,** 203-232.

Aldous, Joan (1990) Family development and the life course: Two perspectives on family change. *Journal of Marriage and Family,* 52**,** 571-583.

Alter, George. 1992. Theories of fertility decline: a nonspecialists guide to the current debate. In *The European Experience of Declining Fertility, 1850-1970: The Quiet Revolution,* eds. J. R. Gillis, L. A. Tilly & D. Levine, 13-27. Cambridge, Mass. ;Oxford: Blackwell.

Anderson, Isobel. 1999. Young single people and access to social housing. In *Young people, housing and social policy,* ed. J. Rugg, 35–49. Routledge.

Anderson, Michael, Frank Bechhofer, David McCrone, Lynn Jamieson, Yaojun Li & Robert Stewart (2005) Timespans and plans among young adults. *Sociology,* 39**,** 139.

Anderson, Simon, Paul Bradshaw, Sarah Cunningham-Burley, Fenella Hayes, Lynn Jamieson, Andy MacGregor, Louise Marryat & Frank Wasoff. 2007. Growing Up in Scotland: A Study Following the Lives of Scotland's Children. ed. S. Executive. Edinburgh.

Ariès, Philipe (1980) Two successive motivations for the declining birth rate in the West. *Population and Development Review,* 6**,** 645-650.

Bandura, Albert. 1997. Self-efficacy: The exercise of control. New York: Freeman.

Barber, Jennifer S. (2001) Ideational Influences on the Transition to Parenthood: Attitudes toward Childbearing and Competing Alternatives. *Social Psychology Quarterly,* 64**,** 101-127.

Bardasi, Elena & Janet C Gornick. 2000. *Women and part-time employment: Workers''choices' and wage penalties in five industrialized countries*. Institute for Social and Economic Research, University of Essex.

Barlow, James & Simon Duncan (1988) The use and abuse of housing tenure. *Housing Studies,* 3**,** 219-231.

Barrett, Geraldine & Kaye Wellings (2002) What is a `planned' pregnancy? empirical data from a British study. *Social Science & Medicine,* 55**,** 545-557.

Barro, Robert J. & Gary S. Becker (1989) Fertility Choice in a Model of Economic Growth. *Econometrica,* 57**,** 481-501.

Beaujouan, Éva & Máire N. Bhrolcháin (2011) Cohabitation and marriage in Britain since the 1970s. *Population Trends,* 145**,** 35-59.

Becker, Gary S, James S Duesenberry & Bernard Okun. 1960. An economic analysis of fertility. In *Demographic and Economic Change in Developed Countries*, 209-240. Columbia University Press.

Becker, Gary S. (1965) A Theory of the Allocation of Time. *The Economic Journal,* 75**,** 493-517.

Becker, Gary S. & Gregg H. Lewis. 1974. Interaction Between Quantity and Quality of Children. In *Economics of the family: Marriage, children, and human capital,* ed. T. W. Schultz, 81-90. UMI.

Beer, Andrew & Debbie Faulkner. 2011. *Housing Transitions Through the Life Course. Aspirations, Needs and Policy*. Policy Press.

Benzies, Karen, Suzanne Tough, Karen Tofflemire, Corine Frick, Alexandra Faber & Christine Newburn-Cook (2006) Factors Influencing Women's Decisions About Timing of Motherhood. *Journal of Obstetric, Gynecologic, & Neonatal Nursing,* 35**,** 625-633.

Bernardi, Laura (2003) Channels of Social Influence on Reproduction. *Population Research and Policy Review,* 22**,** 427-555.

Bernardi, Laura, Sylvia Keim & Holger von der Lippe (2007) Social Influences on Fertility: A Comparative Mixed Methods Study in Eastern and Western Germany. *Journal of Mixed Methods Research,* 1**,** 23-47.

Bernhardt, Eva (2004) Is the Second Demographic Transition a useful concept for demography. *Vienna Yearbook of Population Research,* 2004**,** 25-28.

Berrington, Ann (2004) Perpetual postponers? Women's, men's and couples' fertility intentions and subsequent fertility behaviour. *Population Trends,* 117**,** 9-19.

--- (2015) Childlessness in the UK.

Berrington, Ann & Juliet Stone. 2015. Cohabitation trends and patterns in the UK. Centre for Population Change.

Berrington, Ann, Juliet Stone & Jane Falkingham (2009) The changing living arrangements of young adults in the UK. *Population Trends,* 138**,** 27-37.

Billari, Francesco C, Dimiter Philipov & Maria Rita Testa (2009) Attitudes, norms and perceived behavioural control: Explaining fertility intentions in Bulgaria.

European Journal of Population/Revue européenne de Démographie, 25**,** 439-465.

Billari, Francesco C. (2015) Integrating macro- and micro-level approaches in the explanation of population change. *Population Studies,* 69**,** S11-S20.

Billari, Francesco C., Alice Goisis, Aart C. Liefbroer, Richard A. Settersten, Arnstein Aassve, Gunhild Hagestad & Zsolt Spéder (2011) Social age deadlines for the childbearing of women and men. *Human Reproduction,* 26**,** 616-622.

Billari, Francesco C. & Aart C. Liefbroer (2010) Towards a new pattern of transition to adulthood? *Advances in Life Course Research,* 15**,** 59-75.

Billari, Francesco C., Dimiter Philipov & Pau Baizán (2001) Leaving Home in Europe: The Experience of Cohorts Born Around 1960. *International Journal of Population Geography,* 7**,** 339-356.

Billari, Francesco & Hans-Peter Kohler (2004) Patterns of low and lowest-low fertility in Europe. *Population Studies,* 58**,** 161-176.

Blaauboer, Marjolein (2010) Family Background, Individual Resources and the Homeownership of Couples and Singles. *Housing Studies,* 25**,** 441-461.

Black, Sandra E, Paul J Devereux & Kjell G Salvanes (2008) Staying in the Classroom and out of the maternity ward? The effect of compulsory schooling laws on teenage births. *The Economic Journal,* 118**,** 1025-1054.

Blake, Judith (1968) Are babies consumer durables? A Critique of the Economic Theory of Reproductive Motivation. *Population Studies,* 22**,** 5-25.

Bloemen, Hans & Adriaan S. Kalwij (2001) Female labor market transitions and the timing of births: a simultaneous analysis of the effects of schooling. *Labour Economics,* 8**,** 593-620.

Blossfeld, Hans-Peter, Katrin Golsch & Götz Rohwer. 2007. *Event history analysis with Stata*. London: Lawrence Erlbaum Associates.

Bollen, Kenneth A., Jennifer L. Glanville & Guy Stecklov (2001) Socioeconomic Status and Class in Studies of Fertility and Health in Developing Countries. *Annual Review of Sociology,* 27**,** 153-185.

Bongaarts, John (1978) A Framework for Analyzing the Proximate Determinants of Fertility. *Population and Development Review,* 4**,** 105-132.

--- (1982) The Fertility-Inhibiting Effects of the Intermediate Fertility Variables. *Studies in Family Planning,* 13**,** 179-189.

--- (2003) Completing the fertility transition in the developing world: The role of educational differences and fertility preferences. *Population Studies,* 57**,** 321-335.

Box-Steffensmeier, Janet M & Bradford S Jones. 2004. *Event history modeling: A guide for social scientists*. Cambridge: Cambridge University Press.

Boyle, Paul J, Peteke Feijten, Zhiqiang Feng, Lin Hattersley, Zengyi Huang, Joan Nolan & Gillian Raab (2009) Cohort Profile: The Scottish Longitudinal Study (SLS). *International Journal of Epidemiology,* 38**,** 385-392.

Boyle, Paul J. (2003) Population geography: does geography matter in fertility research? *Progress in Human Geography,* 27**,** 615-626.

Boyle, Paul J., Zhiqiang Feng & Gillian M. Raab (2011) Does Widowhood Increase Mortality Risk?: Testing for Selection Effects by Comparing Causes of Spousal Death. *Epidemiology,* 22**,** 1-5 10.1097/EDE.0b013e3181fdcc0b.

Boyle, Paul J., Elspeth Graham & Zhiqiang Feng. 2007a. Contextualising demography: the significance of local clusters of fertility in Scotland. Rostock: Max Planck Institute for Demographic Research.

---. 2007b. Fertility variations in Scotland: geographical influences: Reearch Briefing 33. Edinburgh: Center for Research on Family and Relationships.

Brannen, Julia & Ann Nilsen (2006) From Fatherhood to Fathering: Transmission and Change among British Fathers in Four-generation Families. *Sociology,* 40**,** 335-352.

Brien, Michael J, Lee A Lillard & Linda J Waite (1999) Interrelated family-building behaviors: Cohabitation, marriage, and nonmarital conception. *Demography,* 36**,** 535-551.

Caldwell, John C. (1976) Toward a restatement of demographic transition theory. *Population and Development Review,* 2**,** 321-366.

Casterline, John B. (2001) Diffusion processes and fertility transition: Introduction. *Diffusion Processes and Fertility Transition***,** 1–38.

Chan, Tak Wing & Brendan Halpin (2003) Union Dissolution in the United Kingdom. *International Journal of Sociology,* 32**,** 76-93.

Chatterton, Paul (1999) University students and city centres – the formation of exclusive geographies: The case of Bristol, UK. *Geoforum,* 30**,** 117-133.

Chesnais, Jean-Claude. 1992. *The demographic transition: stages, patterns, and economic implications: a longitudinal study of sixty-seven countries covering the period 1720-1984*. Oxford University Press, USA.

Clark, Ross & Laura Moss. 2011. To buy or to rent? Both have their advantages: Two property writes argue the toss. *Daily Mail*.

Clark, William A. V. & Clara H. Mulder (2000) Leaving home and entering the housing market. *Environment and Planning A,* 32**,** 1657-1672.

Clark, William A. V. & Suzanne Davies Withers (2009) Fertility, mobility and labour-force participation: a study of synchronicity. *Population, Space and Place,* 15**,** 305-321.

Clemens, Tom, Frank Popham & Paul Boyle. 2014. *What is the effect of unemployment on all-cause mortality? A cohort study using propensity score matching*.

Cochrane, Susan H. (1975) Children as by-products, investment goods and consumer goods: A Review of some micro-economic models of fertility. *Population Studies,* 29**,** 373-390.

Collins, Linda M. & Stephanie T. Lanza. 2010. *Latent class and latent transition analysis: With applications in the social, behavioral, and health sciences*. Wiley.

Coltrane, Scott & Masako Ishii-Kuntz (1992) Men's Housework: A Life Course Perspective. *Journal of Marriage and Family,* 54**,** 43-57.

Covre-Sussai, Maira, Bart Meuleman, Sarah Botterman & Koenraad Matthijs (2014) Traditional and Modern Cohabitation in Latin America: A comparative typology. *Available at SSRN 2375072*.

Crawford, Sue E. S. & Elinor Ostrom (1995) A Grammar of Institutions. *American Political Science Review,* 89**,** 582-600.

Crompton, Rosemary. 2006. Gender and work. In *Handbook of Gender and Women's Studies*, 253-271. SAGE Publications Ltd.

Davis, Kingsley & Judith Blake (1956) Social Structure and Fertility: An Analytic Framework. *Economic Development and Cultural Change,* 4**,** 211-235.

De Bruijn, Bart J. 2006. Fertility: Theories, frameworks, models, concepts. In *Demography: Analysis and synthesis B2 - Demography: Analysis and synthesis*, 549-569. New York: Academic Press.

Dey, Ian. 2007. Fertility variations in Scotland: Socio-cultural attitudes and interactions: Full research report. ESRC End of Award Report. RES-342-25-0015. Swindon: ESRC.

Dey, Ian & Fran Wasoff (2010) Another Child? Fertility Ideals, Resources and Opportunities. *Population Research and Policy Review,* 29**,** 921-940.

Dommermuth, Lars, Jane Klobas & Trude Lappegård (2011) Now or later? The Theory of Planned Behavior and timing of fertility intentions. *Advances in Life Course Research,* 16**,** 42-53.

Dunson, David B., Bernardo Colombo & Donna D. Baird (2002) Changes with age in the level and duration of fertility in the menstrual cycle. *Human Reproduction,* 17**,** 1399-1403.

Easterlin, Richard A. (2006) Life cycle happiness and its sources: Intersections of psychology, economics, and demography. *Journal of Economic Psychology,* 27**,** 463-482.

Easterlin, Richard Ainley. 1987. *Birth and fortune: The impact of numbers on personal welfare*. University of Chicago press.

Feijten, Peteke & Clara H. Mulder (2002) The Timing of Household Events and Housing Events in the Netherlands: A Longitudinal Perspective. *Housing Studies,* 17**,** 773-792.

Findlay, Allan, David McCollum, Rory Coulter & Vernon Gayle (2015) New Mobilities Across the Life Course: a Framework for Analysing Demographically Linked Drivers of Migration. *Population, Space and Place,* 21**,** 390-402.

Fiori, Francesca, Elspeth Graham & Zhiqiang Feng (2014) Geographical variations in fertility and transition to second and third birth in Britain. *Advances in Life Course Research,* 21**,** 149-167.

Fishbein, Martin & Icek Ajzen. 1975. *Belief, attitude, intention and behavior: An introduction to theory and research*.

Forrest, Ray (1987) Spatial mobility, tenure mobility, and emerging social divisions in the UK housing market. *Environment and Planning A,* 19**,** 1611-1630.

Forrest, Ray, Patricia Kennett & Leather Philip. 1999. Home ownership in crisis? The British experience of negative equity. ix.

Fox, Jackie. 2009. Young people's housing transitions. Joseph Rowntree foundation.

Friedman, Debra, Michael Hechter & Satoshi Kanazawa (1994) A theory of the value of children. *Demography,* 31**,** 375-401.

Galland, Olivier (2000) L'allongement de la jeunesse en Europe. *Revue de l'OFCE,* 72**,** 187-191.

General Register Office for Scotland. 2009. Scotland's Population 2009 - The Registrar General's Annual Review of Demographic Trends 155th edition. Edinburgh: General Register Office for Scotland.

Giele, Janet Z. & Glen H. Elder. 1998. *Methods of life course research: Qualitative and quantitative approaches*. London: Sage Publications, Inc.

Graham, Elspeth. 2014. Demographies. In *The SAGE Handbook of Human Geography,* eds. R. Lee, N. Castree, R. Kitchin, V. Lawson, A. Paasi, C. Philo, S. Radcliffe, S. M. Roberts & C. Withers, 649-679. London: SAGE.

Graham, Elspeth, Paul J. Boyle, George Bouliotis, Vernon Gayle & John Ermisch. 2007. Why is Fertility in Scotland lower than in England? Economic and Social Research Council.

Gray, Edith, Ann Evans & Anna Reimondos (2013) Childbearing desires of childless men and women: When are goals adjusted? *Advances in Life Course Research,* 18**,** 141-149.

Gurney, Craig M. (1999) Pride and prejudice: discourses of normalisation in public and private accounts of home ownership. *Housing Studies,* 14**,** 163-183.

Hakim, Catherine (2003) A New Approach to Explaining Fertility Patterns: Preference Theory. *Population and Development Review,* 29**,** 349-374.

Haskey, John (2001) Cohabitation in Great Britain: past, present and future trends-and attitudes. *Population Trends,* 103**,** 4-25.

Hawkes, Denise, Heather Joshi & Kelly Ward (2004) Unequal entry to motherhood and unequal starts in life: evidence from the first survey of the UK Millennium Cohort.

Hewlett, Sylvia Ann (2004) Fast-track women and the quest for children. *Fertility and Sterility,* 81, Supplement 2**,** 15-18.

Hobcraft, John (2006) The ABC of demographic behaviour: How the interplays of alleles, brains, and contexts over the life course should shape research aimed at understanding population processes. *Population Studies,* 60**,** 153-187.

--- (2008) The timing and partnership context of becoming a parent. *Demographic Research,* 19**,** 1281-1322.

Hoem, Britta & Jan M. Hoem. 1992. The disruption of marital and non-marital unions in contemporary Sweden. In *Demographic Applications of Event History Analysis,* eds. J. Trussel, R. Hankinson & J. Tilton, 61-93. Oxford: Clarendon Press.

Hogan, Dennis P. 1985. The demography of life-span transitions: Temporal and gender comparisons. In *Gender and the life course,* ed. A. S. Rossi, 65-78. New York.

Horne, Christine. 2013. Norms. Oxford Bibliographies in Sociology.

Hubbard, Phil (2009) Geographies of studentification and purpose-built student accommodation: leading separate lives? *Environment and Planning. A,* 41, 1903.

Hughes, Marry E. (2003) Home economics: Metropolitan labor and housing markets and domestic arrangements in young adulthood. *Social Forces,* 81, 1399-1429.

Hutteman, Roos, Wiebke Bleidorn, Lars Penke & Jaap J. A. Denissen (2013) It Takes Two: A Longitudinal Dyadic Study on Predictors of Fertility Outcomes. *Journal of Personality,* 81, 487-498.

Iacovou, Maria & Lara Patrício Tavares (2011) Yearning, Learning, and Conceding: Reasons Men and Women Change Their Childbearing Intentions. *Population and Development Review,* 37, 89-123.

Ineichen, Bernard (1981) The Housing Decisions of Young People. *The British Journal of Sociology,* 32, 252-258.

Information Service Devision Scotland. 2014. Maternities (first birth and all births) by maternal age and deprivation. ed. Information Service Division. Edinburgh: NHS National Services

Inglehart, Ronald & Wayne E. Baker (2000) Modernization, Cultural Change, and the Persistence of Traditional Values. *American Sociological Review,* 65, 19-51.

Irwin, Sarah (2000) Reproductive Regimes: Changing Relations of Inter-dependence and Fertility Change. *Sociological Research Online,* 5.

Jamieson, Lynn, Michael Anderson, David McCrone, Frank Bechhofer, Robert Stewart & Yaojun Li (2002) Cohabitation and commitment: partnership plans of young men and women. *The Sociological Review,* 50, 356-377.

Jamieson, Lynn, Kathryn Backett Milburn, Roona Simpson & Fran Wasoff (2010) Fertility and social change: the neglected contribution of men's approaches to becoming partners and parents. *The Sociological Review,* 58, 463-485.

Joshi, Heather (1998) The opportunity costs of childbearing: More than mothers' business. *Journal of Population Economics,* 11, 161-183.

Kalmijn, Matthijs (2007) Explaining cross-national differences in marriage, cohabitation, and divorce in Europe, 1990–2000. *Population Studies,* 61, 243-263.

Kandori, Michihiro (1992) Social norms and community enforcement. *The Review of Economic Studies,* 59, 63-80.

Keizer, Renske, Pearl A. Dykstra & Anne-Rigt Poortman (2010) Life outcomes of childless men and fathers. *European Sociological Review,* 26, 1-15.

Kiernan, Kathleen (2003) Cohabitation and divorce across nations and generations. *LSE STICERD Research Paper No. CASE065*.

--- (2004) Unmarried Cohabitation and Parenthood in Britain and Europe. *Law & Policy,* 26, 33-55.

Kirk, Dudley (1996) Demographic transition theory. *Population Studies,* 50**,** 361-387.

Knodel, John & Etienne van de Walle (1979) Lessons from the Past: Policy Implications of Historical Fertility Studies. *Population and Development Review,* 5**,** 217-245.

Kohler, Hans-Peter (2000) Social interactions and fluctuations in birth rates. *Population Studies,* 54**,** 223-237.

---. 2001. *Fertility and Social Interaction: An Economic Perspective: An Economic Perspective*. New York: Oxford University Press.

Kohler, Hans-Peter, Francesco C. Billari & José Antonio Ortega. 2006. Low fertility in Europe: Causes, implications and policy options. In *The Baby Bust: Who Will Do the Work? Who Will Pay the Taxes? ,* ed. F. R. Harris, 48-109. Oxford: Rowman and Littlefield Publishers.

Kulu, Hill (2013) Why Do Fertility Levels Vary between Urban and Rural Areas? *Regional Studies,* 47**,** 895-912.

Kulu, Hill & Paul J. Boyle (2009) High Fertility in City Suburbs: Compositional or Contextual Effects? *European Journal of Population/Revue européenne de Démographie,* 25**,** 157-174.

Kulu, Hill, Paul J. Boyle & Gunnar Andersson (2009) High Suburban Fertility: Evidence from Four Northern European Countries. *Demographic Research,* 21**,** 915-944.

Kulu, Hill & Andres Vikat (2007) Fertility differences by housing type. *Demographic Research,* 17**,** 775-802.

Kulu, Hill, Andres Vikat & Gunnar Andersson (2007) Settlement size and fertility in the Nordic countries. *Population Studies,* 61**,** 265-285.

Kulu, Hill & Elizabeth Washbrook (2014) Residential context, migration and fertility in a modern urban society. *Advances in Life Course Research,* 21**,** 168-182.

Lachance-Grzela, Mylène & Geneviève Bouchard (2009) The well-being of cohabiting and married couples during pregnancy: Does pregnancy planning matter? *Journal of Social and Personal Relationships,* 26**,** 141.

Lakha, Fatim & Anna Glasier (2006) Unintended pregnancy and use of emergency contraception among a large cohort of women attending for antenatal care or abortion in Scotland. *The Lancet,* 368**,** 1782-1787.

Langdridge, Darren, Paschal Sheeran & Kevin J. Connolly (2005) Understanding the reasons for parenthood. *Journal of Reproductive and Infant Psychology,* 23**,** 121-133.

Lauster, Nathanael T. (2010) Housing and the Proper Performance of American Motherhood, 1940-2005. *Housing Studies,* 25**,** 543-557.

Lee, Ronald D. & David S. Reher (2011) Introduction: The Landscape of Demographic Transition and Its Aftermath. *Population and Development Review,* 37**,** 1-7.

Lesthaeghe, Ron (1995) The second demographic transition in Western countries: An interpretation. *Gender and Family Change in Industrialized Countries***,** 17-62.

--- (2010) The Unfolding Story of the Second Demographic Transition. *Population and Development Review,* 36**,** 211-251.

Lesthaeghe, Ron & Karel Neels (2002) From the First to the Second Demographic Transition: An Interpretation of the Spatial Continuity of Demographic Innovation in France, Belgium and Switzerland. *European Journal of Population / Revue européenne de Démographie,* 18**,** 325-360.

Lesthaeghe, Ron & Dirk J. Van De Kaa. 1986. *"Twee demografische transities?" (Two demographic transitions?)*. Deventer: Van Loghum Slaterus.

Lichter, Daniel T. 2012. Childbearing Among Cohabiting Women: Race, Pregnancy, and Union Transitions. In *Early Adulthood in a Family Context,* eds. A. Booth, S. L. Brown, N. S. Landale, W. D. Manning & S. M. McHale, 209-219. Springer New York.

Liefbroer, Aart C. (2005) The Impact of Perceived Costs and Rewards of Childbearing on Entry into Parenthood: Evidence from a Panel Study. *European Journal of Population / Revue européenne de Démographie,* 21**,** 367-391.

--- (2009) Changes in Family Size Intentions Across Young Adulthood: A Life-Course Perspective. *European Journal of Population / Revue européenne de Démographie,* 25**,** 363-386.

Liefbroer, Aart C. & Francesco C. Billari (2010) Bringing norms back in: a theoretical and empirical discussion of their importance for understanding demographic behaviour. *Population, Space and Place,* 16**,** 287-305.

Lutz, Wolfgang, Maria Rita Testa & Dustin J Penn (2006) Population density is a key factor in declining human fertility. *Population and Environment,* 28**,** 69-81.

MacInnes, John & Julio Pérez Díaz (2007) 'Low' fertility and population replacement in Scotland. *Population, Space and Place,* 13**,** 3-21.

Magidson, Jay & Jereon K Vermunt (2003) Comparing latent class factor analysis with traditional factor analysis for datamining. *Statistical Data Mining and Knowledge Discovery***,** 373-383.

Malpass, Peter & Rob Rowlands. 2010. Transformation and change in housing. In *Housing Markets and Policy,* eds. P. Malpass & R. Rowlands, 1-16. Abingdon: Routledge.

Manning, Wendy D. (2004) Children and the Stability of Cohabiting Couples. *Journal of Marriage and Family,* 66**,** 674-689.

Massey, Douglas S. & Nancy A. Denton (1985) Spatial Assimilation as a Socioeconomic Outcome. *American Sociological Review,* 50**,** 94-106.

Mayer, Karl U. (2000) Promises fulfilled? A review of 20 years of life course research. *Archives Européennes de Sociologie,* 41**,** 259-282.

McCutcheon, Allan L. 1987. *Latent class analysis*. Sage Publications, Incorporated.

McDonald, Peter (2000) Gender equity in theories of fertility transition. *Population and Development Review,* 26**,** 427-439.

--- (2006) Low fertility and the state: The efficacy of policy. *Population and Development Review,* 32**,** 485-510.

McNicoll, Geoffrey. 1994. Institutional analysis of fertility. Population Council.

Mencarini, Letizia, Daniele Vignoli & Anna Gottard (2015) Fertility intentions and outcomes: Implementing the Theory of Planned Behavior with graphical models. *Advances in Life Course Research,* 23**,** 14-28.

Miettinen, Anneli & Pirjo Paajanen (2005) Yes, no, maybe: Fertility intentions and reasons behind them among childless Finnish men and women. *Finnish Yearbook of Population Research,* 41**,** 165-184.

Miller, Gillian. 2006. Household Change - Scotland in a European Setting. In *Occasional Papers,* ed. GROS, 23. General Register Office for Scotland.

Miller, Warren B. (2011) Differences between fertility desires and intentions: implications for theory, research and policy. *Vienna Yearbook of Population Research,* 9**,** 75-98.

Miller, Warren B. & David J. Pasta (1994) The Psychology of Child Timing: A Measurement Instrument and a Model1. *Journal of Applied Social Psychology,* 24**,** 218-250.

--- (1995) Behavioral Intentions: Which Ones Predict Fertility Behavior in Married Couples?1. *Journal of Applied Social Psychology,* 25**,** 530-555.

Miller, Warren, Lawrence Severy & David Pasta (2004) A framework for modelling fertility motivation in couples. *Population Studies,* 58**,** 193-205.

Mills, Melinda, Hans-Peter Blossfeld & Erik Klijzing. 2005. Becoming an adult in uncertain times. In *Globalization, Uncertainty and Youth in Society: The Losers in a Globalizing World,* eds. H.-P. Blossfeld, E. Klijzing, M. Mills & K. Kurz, 423-441. London/New York: Routledge.

Mitchell, Deborah & Edith Gray (2007) Declining fertility Intentions, attitudes and aspirations. *Journal of Sociology,* 43**,** 23-44.

Moen, Phyllis. 1996. Gender, age, and the life course. In *Handbook of Aging and the Social Sciences,* eds. R. H. Binstock & L. K. George, 171-187. San Diego: Academic Press.

Monnier, Alain (1989) Fertility Intentions and Actual Behaviour. A Longitudinal Study: 1974, 1976, 1979. *Population: An English Selection,* 44**,** 237-259.

Morgan, S Philip & Miles G Taylor (2006) Low fertility at the turn of the twenty-first century. *Annual Review of Sociology,* 32**,** 375.

Morgan, S. Philip & Christine A. Bachrach (2011) Is the Theory of Planned Behaviour an appropriate model for human fertility? *Vienna yearbook of population research,* 9**,** 11-18.

Morgan, S. Philip & Heather Rackin (2010) The Correspondence Between Fertility Intentions and Behavior in the United States. *Population and Development Review,* 36**,** 91-118.

Mulder, Clara H. (2006) Home-ownership and family formation. *Journal of Housing and the Built Environment,* 21**,** 281-298.

--- (2007) The family context and residential choice: A challenge for new research. *Population, Space and Place,* 13**,** 265-278.

Mulder, Clara H. & Francesco C. Billari (2010) Homeownership Regimes and Low Fertility. *Housing Studies,* 25**,** 527-541.

Mulder, Clara H. & Pieter Hooimeijer. 1999. Residential relocations in the life course. In *Population issues: an interdisciplinary focus*, 159 - 186. Kluwer-Academic/Plenum Publishers.

Mulder, Clara H. & Nathanael T. Lauster (2010) Housing and Family: An Introduction. *Housing Studies,* 25**,** 433-440.

Mulder, Clara H. & Michael Wagner (2001) The Connections between Family Formation and First-time Home Ownership in the Context of West Germany and the Netherlands. *European Journal of Population/Revue européenne de Démographie,* 17**,** 137-164.

Mulder, Clara H. 1993. Migration dynamics: a life course approach. 251. Amsterdam, Netherlands: Thesis Publishers.

Murphy, Michael (1993) The Contraceptive Pill and Women's Employment as Factors in Fertility Change in Britain 1963–1980: A Challenge to the Conventional View. *Population Studies,* 47**,** 221-243.

--- (2011) Long-Term Effects of the Demographic Transition on Family and Kinship Networks in Britain. *Population and Development Review,* 37**,** 55-80.

Murphy, Mike J. & Oriel Sullivan (1985) Housing tenure and family formation in contemporary Britain. *European Sociological Review,* 1**,** 230.

Murphy, Patrick E. & William A. Staples (1979) A Modernized Family Life Cycle. *Journal of Consumer Research,* 6**,** 12-22.

National Records of Scotland. 2014. Vital Events Reference Tables 2014 - births.

National Research Council. 1997. *Rediscovering Geography: New Relevance for Science and Society*. Washington DC: The National Academies Press.

Neyer, Gerda, Trude Lappegård & Daniele Vignoli (2013) Gender Equality and Fertility: Which Equality Matters? *European Journal of Population / Revue européenne de Démographie,* 29**,** 245-272.

Ní Bhrolcháin, Máire & Éva Beaujouan (2011) Uncertainty in fertility intentions in Britain, 1979-2007. *Vienna yearbook of population research***,** 99-129.

--- (2012) Fertility postponement is largely due to rising educational enrolment. *Population Studies,* 66**,** 311-327.

Ní Bhrolcháin, Máire, Eva Beaujouan & Ann Berrington (2010) Stability and change in fertility intentions in Britain, 1991-2007. *Population Trends,* 141**,** 13-35.

O'Donnell, Mike. 1981. *A new introduction to sociology*. London: London : Harrap.

O'Rand, Angela M. & Margaret L. Krecker (1990) Concepts of the Life Cycle: Their History, Meanings, and Uses in the Social Sciences. *Annual Review of Sociology,* 16**,** 241-262.

Office for National Statistics. 2014. Childbearing of UK and non-UK born women living in the UK, 2011 Census data. ed. O. Dormon. Office for National Statistics.

Office for National Statistics. 2011. Fertility Summary, 2010. London: Office for National Statistics.

Ostrom, Elinor (2014) Collective action and the evolution of social norms. *Journal of Natural Resources Policy Research,* 6**,** 235-252.

Paris, Chris, Terry Clower, Andrew Beer & Debbie Faulkner. 2011. Housing transitions and housing policy: international context and policy transfer. In *Housing Transitions Through the Life Course. Aspirations, Needs and Policy,* eds. A. Beer & D. Faulkner, 39-60. Bristol: The Policy Press.

Philipov, Dimiter & Caroline Berghammer (2007) Religion and fertility ideals, intentions and behaviour: a comparative study of European countries. *Vienna yearbook of population research,* 2007**,** 271-305.

Philipov, Dimiter, Zsolt Spéder & Francesco C. Billari (2006) Soon, Later, or Ever? The Impact of Anomie and Social Capital on Fertility Intentions in Bulgaria (2002) and Hungary (2001). *Population Studies,* 60**,** 289-308.

Pinelli, Antonella, Hans-Joachim Hoffman-Nowotny & Beat Fux. 2002. *Fertility and new types of households and family formation in Europe*. Council of Europe.

Preston, Samuel, Patrick Heuveline & Michel Guillot. 2001. Demography: Measuring and modeling population processes. Oxford: Blackwell.

Procter, Paul. 1995. *Cambridge international dictionary of English*. Melbourne: Cambridge University Press Cambridge.

Rabe-Hesketh, Sophia & Anders Skrondal. 2008. *Multilevel and longitudinal modeling using Stata*. College Station: Stata Press.

Ralston, Kevin. 2012. Childbearing and first birth in Scotland. In *School of Applied Social Science*. Stirling: University of Stirling.

Reinis, Kia I. (1992) The Impact of the Proximate Determinants of Fertility: Evaluating Bongaarts's and Hobcraft and Little's Methods of Estimation. *Population Studies,* 46**,** 309-326.

Rendall, Michael S, Lynda Clarke, H Elizabeth Peters, Nalini Ranjit & Georgia Verropoulou (1999) Incomplete reporting of men's fertility in the United States and Britain: A research note. *Demography,* 36**,** 135-144.

Rendall, Michael S & Steve Smallwood (2003) Higher qualifications, first-birth timing and further childbearing in England and Wales. *Population Trends***,** 18-26.

Rijken, Arieke J. & Aart C. Liefbroer (2009) The Influence of Partner Relationship Quality on Fertility. *European Journal of Population/Revue européenne de Démographie,* 25**,** 27-44.

Riley, Nancy E. & James McCarthy. 2003. *Demography in the Age of the Postmodern*. Cambridge: Cambridge University Press.

Rindfuss, Ronald R, Karin L Brewster & Andrew L Kavee (1996) Women, work, and children: Behavioral and attitudinal change in the United States. *Population and Development Review***,** 457-482.

Rindfuss, Ronald R. & Sara R. Brauner-Otto (2008) Institutions and the transition to adulthood: Implications for fertility tempo in low-fertility settings. *Vienna yearbook of population research/Vienna Institute of Demography, Austrian Academy of Sciences,* 2008**,** 57.

Robinson, Warren C. (1997) The economic theory of fertility over three decades. *Population Studies,* 51**,** 63-74.

Rossier, Clémentine & Laura Bernardi (2009) Social Interaction Effects on Fertility: Intentions and Behaviors. *European Journal of Population / Revue européenne de Démographie,* 25**,** 467-485.

Rugg, Julie. 1999. The use and 'abuse'of private renting and help with rental costs. In *Young people, housing and social policy,* ed. J. Rugg, 50–64. London: Routledge.

Sage, Joanna, Darren Smith & Phil Hubbard (2012) The Rapidity of Studentification and Population Change: There Goes the (Student)hood. *Population, Space and Place,* 18**,** 597-613.

Sato, Yasuhiro (2007) Economic geography, fertility and migration. *Journal of Urban Economics,* 61**,** 372-387.

Saunders, Peter (1989) The meaning of home in contemporary English culture. *Housing Studies,* 4**,** 177-192.

Schoen, Robert, Nan Marie Astone, Young J. Kim, Constance A. Nathanson & M. Fields Jason (1999) Do Fertility Intentions Affect Fertility Behavior? *Journal of Marriage and Family,* 61**,** 790-799.

ScotCen, Scottish Centre for Social Research. 2005. Scottish Social Attitude Survey, 2005. ed. Scottish Centre for Social Research. Colchester,: Essex: UK Data Archive.

Searle, Beverley A. 2008. *Well-being: in search of a good life?* Bristol: The Policy Press.

Simon, Curtis J. & Robert Tamura (2009) Do higher rents discourage fertility? Evidence from U.S. cities, 1940–2000. *Regional Science and Urban Economics,* 39**,** 33-42.

Simpson, Roona. 2009. Delayed Childbearing and Childlessness. In *Fertility, Living Arrangements, Care and Mobility,* eds. D. Kneale, E. Coast & J. Stillwell, 23-40. Springer Netherlands.

Sobotka, Tomáš, Vegard Skirbekk & Dimiter Philipov (2011) Economic Recession and Fertility in the Developed World. *Population and Development Review,* 37**,** 267-306.

Steele, Fiona, Heather Joshi, Constantinos Kallis & Harvey Goldstein (2006) Changing compatibility of cohabitation and childbearing between young British women born in 1958 and 1970. *Population Studies,* 60**,** 137-152.

Stone, Juliet, Ann Berrington & Jane Falkingham (2011) The changing determinants of UK young adults' living arrangements. *Demographic Research,* 25**,** 629-666.

--- (2013) Gender, Turning Points, and Boomerangs: Returning Home in Young Adulthood in Great Britain. *Demography***,** 1-20.

Stover, John (1998) Revising the proximate determinants of fertility framework: What have we learned in the past 20 years? *Studies in Family Planning,* 29**,** 255-267.

Strom, Sara (2010) Housing and First Births in Sweden, 1972-2005. *Housing Studies,* 25**,** 509-526.

Szreter, Simon. 1996. *Fertility, class and gender in Britain, 1860-1940*. Cambridge: Cambridge University Press.

Teitelbaum, Michael S. 1984. *The British fertility decline: demographic transition in the crucible of the industrial revolution*. Princeton University Press Princeton, NJ.

Testa, Maria Rita (2006) Childbearing preferences and family issues in Europe. *Special Eurobarometer,* 253.

--- (2012) Couple disagreement about short-term fertility desires in Austria: Effects on intentions and contraceptive behaviour. *Demographic Research,* 26**,** 63-98.

Testa, Maria Rita & Laurent Toulemon (2006) Family Formation in France: Individual Preferences and Subsequent Outcomes. *Vienna Yearbook of Population Research,* 4**,** 41-75.

Thévenon, Olivier (2011) Family Policies in OECD Countries: A Comparative Analysis. *Population and Development Review,* 37**,** 57-87.

Thomson, Elizabeth (1997) Couple childbearing desires, intentions, and births. *Demography,* 34**,** 343-354.

Toulemon, Laurent & Maria Rita Testa (2005) Fertility intentions and actual fertility: A complex relationship. *Population & Societies,* 415**,** 1-4.

Treiman, Donald J. 2009. *Quantitative data analysis: Doing social research to test ideas*. London: Jossey-Bass.

University of Essex Institute for Social and Economic Research. 2010. British Household Panel Survey, Waves 1-18, 1991-2009. Colchester, Essex: UK Data Archive.

Van Bavel, Jan. 2002. *Van natuurlijke naar gecontroleerde vruchtbaarheid? Geboortebeperking in Leuven 1846-1910*. Leuven: Leuven University Press.

Van de Kaa, Dirk J. (1987) Europe's second demographic transition. *Population bulletin,* 42**,** 1.

--- (1996) Anchored narratives: The story and findings of half a century of research into the determinants of fertility. *Population Studies,* 50**,** 389-432.

--- (2001) Postmodern fertility preferences: From changing value orientation to new behavior. *Population and Development Review,* 27**,** 290-331.

Van Gaalen, Ruben I. & Pearl A. Dykstra (2006) Solidarity and Conflict Between Adult Children and Parents: A Latent Class Analysis. *Journal of Marriage and Family,* 68**,** 947-960.

Vermunt, Jeroen K. (1997) LEM: A general program for the analysis of categorical data. *Department of Methodology and Statistics, Tilburg University*.

Vignoli, Daniele, Francesca Rinesi & Eleonora Mussino. 2011. A home to plan the first child? Fertility intentions and housing conditions in Italy. 24. Università degli Studi di Firenze.

Vitali, Agnese, Francesco C. Billari, Alexia Prskawetz & Maria Rita Testa (2009) Preference theory and low fertility: A comparative perspective. *European Journal of Population,* 25**,** 413-438.

Waite, Linda J. & Lee A. Lillard (1991) Children and Marital Disruption. *American Journal of Sociology,* 96**,** 930-953.

Wasoff, Fran, Ian Dey & Sarah Morton. 2007. Fertility variations in Scotland: actual, expected and ideal fertility: Research briefing 32. Edinburgh: Center for Research on Family and Relationships.

Westoff, Charles F. & Norman B. Ryder (1977) The Predictive Validity Of Reproductive Intentions. *Demography,* 14**,** 431-453.

Widmer, Eric D. & Gilbert Ritschard (2009) The de-standardization of the life course: Are men and women equal? *Advances in Life Course Research,* 14**,** 28-39.

Wilson, Ben & Steve Smallwood (2008) The proportion of marriages ending in divorce. *Population Trends,* 131**,** 28.

Wilson, Tom & Phil Rees (2003) Why Scotland needs more than just a new migration policy. *Scottish Geographical Journal,* 119**,** 191-208.

Woods, Robert. 1979. *Population analysis in geography*. New York: Longman London.

---. 2000. *The Demography of Victorian England and Wales*. Cambridge University Press.

Zhang, Li. 2010. *Male fertility patterns and determinants*. London: Springer Science & Business Media.

Appendix A.   Ethical approval

University of St Andrews

University Teaching and Research Ethics Committee
School Of Geography And Geosciences

18 April 2012
Annemarie Ernsten
Geography and Geosciences

Ethics Reference No: *Please quote this ref on all correspondence*	GG8610
Project Title:	The housing market and geographical variations in the partnership context of fertility.
Researchers Name(s):	Annemarie Ernsten
Supervisor(s):	Drs Elspeth Graham and Chris Wilson

Thank you for submitting your application which was considered by the Geography and Geosciences School Ethics Committee. The following documents were reviewed:

1. Ethical Application Form   17 April 2012

The University Teaching and Research Ethics Committee (UTREC) approves this study from an ethical point of view.   Please note that where approval is given by a School Ethics Committee that committee is part of UTREC and is delegated to act for UTREC.

Approval is given for three years. Projects, which have not commenced within two years of original approval, must be re-submitted to your School Ethics Committee.

You must inform your School Ethics Committee when the research has been completed. If you are unable to complete your research within the 3 three year validation period, you will be required to write to your School Ethics Committee and to UTREC (where approval was given by UTREC) to request an extension or you will need to re-apply.

Any serious adverse events or significant change which occurs in connection with this study and/or which may alter its ethical consideration, must be reported immediately to the School Ethics Committee, and an Ethical Amendment Form submitted where appropriate.

Approval is given on the understanding that the 'Guidelines for Ethical Research Practice' (http://www.st-andrews.ac.uk/media/UTRECguidelines%20Feb%2008.pdf) are adhered to.

Yours sincerely

Dr. Matt Southern
Convenor of the School Ethics Committee

UTREC School of Geography and Geosciences Convenor, Irvine Building, North Street, St Andrews, KY16 9AL
Email: ggethics@st-andrews.ac.uk Tel: 01334 463897
The University of St Andrews is a charity registered in Scotland: No SC013532

Appendix B.   Partnership in Glasgow
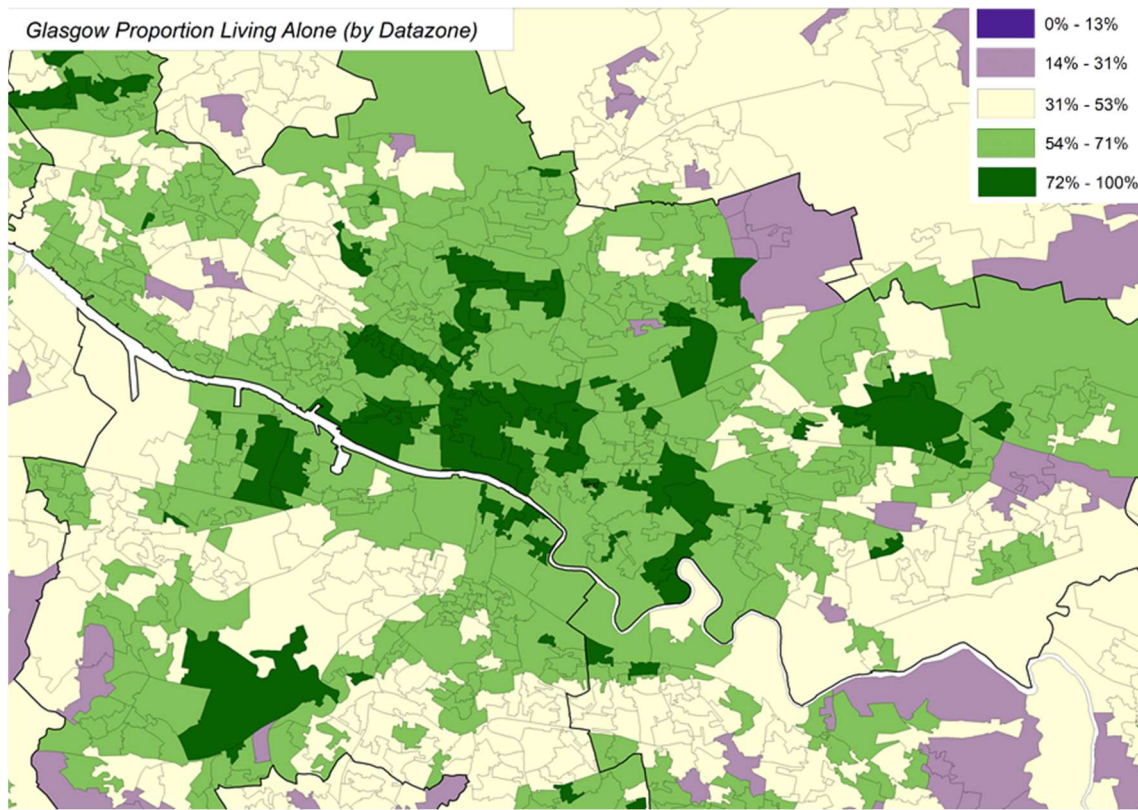
Glasgow Proportion Living Alone (by Datazone)

Legend	
	0% - 13%
	14% - 31%
	31% - 53%
	54% - 71%
	72% - 100%

Glasgow, Relationship status: Proportion of single men and women.
(Based on the Census 2001, men and women aged 18-49)
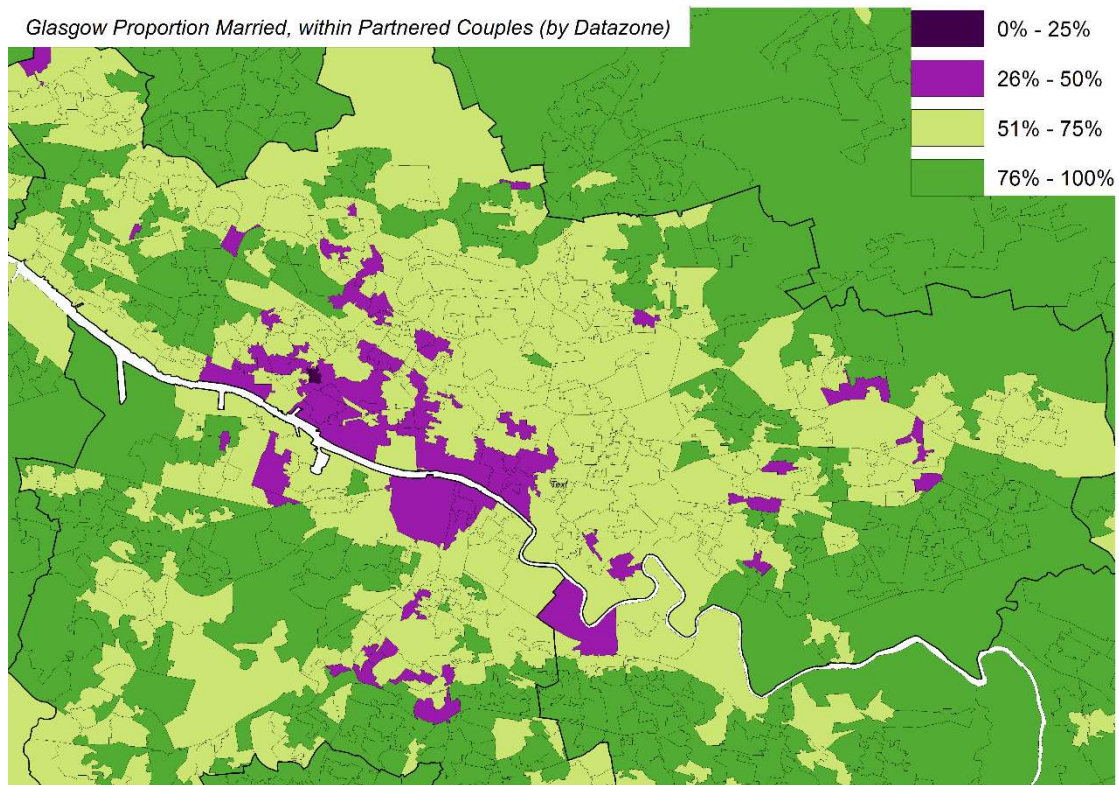
Glasgow, relationship status: Proportion of married men and women, within partnered couples. (Based on the Census 2001, men and women aged 18-49)

Appendix C. Summary of Relevant Variables in the SSAS Dataset

Category	Variable name	Variable description
Fertility	Chldwla2	Expects to have child(ren) in the future
	Parent	Do you have children?
Residence and Fertility	Areach3	Local area quality for raising kids
	Movearea2	Do you want to move when you have kids?
	Delayhmebin	R delay child until better home
	Chaff2	Cannot afford more than two children
Income and Fertility	Chfin2	People should delay kids until financially secure
	Delayincbin	Respondent delays kid till higher income
	Friendch2	Number of friends with children
Lifestyle and Fertility	Mothchil2	Mother said she wanted R to have children
	Chstress2	Stress and worry put R off having children
	Chdep2	Children are dependent too long
	Womfulf3	A woman can feel fulfilled without children
Respondent Characteristics	Age	Age
	Rsex	Gender
	Hedqual	Highest level of education
	Relation3	Partnered, separated/divorced, never married
	Relation4	Married, cohabiting, separated/divorced, never married
	Marcoh	Partnership status: married or cohabiting
	Tenurebin	TenureType: own or rent
	TenureNew	TenureType
	Shsrural3	Settlement type
	Reconsum2	Occupation
	Hincdiff3	Respondents view on household income
	Hhincgroup	Income
	Hhincgroup2	Income grouped

Appendix D.   Expected Fertility by Tenure and Gender

Expected Fertility by Tenure Type and Gender

Source; SSAS 2005. Men: $\chi^2(2)$=1.53 p< 0.5 N=122, women: $\chi^2(2)$=7.98 p< 0.05 N=104

Appendix E. Latent Class Models for Men and for Women

Sizes of latent classes and conditional response probabilities for men

	Group 1	Group 2	Group 3
Proportional class size	0.6630	0.0566	0.2804
	Conditional probabilities		
Importance of having children			
Not important	0.2320	**0.8040**	0.4120
Fairly neutral	0.2432	0.0000	0.3778
Important	0.5248	0.1960	0.2103
Importance of having a good job			
Not important	0.0000	**0.6077**	0.0000
Fairly neutral	0.0678	0.3923	0.1850
Important	**0.9322**	0.0000	**0.8150**
Importance of being independent			
Not important	0.0000	0.1320	0.0205
Fairly neutral	0.0280	0.2827	0.2352
Important	**0.9720**	0.5853	**0.7443**
Importance of owning your own home			
Not important	0.0397	0.5027	0.0971
Fairly neutral	0.0645	0.0000	**0.6307**
Important	**0.8958**	0.4973	0.2722
Chi-squared	69.6147 (p=0.0748)		
BIC (log-likelihood)	2157.3556		
AIC (log-likelihood)	2055.0484		

Source; BHPS 2003, N=378

Sizes of latent classes and conditional response probabilities for women

	Group 1	Group 2
Proportional class size	0.7378	0.2622
	Conditional probabilities	
Importance of having children		
Not important	0.2064	0.4794
Fairly neutral	0.1673	0.3965
Important	**0.6263**	0.1241
Importance of having a good job		
Not important	0.0000	0.0551
Fairly neutral	0.0509	0.2010
Important	**0.9491**	**0.7439**
Importance of being independent		
Not important	0.0078	0.0195
Fairly neutral	0.0221	0.1994
Important	**0.9701**	**0.7812**
Importance of owning your own home		
Not important	0.0065	0.1330
Fairly neutral	0.0859	0.5156
Important	**0.9076**	0.3513
Chi-squared	70.0705 (p=0.2525)	
BIC (log-likelihood)	1370.9032	
AIC (log-likelihood)	1309.2949	

Source; BHPS 2003, N=277