

Aart C. Liefbroer  
Mioara Zoutewelle-Terovan *Editors*

# Social Background and the Demographic Life Course: Cross-National Comparisons

OPEN ACCESS

 Springer

Social Background and the Demographic Life  
Course: Cross-National Comparisons

Aart C. Liefbroer • Mioara Zoutewelle-Terovan  
Editors

# Social Background and the Demographic Life Course: Cross-National Comparisons

 Springer

*Editors*

Aart C. Liefbroer  
Netherlands Interdisciplinary  
Demographic Institute (NIDI)  
The Hague, The Netherlands

Department of Epidemiology,  
University Medical Centre Groningen  
University of Groningen  
Groningen, The Netherlands

Department of Sociology  
Vrije Universiteit  
Amsterdam, The Netherlands

Mioara Zoutewelle-Terovan  
Netherlands Interdisciplinary  
Demographic Institute (NIDI)  
The Hague, The Netherlands

University of Groningen  
Groningen, The Netherlands



ISBN 978-3-030-67344-4      ISBN 978-3-030-67345-1 (eBook)  
<https://doi.org/10.1007/978-3-030-67345-1>

© The Editor(s) (if applicable) and The Author(s) 2021. This book is an open access publication.

**Open Access** This book is licensed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this book are included in the book's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the book's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

The use of general descriptive names, registered names, trademarks, service marks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

The publisher, the authors, and the editors are safe to assume that the advice and information in this book are believed to be true and accurate at the date of publication. Neither the publisher nor the authors or the editors give a warranty, expressed or implied, with respect to the material contained herein or for any errors or omissions that may have been made. The publisher remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

This Springer imprint is published by the registered company Springer Nature Switzerland AG  
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

# Preface

This book has a long genesis. It started from the observation that social demography – or at least European social demography – is rather preoccupied with viewing demographic behaviours of young adults as the outcome of choice processes. Attention is focussed on attitudes, values, and intentions that may lead young adults to opt for specific types of behaviours or rather to steer away from these behaviours. However, differences in behaviour are not just the result of differences in preferences, but also of differences in opportunity structures. This latter aspect, that differences in the opportunities of young adults matter, has received much less attention in European demography. And if it did receive attention, its focus was on how educational attainment structured the demographic choices of young adults.

To counteract this tendency, the first editor of this volume (Liefbroer) developed a research proposal in which the consequences of childhood characteristics, like parents' socio-economic status and parental union dissolution, were central. Childhood disadvantage clearly stratifies the demographic choices during young adulthood, but reaches even further into middle and later adulthood. Furthermore, the consequences of childhood disadvantage should be studied in a comparative perspective, as countries differ in their ability to counteract the potentially negative consequences of childhood disadvantage.

Fortunately, the European Research Council was willing to fund the research proposal on 'Contexts of Opportunity'. Five PhD students, two post-docs, and a number of senior researchers worked with Liefbroer on this proposal. This edited volume is the final publication based on this project and aims to take stock of what we have learned about cross-national variation in the consequences of childhood disadvantage. It would not have been possible without the help of many.

First, we want to thank the European Research Council for lavishly funding this project under the European Union's Seventh Framework Programme (FP/2007-2013)/ERC Grant Agreement n. 324178. It is wonderful that the European Union offers these kinds of opportunities to conduct scientific research on broad topics in social science.

Second, we want to thank our co-workers in this project, many of whom contributed to this volume. These include Judith Koops, Anne Brons, Jarl Mooyaart, Sapphire Yu Han, and Joanne Muller as PhDs, Nicole Hiekel as postdoc, and Anne Gauthier, Cees Elzinga, Francesco Billari, and Harry Ganzeboom as senior researchers. Their input into the project has been tremendous and we owe them all a big thank you. Most of the chapters of this volume were first presented at the closing conference of the CONOPP project at the Trippenhuis, the home of the Royal Netherlands Academy of Arts and Sciences. Apart from the project members mentioned above, that conference profited from the participation and comments of Tim Liao, Annette Fasang, Matthias Studer, Juho Härkönen, and Melinda Mills. Additionally, Peter Ekamper provided help in constructing the cartographies presented in Chap. 2 and Jarl Mooyaart offered constructive comments on Chap. 6.

Third, we want to thank the Netherlands Interdisciplinary Demographic Institute for hosting the project. For more than 50 years now, NIDI has been offering a wonderful environment to concentrate on demographic research that is both scientifically rigorous and societally relevant. This is not only due to the warm interest and constructive comments of our fellow researchers, but certainly to the great support staff as well. Jacqueline van der Helm and Jeannette van der Aar provided secretarial support when needed, Jeroen Berkien solved all our hardware issues, and Christian Klein, Ine Goedegebuur, Petra Nowee, and Vanessa Hage made life easy in terms of HR and financial support. A special thank you to Hans Uytenhout, who acted as a superb project controller, smoothing any potential issues that might occur in contacts with our funding agency.

Finally, we want to thank the staff at Springer. Evelien Bakker and Bernadette Deelen were very quick to show interest in this book project and have been supporting it from its initiation. Alexander James gently pressed us to deliver when our progress was slow and provided feedback whenever needed.

The Hague, The Netherlands  
October 2020

Aart C. Liefbroer  
Mioara Zoutewelle-Terovan

# Contents

<b>1</b>	<b>Social Background and Adult Socio-Demographic Outcomes in a Cross-National Comparative Perspective: An Introduction</b> . . . . .	<b>1</b>
	Aart C. Liefbroer and Mioara Zoutewelle-Terovan	
<b>2</b>	<b>Cross-National Variation in the Link Between Parental Socio-Economic Status and Union Formation and Dissolution Processes</b> . . . . .	<b>17</b>
	M. D. (Anne) Brons	
<b>3</b>	<b>Nonmarital Fertility in Europe and North-America: What Is the Role of Parental SES and Own SES?</b> . . . . .	<b>35</b>
	Judith C. Koops	
<b>4</b>	<b>The Persistent Influence of Socio-Economic Background on Family Formation Pathways and Disadvantage in Young Adulthood</b> . . . . .	<b>61</b>
	Jarl Mooyaart	
<b>5</b>	<b>Adding Well-Being to Ageing: Family Transitions as Determinants of Later-Life Socio-Emotional and Economic Well-Being</b> . . . . .	<b>79</b>
	Mioara Zoutewelle-Terovan and Joanne S. Muller	
<b>6</b>	<b>Meta-Analysis and Meta-Regression: An Alternative to Multilevel Analysis When the Number of Countries Is Small</b> . . . . .	<b>101</b>
	Aart C. Liefbroer and Mioara Zoutewelle-Terovan	
<b>7</b>	<b>Modeling the Genesis of Life Courses</b> . . . . .	<b>125</b>
	Sapphire Yu Han and Cees H. Elzinga	

**8 Understanding the Mechanisms of Intergenerational Social Inequality in Demographic Behavior..... 141**  
Nicole Hiekel

**9 Explaining Cross-National Differences in Social Background Effects: What Have We Learned?..... 155**  
Aart C. Liefbroer



# Contributors

**M. D. (Anne) Brons** Department of Sociology, University of Utrecht, Utrecht, The Netherlands

**Cees H. Elzinga** Netherlands Interdisciplinary Demographic Institute (NIDI), The Hague, The Netherlands

**Sapphire Yu Han** Directorate for Employment, Labour and Social Affairs, Organisation for Economic Co-operation and Development, Paris, France

**Nicole Hiekel** Department of Sociology, University of Cologne, Cologne, Germany

**Judith C. Koops** Netherlands Interdisciplinary Demographic Institute (NIDI), The Hague, The Netherlands  
University of Groningen, Groningen, The Netherlands

**Aart C. Liefbroer** Netherlands Interdisciplinary Demographic Institute (NIDI), The Hague, The Netherlands  
Department of Epidemiology, University Medical Centre Groningen, University of Groningen, Groningen, The Netherlands  
Department of Sociology, Vrije Universiteit, Amsterdam, The Netherlands

**Jarl Mooyaart** Netherlands Interdisciplinary Demographic Institute (NIDI), The Hague, The Netherlands  
University of Groningen, Groningen, The Netherlands

**Joanne S. Muller** Netherlands Interdisciplinary Demographic Institute (NIDI), The Hague, The Netherlands  
University of Groningen, Groningen, The Netherlands

**Mioara Zoutewelle-Terovan** Netherlands Interdisciplinary Demographic Institute (NIDI), The Hague, The Netherlands  
University of Groningen, Groningen, The Netherlands

# Chapter 1

## Social Background and Adult Socio-Demographic Outcomes in a Cross-National Comparative Perspective: An Introduction



Aart C. Liefbroer and Mioara Zoutewelle-Terovan

### 1.1 A Shift in Narratives: From a Focus on Individualism to a Focus on Social Inequality

For more than 30 years, what we would call an ‘individual choice’ paradigm has been dominant in social demographic thinking and empirical research on family formation processes in western, industrialized societies. Demographic behaviors such as decisions to leave the parental home, to start or end a partner relationship, and to have children were mainly viewed as the outcome of individual choices, based on young adults’ own preferences.

This individual choice paradigm is not specific to demography, but has been dominant in the social sciences more general. Among sociologists, Inglehart (1977) suggested that many western societies experienced a cultural shift from a main reliance on materialist values to what he called postmaterialist values. By this, he meant a fundamental, ‘intergenerational shift from an emphasis on economic and physical security toward an increased emphasis on self-expression, subjective well-being, and quality-of-life concerns’ (Inglehart and Baker 2000, p. 26). Clearly, this shift in values and resulting individual preferences is linked to the rise of disposable income

---

A. C. Liefbroer (✉)

Netherlands Interdisciplinary Demographic Institute (NIDI), The Hague, The Netherlands

Department of Epidemiology, University Medical Centre Groningen, University of Groningen, Groningen, The Netherlands

Department of Sociology, Vrije Universiteit, Amsterdam, The Netherlands

e-mail: [liefbroer@nidi.nl](mailto:liefbroer@nidi.nl)

M. Zoutewelle-Terovan

Netherlands Interdisciplinary Demographic Institute (NIDI), The Hague, The Netherlands

University of Groningen, Groningen, The Netherlands

e-mail: [zoutewelle@nidi.nl](mailto:zoutewelle@nidi.nl)

© The Author(s) 2021

A. C. Liefbroer, M. Zoutewelle-Terovan (eds.), *Social Background and the Demographic Life Course: Cross-National Comparisons*, [https://doi.org/10.1007/978-3-030-67345-1\\_1](https://doi.org/10.1007/978-3-030-67345-1_1)

and improved welfare arrangements in the post-World War II period. The greater economic security resulting from these changes, allowed birth cohorts to follow their own individualized, autonomy-oriented preferences to a much larger extent than in less economically secure times, as economic security could be taken for granted (Inglehart and Baker 2000). This emphasis on individual choice is also evident in the work of other influential sociologists like Giddens and Beck. Giddens (1991) stresses that choice has become a fundamental aspect of our daily life and that individuals plan their lives in line with their own biographical understanding. They actively engage in life-planning. Beck even suggests that individuals are condemned to individualization and that our time witnesses a new type of man – homo optionis. Nowadays we not only are able to make life choices, we cannot escape doing so (Beck and Beck-Gernsheim 2002). This focus on choice is also evident in other social science subfields. In youth studies, the idea that a standard life course has been replaced by a choice biography became popular (Du Bois-Reymond 1998), and within the life-course field, the concept of ‘agency’ became increasingly central (Elder 1994; Hitlin and Elder 2007).

Within demography, this ‘individual choice’ paradigm is most evident in the idea of the Second Demographic Transition, championed by Lesthaeghe and Van de Kaa (Lesthaeghe 2014; Lesthaeghe and Van de Kaa 1986; Van de Kaa 1987). They put forward the thesis that the family formation patterns of young adults have undergone a fundamental change since the 1960s. Events that limit individuals’ autonomy (like marriage and parenthood) have been postponed or are more likely to be undone (like marriage), and behaviors that allow more self-expression (like living on one’s own or in an unmarried rather than a married cohabitation) have become more popular. They clearly link this trend to the shift from materialistic to post-materialistic values that Inglehart has described (e.g. Van de Kaa 2001). Economic growth and technological innovations (e.g. in terms of contraceptives) made young adults less susceptible to normative points of view espoused by socializing agencies like the Church or the family. Instead, family formation decisions could be based more strongly on individual preferences related to self-expression and autonomy. Although the SDT has not been uncontested (Coleman 2004; Zaidi and Morgan 2017), it has been a key lens from which demographic decisions of young adults have been studied in the last three decades.

In the new millennium, and particularly during the last decade, the ‘individual choice’ paradigm has lost momentum and is increasingly being contested by what we would like to call the ‘unequal choice’ paradigm, that emphasizes the enduring and potentially growing role of social inequality. During the Great Recession, economic growth halted and even reversed in many western countries, the welfare state was restructured and inequality increased. The growing interest in this trend is seen most clearly in the reception of the work of Piketty (2014) in the social sciences.

But the idea of individual choice, as exemplified by the SDT, is also being increasingly contested in accounts of demographic changes. In our view, this occurred earlier and more profoundly in the USA than in Europe. First, there has always been a much stronger interest in the USA than in Europe in the demographic consequences of childhood disadvantage and social inequalities that originate in the

parental home (Furstenberg et al. 1990; Kahn and Anderson 1992; McLanahan and Bumpass 1988; Wilson 1987). In the USA, the ideology of individual chances for upward mobility and the apparent discrepancy of this ideology with reality (Merton 1968), may have sparked continuous interest in the role of childhood disadvantage in socio-demographic outcomes. In Europe, in contrast, the emphasis on the role of the welfare state (and its aspect of relatively accessible public schooling) may have diminished the attention to social origin and fueled attention to what social disadvantages remain after completion of education (Esping-Andersen 1990; Hoem 1986). Second, the attention in the USA to the role of childhood disadvantage emphasized several dimensions of inequality that often intersect, like the class position of families, their racial make-up and the role of family dissolution. These multiple dimensions of childhood disadvantage all received extensive attention (Sassler et al. 2009; Smock and Schwartz 2020), and often in combination (Lichter and Crowley 2004). Probably most influential in this regard has been the work of Sara McLanahan. Within her *Fragile Families* project (e.g. Carlson et al. 2004; McLanahan and Percheski 2008) she and her co-workers tracked the lives of children born to unmarried parents in major cities in the USA. In addition, her *Diverging Destinies* idea suggested that the family outcomes of young adults have diverged between social classes during, and partly as a result of, the SDT (McLanahan 2004).

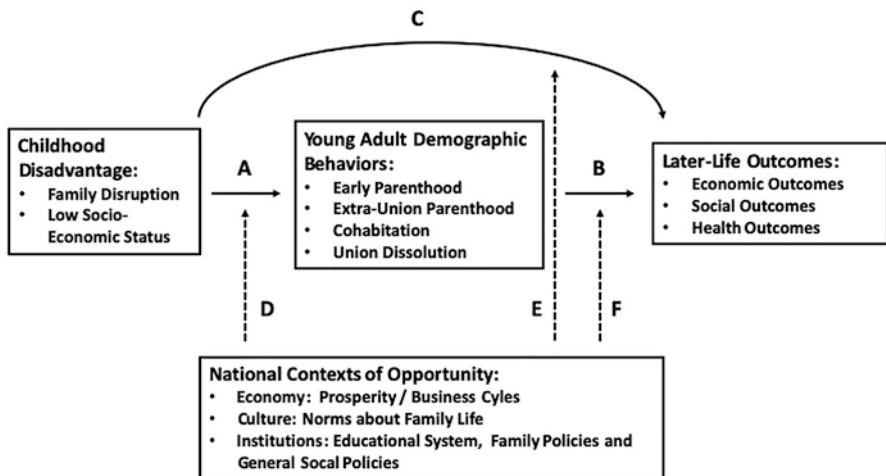
In Europe, this growing interest in the role of social inequality has manifested itself most clearly in the growing volume of work on the role of educational attainment in understanding patterns of the transition to adulthood (Niséen et al. 2020; Perelli-Harris et al. 2010; Wood et al. 2014). Theoretically, it has been most clearly articulated in the work of Perelli-Harris and her co-workers on the *Patterns of Disadvantage in demographic behaviors* (e.g. Perelli-Harris and Gerber 2011). A key line of reasoning is that demographic behaviors that have long been viewed as a sign of rejection of traditional family norms, like unmarried cohabitation and having children outside marriage, actually often are the consequence of a lack of resources to live up to traditional family norms. Thus, these behaviors are indicative of poor economic circumstances rather than of postmodern value orientations as suggested by the SDT. Another important theoretical line of reasoning is provided by the work of Blossfeld and his co-workers, who suggest that the process of globalization has led to increased economic insecurity among young adults, e.g. by increasing the likelihood of unemployment and temporary employment, hitting those with the lowest educational credentials the hardest (Blossfeld et al. 2005; Buchholz et al. 2009). Recently, this has led to a strong increase in empirical studies tracing the consequences of economic insecurity for family formation patterns (Vignoli et al. 2012; Vignoli et al. 2016).

Thus, although European demographers have engaged themselves with social inequalities in family formation patterns, they have mainly focused on inequalities stemming from achieved characteristics, in particular young adults' own level of education, rather than on inequalities stemming from ascribed characteristics, such as parents' level of education or the family structures children have experienced during childhood. As a result, the issue of how aspects of childhood disadvantage influence family formation patterns has received relatively little attention in the

European demographic literature. In our view, this is quite puzzling. It might result from the idea that inequalities in social background are assumed not to matter anymore once inequalities in own socio-economic standing are taken into account. This seems to be the outcome of a combination of two ideas, viz. (1) that the educational system can eradicate social inequalities in social background and (2) that – if social background plays a role – it is only through the intergenerational transmission of educational opportunities. Both these ideas are clearly false. Educational outcomes are still very much socially stratified (Bukodi and Goldthorpe 2013) and parental social class matters for many demographic outcomes even if own social background as a mediating process is accounted for (see references in Chap. 2 to Chap. 6). Thus, in our view, a stronger focus on how ascribed aspects of inequality influence demographic decision-making during young adulthood is warranted.

In addition, it could very well be that the consequences of childhood disadvantage are not restricted to young adulthood itself, but last way longer into later life. Partially, this ‘long arm’ of childhood disadvantage could even run through young adults’ demographic behaviors (Harden et al. 2009; Hobcraft and Kiernan 2001; Kalmijn and Monden 2010; Sigle-Rushton et al. 2005; Wolfe 2009). This leads to the question to what extent childhood disadvantage and poor demographic choices determine poor socio-economic, social and health outcomes in later phases of the life course, such as low income, unemployment, loneliness and poor health?

Thus, a first aim of this book is to examine to what extent childhood disadvantage plays a role in understanding socio-demographic outcomes in adulthood and subsequent social, economic and health outcomes later in life. This is schematically illustrated in arrows A, B and C in Fig. 1.1. One focus will be on the manner in which childhood disadvantage influences the occurrence, timing and sequencing of young adult demographic behaviors (arrow A). A second focus will be on how



**Fig. 1.1** A model of the relationships between childhood disadvantage, young adult demographic behavior, later-life outcomes and contexts of opportunity

childhood disadvantage influences later-life outcomes, both directly (arrow C) and indirectly through demographic events (arrow B).

To understand these links in reproducing inequalities, we combine insights from two perspectives, the *resource perspective* (Hobfoll 2002) and the *life-course perspective* (Elder Jr. et al. 2003). Both in sociology and psychology, the availability of resources is seen as essential to realize main goals in life, such as physical and psychological well-being. In sociology, the importance of several types of resources - or forms of 'capital' - for people's life chances is a central topic of interest. A key distinction between economic and cultural capital goes back to Weber (1968 [orig. 1922]) and Bourdieu (1984 [orig. 1979]), and figures prominently in stratification (De Graaf and Kalmijn 2001) and poverty research (Corcoran 1995). Economic capital refers to income and financial assets that people have at their disposal to improve their life chances, and cultural capital refers to lifestyles, norms and skills that they can use to improve their life chances. In addition to these two types of capital, social capital is often distinguished as a third major type of capital (Granovetter 1973). Examples of social capital that can improve children's life chances are appropriate parental supervision (Grolnick and Pomerantz 2009; Kiernan and Mensah 2011), friendship networks with children with a higher-class background (Prinstein and Dodge 2008), and access to people with knowledge about local labor markets (Granovetter 1973). In psychology, a prominent idea is that resources are of prime importance for realizing well-being (Diener and Fujita 1995): the more resources people have at their disposal the more they will be able to realize goals that contribute to well-being. In addition to the types of resources stressed in sociological discourse, psychologists emphasize the importance of personal resources - such as self-esteem, coping strategies and planful competence - to realize these goals (Clausen 1991; Hobfoll 2002).

The resource perspective offers a framework to understand both the relationship between childhood circumstances and demographic behavior in young adulthood and the relationship between these demographic behaviors and later-life outcomes. It suggests that the occurrence and timing of demographic events in young adulthood depends on the resources that are available. Low levels of resources will enhance the chances that young adults will make demographic decisions that offer short-term benefits but may negatively affect their longer-run well-being - such as early union formation and parenthood. Low levels of resources may also increase the risk that young adults will not be able to maintain potentially well-being enhancing relationships. In other words, a disadvantaged background leads to young adults having few resources at their disposal, and this - in its turn - will increase the risk of making demographic decisions that have potentially negative consequences for well-being. But the resource perspective can also elucidate the relationship between young-adult demographic behavior and later-life outcomes, because it implies that demographic behaviors have consequences for the maintenance and future acquisition of additional resources. Some demographic behaviors can increase people's resources, whereas others negatively affect resources. Demographic events that reduce people's resources will have a negative effect on their future life chances and well-being, whereas events that increase their resources will have a positive effect.

Thus, the resource perspective suggests that the availability of resources – economic, cultural, social, or personal – influences the occurrence and timing of demographic events in young adulthood, and that the occurrence and timing of these events in their turn influences the future levels of resources that people have at their disposal to realize later-life goals.

To fully appreciate the role of demographic events in the reproduction of inequality (arrow B), the resource perspective has to be complemented by a life-course perspective (Elder 1994; Elder Jr. et al. 2003; Settersten Jr. and Mayer 1997). An important insight of the life-course perspective is that the consequences of demographic events for people's future life chances depend on their timing, on their relationship with events in other life-course domains, on the reactions by significant others, on the amount of time that has passed since the event occurred, and on the content and order of subsequent events. First, events can occur on- or off-time (Settersten Jr. and Hagestad 1996). Events are on-time when their timing is in line with what is common in a certain society or social group, whereas they are off-time if the timing does not correspond to common time-tables. Apart from the fact that off-time events may be disapproved off more than on-time ones and that off-time events often have more serious repercussions for other life domains than on-time events, another potential drawback of off-time events is that no clear scripts for off-time events are available that can guide people in how to deal with the event. This often worsens the already negative consequences of specific off-time demographic events. Second, demographic events often have direct or indirect repercussions for events in other life domains (Aassve et al. 2006). For instance, if one has a child while still enrolled in school, this will often lead to dropping-out of school and to a lower level of educational attainment (Klepinger et al. 1995). This will have negative consequences for one's future earnings. For women, having children or entering a partner relationship often lead to a reduction in working hours – or sometimes even to a withdrawal from the labor market altogether (Del Boca et al. 2008). Divorce, on the other hand, may lead to re-entry into the labor market, but often at relatively low levels – either because women can only work part-time in order to combine parenthood and employment or because their human capital has depreciated as a result of prolonged absence from the labor market (Van Damme et al. 2009). Third, some demographic events may be normatively approved off, whereas other are met with disapproval (Liefbroer and Billari 2010). If people experience events that are disapproved off, they might be confronted with sanctions or become stigmatized. Examples of demographic behaviors that can be met with disapproval are divorce (especially if the couple has young children), unmarried cohabitation, and having children outside a stable union (Liefbroer and Fokkema 2008). Ironically, also the non-occurrence of expected demographic events, like voluntary childlessness, could be met with sanctions, and thus negatively influence people's future life chances (Merz and Liefbroer 2012). Fourth, to some degree, the negative effects of demographic events may wane as time goes by, for instance because people learn to adjust to a new lifestyle, stigma wears off, or attachment to the labor market is regained (Lucas 2007; Peters and Liefbroer 1997). Thus, it could be expected that the negative impact of events becomes smaller the more time has elapsed since the

negative event occurred. Fifth, negative effects of demographic events may be mitigated or strengthened by subsequent life events. Theories of cumulative disadvantage (Crystal and Shea 1990; Dannefer 2003) suggest that adverse events increase the risk of subsequent adverse events and thus lead to an accumulation of negative circumstances that eventually result in seriously worsened late-life outcomes. For instance, if young adults who have experienced a union dissolution find a new partner, part or all of the negative effects of union dissolution may be redressed. However, it could also be that an accumulation of negative life events occurs, for instance because young adults with a young child enter into a new relationship too fast and are more prone to experience another union dissolution.

In combination, the resource perspective and the life-course perspective suggest that: (a) the availability of resources influences the occurrence, timing and sequencing of demographic events in young adulthood, and (b) that these events in themselves lead to further changes in the availability of resources. To what extent demographic events lead to a change in the availability of resources, and to what extent this influences later-life outcomes depends on the timing and patterning of these events.

## 1.2 Studying Social Inequality in Socio-Demographic Outcomes in Comparative Perspective

As the review of the literature in the previous section makes clear, there is an abundance of empirical evidence that childhood disadvantage influences the adult life course. However, a marked limitation of most existing research is that it examines these relationships within one societal context only. In some countries the potentially negative consequences of inequalities are probably more readily buffered than in others. Within demography, a lot of effort has been invested in examining cross-national differences in demographic outcomes (Frejka and Sobotka 2008; Sobotka et al. 2011), and to a lesser degree to which extent the influence of young adults' own educational credentials is linked to socio-demographic outcomes (Härkönen and Dronkers 2006; Perelli-Harris et al. 2010; Wood et al. 2014). However, attention to cross-national differences in the consequences of childhood disadvantage for socio-demographic outcomes has been very limited. This issue is central to this book. Our contention is that societal contexts matter. The resource perspective discussed above suggests that the availability of resources influences demographic behaviors in young adulthood and later-life outcomes and that children growing up disadvantaged usually have fewer resources at their disposal than children growing up in more fortunate circumstances. If so, societal contexts that are more generous in supplementing resources and offering opportunities to families that are lacking them will probably show weaker links between childhood disadvantage and adult outcomes than societies that are less generous in this regard. The key contribution of this book is that it examines this contextual variation and focuses on one *general*



explanation for this contextual variation: the strength of the relationships depends on the opportunities that the context offers to abate the adverse impact of economic and social deprivation. Contexts that offer good opportunities to people to escape situations of deprivation (e.g. social security systems that offer financial support to people in financial jeopardy, educational systems that stimulate upward mobility, normative systems that do not stigmatize people with deviant behaviors, and economic prosperity) are expected to weaken the links between childhood disadvantage, young adult demographic behavior, and later-life outcomes.

The ‘contexts of opportunity hypothesis’ posits that contexts that offer opportunities to young children, young adults, and their families to improve their life situation in terms of the availability of economic, cultural, social and personal resources will weaken the links between childhood disadvantage, demographic behavior and later-life outcomes. This ‘contexts of opportunity’ hypothesis is a general hypothesis that applies to all types of contexts. It could be used to study temporal changes in the links between childhood disadvantage, young adult demographic behavior and later-life outcomes within one specific geographical unit, as contexts can change over time, for instance as a result of policy interventions or as a result of exogenous change in economic or cultural circumstances. It could, however, also be used to study differences in these links across geographical units at one point in time, as the strength of these links might depend on geographical differences in economic, cultural or institutional contexts. The importance of the geographical dimension has been stressed by geographers in the ‘geography of opportunity’ literature (Galster and Killen 1995; Rosenbaum et al. 2002). In that literature, the emphasis is on variation in opportunities at the level of neighborhoods. However, one could also study contextual variation at higher scale levels, like towns, regions, or countries. In this book, the emphasis is on differences in contexts of opportunity at the level of nation states. The choice for a focus on the country level is based to a large extent on the fact that it is the most appropriate level to test the potential role of government policies. In addition, variation in economic and cultural factors is also often larger at the country level than at lower geographical levels.

In studying geographical and temporal variation, we pay attention to three types of national ‘contexts of opportunity’. First, the general economic situation is expected to be important (Fischer and Liefbroer 2006). In times or in places with poor overall economic prospects, those with a bad starting position are usually hit hardest by an adverse economic climate (Fallon and Lucas 2002). Therefore, the better the economic situation is, the weaker the links between childhood disadvantage, young adult demographic behavior and later-life outcomes will be. Second, cultural factors are expected to be important. In particular, norms and attitudes concerning family life and social disadvantage are deemed to be crucial (Soons and Kalmijn 2009). In societies where people in disadvantaged positions – the poor, the unemployed, single parents, the divorced, etc. – are stigmatized, it will be more difficult for the disadvantaged to escape their situation, either as a result of covert discrimination or as a result of the disadvantaged themselves developing a low self-image (Major and O’Brien 2005). Thus, the less deviant behavior is stigmatized, the weaker the links between childhood disadvantage, young adult demographic

behavior and later-life outcomes are expected to be. Third, institutional arrangements are expected to matter (e.g. Del Boca et al. 2008; Uunk 2004; Van Damme et al. 2009). For instance, the openness of the educational system is important. The lower the financial hurdles within an educational system are, and the better prepared that system is to reduce initial differences in cultural resources – e.g. by low levels of tracking –, the more likely it is that an educational system will stimulate upward mobility among those of a disadvantaged social background (Hanuschek and Wössmann 2006; Pfeffer 2008). Thus, the more open an educational system is, the weaker the links between childhood disadvantage, young adult demographic behavior and later-life outcomes are expected to be. Family policies and general social policies also are important institutional factors. Policies that support families and people in disadvantaged situations may facilitate them or their children to escape poverty or to dampen the most adverse consequences of social disadvantage (Esping-Andersen 1990; Bäckman 2009). Therefore, the better the welfare system buffers social risks, the weaker the links between childhood disadvantage, young adult demographic behavior and later-life outcomes are expected to be.

Thus, the second aim of this book is to examine the ‘contexts of opportunity’ hypothesis. The role of societal contexts is graphically illustrated in Fig. 1.1. The arrows D, E and F in represent how individual effects discussed in the previous section differ across national contexts of opportunity. Economic, cultural and institutional contexts of opportunities are expected to moderate the links between childhood disadvantage, young adult demographic behavior, and later life outcomes. All chapters in this book focus on different aspects of this relationship.

### 1.3 Outline of the Book

Next to the introductory chapter (Chap. 1), this book contains 8 additional chapters providing theoretical, empirical and methodological insights with great value for the life-course framework and cross-national comparative research. The first three chapters (Chap. 2, 3 and 4) focus on the link between childhood disadvantage and family transitions in young adulthood. Chapter 5 concentrates on well-being outcomes in later-life (socio-emotional and economic) and the manner in which they are influenced by family-related experiences in young and mid adulthood. Chapters 6 and 7 are methodological chapters introducing novel analytical techniques with great applicability for research using hierarchically nested data structures (often the case in cross-national comparative research) and testing causal mechanisms in life-course analysis. Chapter 8 provides theoretical reflections on the reproduction of social inequality throughout the life course. The final chapter, Chap. 9, displays an overview of all research conducted within the CONOPP project, the lessons learned from empirically studying cross-national variation in the stratification of demographic behavior, as well as suggestions for future progress in understanding demographic processes. A short description of the content of each chapter can be found below.

In Chap. 2, Brons concentrates on explaining the social stratification of union formation and union dissolution. This chapter provides valuable knowledge for life-course theory and research by revealing the role of parental socio-economic status – reflecting a (dis)advantaged background – in explaining the timing and type of union dynamics. Moreover, this chapter provides unprecedented evidence on cross-national variation in the association between parental SES and union dynamics, and tests of whether the advancement of a country in the SDT (measured by the prevalence of cohabitation or divorce rate) explains the observed variation. The general conclusion is that a higher parental SES delays entrance into a co-residential union, that the delaying effect is stronger for married individuals than for cohabiters, and that such parental background increases the risk of union dissolution. Moreover, the impact of parental SES on union dynamics varies considerably across countries and family disadvantage plays a less important role in more individualistic or economically developed countries – possibly because one’s family-related transitions are less connected to values and resources of the family of origin.

In Chap. 3, Koops also studies the manner in which parental SES affects union formation but she focuses on the partnership context around entrance into parenthood. In this chapter she covers three major topics. First, she studies the effect of parental SES on partner status (single, cohabiting or married) at first birth and distinguishes between direct and indirect effects (with the indirect effects transmitted through one’s own education). Second, Koops studies the link between social background and fertility not only for females (as most previous studies do), but also for males. Third, she studies cross-national variation in effects using data on European and North-American countries. The results presented in this chapter provide support for the Pattern of Disadvantage framework as women with lower SES are more likely to have a birth within cohabitation or while being single than within marriage. Interestingly, Koops finds minimal differences between men and women in the effect of social background on the likelihood of having a first birth within marriage or cohabitation. Particularly interesting are the results showing considerable cross-national differences in the effects investigated (with countries differing in the way parental SES directly affects partnership context or is transmitted intergenerationally through one’s own SES).

In Chap. 4, Mooyaart concentrates on two topics. First, he provides evidence for contextual differences in the role of socio-economic background on family formation behavior in young adulthood (union formation and entry into parenthood). His research is unique as it studies context: (a) in a historical perspective (changes in effects over time starting with the 1930s); (b) across the life course (changes with age over the young adult period); and (c) in a cross-national comparative (comparing effects across different nations). Particularly interesting in Mooyaart’s research is the holistic approach in investigating family formation – as pathways reflecting successions of events defined by their type, timing, quantum and duration. Second, next to family formation behavior, he investigates economic stratification in young adulthood and expands current understanding regarding the consequences of a disadvantaged family background on income trajectories. His analyses reveal that, although family formation patterns have changed over time, parental

socio-economic background continues to stratify family formation pathways, and that over time the divide between social classes in family formation patterns increased. Such results align with the Pattern of Disadvantage and Diverging Destinies arguments. He also finds evidence that the impact of parental SES persists throughout young adulthood, but that it becomes weaker over time and differs per type of union (marriage vs cohabitation). The investigation of economic context in young adulthood reveals that socio-economic disadvantages in the family of origin negatively affect young adults' economic position via the manner in which they develop their career and family pathways.

In Chap. 5, Zoutewelle-Terovan and Muller focus on outcomes in later life phases (mid and late adulthood) and explain the manner in which later-life socio-emotional and economic well-being (loneliness, employment and income) are influenced by family-related events (e.g. union formation, parenthood) occurring earlier in life. Their research advances knowledge on the topic on at least three important aspects. First, they observe transitions in the family domain through the lens of social customs and provide evidence on the manner in which non-normative family behaviors (e.g. non-transitions, off-time transitions, non-standard trajectories) affect later-life well-being outcomes. Second, they provide evidence on cross-national variation in the effects investigated by analyzing a wide range of European countries. Finally, their analyses on cross-national variation do not stop at exposing heterogeneity, but further try to explain variation through culturally-embedded norms and values regarding family formation and national economic circumstances. In a nutshell, the authors argue for the presence of a “non-normative family penalty for loneliness” (as the loneliest individuals in later-life are the ones who do not experience family transitions or postpone such events) and a “non-normative family bonus for women’s economic outcomes” (as non-transitions in the family domain are linked to better economic circumstances in later life). Moreover, in their research, country-level indicators such as traditional family norms and female labor force participation during child-rearing years were able to explain only a part of the cross-national variation in the link between family-related experiences and later-life well-being.

Chapter 6 is a methodological chapter in which Liefbroer and Zoutewelle-Terovan discuss the analysis of hierarchically nested data structures with two levels of analysis and a small level-2 sample size. The chapter starts with a discussion on the use of multilevel modeling in the analysis of nested data and discusses estimation biases when analyzing a low number of level-2 units. Further, the authors offer an overview of alternative techniques to multilevel modeling and explain several limitations of these alternatives in the context of cross-national comparative research. However, the main goal of the chapter is to introduce a new method of analysis – the 2-step meta-analytical approach – allowing to test hypotheses similarly to hypotheses tested in multilevel models and providing reliable estimates even when few countries are analyzed. The method is illustrated for both continuous and binary dependent variables and results are compared to the classic multilevel approach. The applicability of the method is not restricted to cross-national research, but extends to any research using nested data with few level-2 units.

In Chap. 7, Han and Elzinga focus on modeling causal chains in the life course of individuals. As life-course research to date mainly focuses on classifying life-course patterns and understanding the manner in which they explain later-life outcomes, it remains difficult to properly understand the driving forces that generate the chain of consecutive events. In this chapter, the authors discuss the validity of life-course generating models and the minimum requirements to accomplish that. They argue that methods currently used in life-course research do not satisfy all requirements, and propose the use of Hidden Markov Models in modeling the generative mechanisms involved. They demonstrate the value of such models by applying them to transitions in different life-course domains (education, family, work).

In Chap. 8, Hiekel focuses on theoretical mechanisms explaining the intergenerational transmission of social inequality in demographic behavior. The aim of this chapter is threefold. First, the author provides an overview of various theoretical models of transmission explaining the manner in which childhood disadvantage shapes individuals' life courses in adulthood. The contrast between economic and cultural perspectives in explaining social inequality is central. Second, she discusses the theoretical implications of the findings emerged from the CONOPP project. The final part of the chapter includes suggestions for future research aiming to push boundaries in understanding mechanisms of intergenerational social inequality.

In the final chapter of the book, Chap. 9, Liefbroer discusses key issues related to the study of social inequalities in a cross-national perspective. First, he presents the central theoretical frameworks that can be used to derive hypotheses on cross-national differences in the relationship between youth disadvantage and family formation. Further, he focuses on methodological challenges scholars may be confronted with in studying cross-national differences in effects. Finally, he presents an overview of the main findings within the CONOPP project, draws some final conclusions on the reproduction of inequality across the life-course and makes suggestions for future empirical endeavors.

**Acknowledgements** The research leading to these results has received funding from the European Research Council under the European Union's Seventh Framework Programme (FP/2007-2013)/ERC Grant Agreement n. 324178.

## References

- Aassve, A., S. Burgess, C. Propper, and M. Dickson. 2006. Employment, family union and child-bearing decisions in Great Britain. *Journal of the Royal Statistical Society A* 169 (4): 781–804.
- Bäckman, O. 2009. Institutions, structures and poverty: A comparative study of 16 countries, 1980–2000. *European Sociological Review* 25 (2): 251–264.
- Beck, U., and E. Beck-Gernsheim. 2002. *Individualization. Institutionalized individualism and its social and political consequences*. London: Sage.
- Blossfeld, H.-P., E. Klijzing, M. Mills, and K. Kurz. 2005. *Globalization, uncertainty and youth in society*. London: Routledge.
- Bourdieu, P. 1984. *Distinction. A social critique of the judgement of taste*. London: Routledge.

- Buchholz, S., D. Hofäcker, M. Mills, H.-P. Blossfeld, K. Kurz, and H. Hofmeister. 2009. Life courses in the globalization process: The development of social inequalities in modern societies. *European Sociological Review* 25 (1): 53–71.
- Bukodi, E., and J.H. Goldthorpe. 2013. Decomposing 'social origins': The effects of parents' class, status, and education on the educational attainment of their children. *European Sociological Review* 29 (5): 1024–1039.
- Carlson, M., S. McLanahan, and P. England. 2004. Union formation in fragile families. *Demography* 41 (2): 237–261.
- Clausen, J.S. 1991. Adolescent competence and the shaping of the life course. *American Journal of Sociology* 96 (4): 804–842.
- Coleman, D. 2004. Why we don't have to believe without doubting in the 'Second Demographic Transition': Some agnostic comments. *Vienna Yearbook of Population Research* 2: 11–24.
- Corcoran, M. 1995. Rags to rags: Poverty and mobility in the United States. *Annual Review of Sociology* 21 (1): 237–267.
- Crystal, S., and D. Shea. 1990. Cumulative advantage, cumulative disadvantage and inequality among elderly people. *The Gerontologist* 30 (4): 437–443.
- Dannefer, D. 2003. Cumulative advantage/disadvantage and the life course: Cross-fertilizing age and social science theory. *Journal of Gerontology: Social Sciences* 58 (6): S327–S337.
- De Graaf, P.M., and M. Kalmijn. 2001. Trends in the intergenerational transmission of cultural and economic status. *Acta Sociologica* 44 (1): 51–66.
- Del Boca, D., S. Pasqua, and C. Pronzato. 2008. Motherhood and market work decisions in institutional context: A European perspective. *Oxford Economic Papers* 61: i147–i171.
- Diener, E., and F. Fujita. 1995. Resources, personal strivings, and subjective well-being: A nomothetic and ideographic approach. *Journal of Personality and Social Psychology* 68 (5): 926–935.
- Du Bois-Reymond, M. 1998. 'I don't want to commit myself yet': Young people's life concepts. *Journal of Youth Studies* 1 (1): 63–79.
- Elder, G.H. 1994. Time, human agency, and social change: Perspectives on the life course. *Social Psychology Quarterly* 57 (1): 4–15.
- Elder, G.H., Jr., M. Kirkpatrick Johnson, and R. Crosnoe. 2003. The emergence and development of life course theory. In *Handbook of the life course*, ed. J.T. Mortimer and M.J. Shanahan, 3–19. New York: Kluwer Academic/Plenum Publishers.
- Esping-Andersen, G. 1990. *The three worlds of welfare capitalism*. Oxford: Polity Press.
- Fallon, P.R., and R.E.B. Lucas. 2002. The impact of financial crises on labor markets, household incomes and poverty: A review of evidence. *The World Bank Research Observer* 17 (1): 21–45.
- Fischer, T.F.C., and A.C. Liefbroer. 2006. For richer, for poorer. The impact of macro-economic conditions on union dissolution rates in the Netherlands 1972–1996. *European Sociological Review* 22 (5): 519–532.
- Frejka, T., and T. Sobotka. 2008. Fertility in Europe: Diverse, delayed and below replacement. *Demographic Research* 19 (3): 15–46.
- Furstenberg, F.F., J.A. Levine, and J. Brooks-Gunn. 1990. The children of teenage mothers: Patterns of early childbearing in two generations. *Family Planning Perspectives* 22 (2): 54–61.
- Galster, G., and S. Killen. 1995. The geography of metropolitan opportunity: Housing mobility and the many faces of social capital. *Housing Policy Debate* 9: 177–221.
- Giddens, A. 1991. *Modernity and self-identity. Self and society in the late modern age*. Cambridge: Polity Press.
- Granovetter, M.S. 1973. The strength of weak ties. *American Journal of Sociology* 78: 1360–1380.
- Grolnick, W.S., and E.M. Pomerantz. 2009. Issues and challenges in studying parental control: Toward a new conceptualization. *Child Development Perspectives* 3 (3): 165–170.
- Hanuschek, E.A., and L. Wössmann. 2006. Does educational tracking affect performance and inequality? Differences-in-differences evidence across countries. *The Economic Journal* 116 (510): C63–C76.
- Harden, A., G. Brunton, A. Fletcher, and A. Oakley. 2009. Teenage pregnancy and social disadvantage: Systematic review integrating controlled trials and qualitative studies. *British Medical Journal* 339: b4254.

- Härkönen, J., and J. Dronkers. 2006. Stability and change in the educational gradient of divorce. A comparison of seventeen countries. *European Sociological Review* 22 (5): 501–517.
- Hitlin, S., and G.H. Elder. 2007. Time, self, and the curiously abstract concept of agency. *Sociological Theory* 25 (2): 170–191.
- Hobcraft, J., and K. Kiernan. 2001. Childhood poverty, early motherhood and adult social exclusion. *British Journal of Sociology* 52 (3): 495–517.
- Hobfoll, S.E. 2002. Social and psychological resources and adaptation. *Review of General Psychology* 6 (4): 307–324.
- Hoem, J.M. 1986. The impact of education on modern family-union initiation. *European Journal of Population* 2 (2): 113–133.
- Inglehart, R. 1977. *The silent revolution. Changing values and political styles among Western publics*. Princeton: Princeton University Press.
- Inglehart, R., and W.E. Baker. 2000. Modernization, cultural change, and the persistence of traditional values. *American Sociological Review* 65 (1): 19–51.
- Kahn, J.R., and K.E. Anderson. 1992. Intergenerational patterns of teenage fertility. *Demography* 29 (1): 39–57.
- Kalmijn, M., and C. Monden. 2010. Poverty and union formation among never-married single mothers in the Netherlands, 1989–2005. *Population Studies* 64 (3): 263–274.
- Kiernan, K.E., and F.K. Mensah. 2011. Poverty, family resources and children's early educational attainment: The mediating role of parenting. *British Educational Research Journal* 37 (2): 317–336.
- Klepinger, D.H., S. Lundberg, and R.D. Plotnick. 1995. Adolescent fertility and the educational attainment of young women. *Family Planning Perspectives* 27: 23–28.
- Lesthaeghe, R. 2014. The second demographic transition: A concise overview of its development. *Proceedings of the National Academy of Sciences* 111 (51): 18112–18115.
- Lesthaeghe, R., and D.J. Van de Kaa. 1986. Twee demografische transitities? In *Bevolking: groei en krimp*, ed. D.J. Van de Kaa and R. Lesthaeghe, 9–24. Deventer: Van Loghum Slaterus.
- Lichter, D.T., and M.L. Crowley. 2004. Welfare reform and child poverty: Effects of maternal employment, marriage, and cohabitation. *Social Science Research* 33 (3): 385–408.
- Liefbroer, A.C., and F.C. Billari. 2010. Bringing norms back in: A theoretical and empirical discussion of their importance for understanding demographic behaviour. *Population, Space and Place* 16 (4): 287–305.
- Liefbroer, A.C., and T. Fokkema. 2008. Recent trends in demographic attitudes and behaviour: Is the second demographic transition moving to Southern and Eastern Europe? In *Demographic challenges for the 21st century. A state of the art in demography*, ed. J. Surkyn, P. Deboosere, and J. van Bavel, 115–141. Brussel: Vrije Universiteit Press.
- Lucas, R.E. 2007. Adaptation and the set-point model of subjective well-being: Does happiness change after major life events? *Current Directions in Psychological Science* 16 (2): 75–79.
- Major, B., and L.T. O'Brien. 2005. The social psychology of stigma. *Annual Review of Psychology* 56: 393–421.
- McLanahan, S. 2004. Diverging destinies: How children are faring under the second demographic transition. *Demography* 41 (4): 607–627.
- McLanahan, S., and L. Bumpass. 1988. Intergenerational consequences of family disruption. *American Journal of Sociology* 94 (1): 130–152.
- McLanahan, S., and C. Percheski. 2008. Family structure and the reproduction of inequalities. *Annual Review of Sociology* 34 (1): 257–276.
- Merton, R.K. 1968. *Social theory and social structure. 1968 enlarged edition*. New York: The Free Press.
- Merz, E.-M., and A.C. Liefbroer. 2012. The attitude toward voluntary childlessness in Europe: Cultural and institutional explanations. *Journal of Marriage and Family* 74 (3): 587–600.
- Niséen, J., S. Klüsener, J. Dahlberg, L. Dommermuth, A. Jasilioniene, M. Kreyenfeld, T. Lapegård, P. Li, P. Martikainen, K. Neels, and B. Riederer. 2020. Educational differences in cohort fertility across sub-national regions in Europe. *European Journal of Population*: 1–33.

- Perelli-Harris, B., and T.P. Gerber. 2011. Nonmarital childbearing in Russia: Second demographic transition or pattern of disadvantage? *Demography* 48 (1): 317–342.
- Perelli-Harris, B., W. Sigle-Rushton, M. Kreyenfeld, T. Lappegård, R. Keizer, and C. Berghammer. 2010. The educational gradient of childbearing within cohabitation in Europe. *Population and Development Review* 36 (4): 775–801.
- Peters, A., and A.C. Liefbroer. 1997. Beyond marital status: Partner history and well-being in old age. *Journal of Marriage and the Family* 59: 687–699.
- Pfeffer, F.T. 2008. Persistent inequality in educational attainment and its institutional context. *European Sociological Review* 24: 543–565.
- Piketty, Th. 2014. *Capital in the twenty-first century*. Cambridge: Harvard University Press.
- Prinstein, M.J., and K.A. Dodge. 2008. *Understanding peer influence in children and adolescents*. New York: The Guilford Press.
- Rosenbaum, J.E., L. Reynolds, and S. DeLuca. 2002. How do places matter? The geography of opportunity, self-efficacy and a look inside the black box of residential mobility. *Housing Studies* 17 (1): 71–82.
- Sassler, S., A. Cunningham, and D.T. Lichter. 2009. Intergenerational patterns of union formation and relationship quality. *Journal of Family Issues* 30 (6): 757–786.
- Settersten, R.A., Jr., and G.O. Hagestad. 1996. What's the latest? Cultural age deadlines for family transitions. *The Gerontologist* 36 (2): 178–188.
- Settersten, R.A., Jr., and K.U. Mayer. 1997. The measurement of age, age structuring and the life course. *Annual Review of Sociology* 23 (1): 233–261.
- Sigle-Rushton, W., J. Hobcraft, and K. Kiernan. 2005. Parental divorce and subsequent disadvantage: A cross-cohort comparison. *Demography* 42 (3): 427–446.
- Smock, P.J., and C.R. Schwartz. 2020. The demography of families: A review of patterns and change. *Journal of Marriage and Family* 82 (1): 9–34.
- Sobotka, T., V. Skirbekk, and D. Philipov. 2011. Economic recession and fertility in the developed world. *Population and Development Review* 37 (2): 267–306.
- Soons, J.P.M., and M. Kalmijn. 2009. Is marriage more than cohabitation? Well-being differences in 30 European countries. *Journal of Marriage and Family* 71 (5): 1141–1157.
- Unk, W. 2004. The economic consequences of divorce for women in the European Union: The impact of welfare state arrangements. *European Journal of Population* 20 (3): 251–285.
- Van Damme, M., M. Kalmijn, and W. Unk. 2009. The employment of separated women in Europe: Individual and institutional determinants. *European Sociological Review* 25 (2): 183–197.
- Van de Kaa, D.J. 1987. Europe's second demographic transition. *Population Bulletin* 42 (1).
- . 2001. Postmodern fertility preferences: From changing value orientations to new behavior. In *Global fertility transition*, ed. R.A. Bulatao and J.B. Casterline, 290–331. New York: Population Council.
- Vignoli, D., S. Drefahl, and G. De Santis. 2012. Whose job instability affects the likelihood of becoming a parent in Italy? A tale of two partners. *Demographic Research* S12 (2): 41–62.
- Vignoli, D., V. Tocchioni, and S. Salvini. 2016. Uncertain lives: Insights into the role of job precariousness in union formation in Italy. *Demographic Research* 35 (10): 253–282.
- Weber, M. 1968. *Economy and society*. New York: Bedminster.
- Wilson, W.J. 1987. *The truly disadvantaged: The inner city, the underclass, and public policy*. Chicago: University of Chicago Press.
- Wolfe, J.D. 2009. Age at first birth and alcohol use. *Journal of Health and Social Behavior* 50 (4): 395–409.
- Wood, J., K. Neels, and T. Kil. 2014. The educational gradient of childlessness and cohort parity progression in 14 low fertility countries. *Demographic Research* 31 (46): 1365–1416.
- Zaidi, B., and S.P. Morgan. 2017. The second demographic transition theory: A review and appraisal. *Annual Review of Sociology* 43 (1): 473–492.



**Open Access** This chapter is licensed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.



# Chapter 2

## Cross-National Variation in the Link Between Parental Socio-Economic Status and Union Formation and Dissolution Processes



M. D. (Anne) Brons

### 2.1 Introduction

The family of origin plays an important role in the demographic choices that young adults make. There is a large body of literature linking childhood socio-economic conditions and living arrangements to the timing and type of their demographic choices (e.g. Barber 2001; Kiernan and Hobcraft 1997; McLanahan and Percheski 2008; Sigle-Rushton et al. 2005). Previous studies have shown that young adults from advantaged or high-status families delay their first co-residential union, their first marriage, and the birth of the first child compared to young adults from disadvantaged or low-status families (e.g. Axinn and Thornton 1992; Barber 2001; Dahlberg 2015; South 2001; Wiik 2009). With regard to young adults' demographic choices, the focus in this chapter is on union formation and dissolution, which is called union dynamics from here onwards. Starting a co-residential union is one of the demographic choices that most young adults make, but the timing, the type of union chosen and also the risk to dissolve a union are socially stratified. It is important to examine to what extent family (dis)advantage influences the union formation and dissolution process of young adults, since it can have potential negative consequences for their subsequent life course. People who enter a co-residential union at an early age have, for example, a higher risk to dissolve this union (Berrington and Diamond 1999). Moreover, previous research shows potential negative consequences of unmarried cohabitation as well; cohabiters enjoy lower health quality, receive fewer social provisions and are also less committed to their relationship, which results in a higher risk to dissolve a union (e.g. Soons and Kalmijn 2009). Finally, existing research also shows that people who dissolve a union can experience many negative consequences, such as lower well-being, economic hardship,

---

M. D. (Anne) Brons (✉)  
Utrecht University, Utrecht, The Netherlands  
e-mail: [m.d.brons@uu.nl](mailto:m.d.brons@uu.nl)

and loss of emotional support (Amato 2000). The first research question this chapter attempts to answer is:

To what extent is there a link between parental socio-economic status and union formation and dissolution?

Answering this first research question will increase our understanding of how social inequalities in the family domain are produced and reproduced, providing fresh insights into one of the key questions in social science.

A limitation of most existing research is that it has mostly examined the link between family (dis)advantage and union dynamics within a single societal context. Should we expect that the effect is universal and replicates across countries? Authors have argued that effects differ across countries due to cultural, economic and institutional differences between countries. For example, in societies where the family is more central, the effect of family (dis)advantage can be expected to be stronger than in societies in which individualism plays a greater role (Inglehart 2006). A similar kind of expectation can also be formulated concerning the economic development of a country: in economically weaker societies, family (dis)advantage is expected to have a stronger effect on demographic choices of young adults (Schneider and Hastings 2015). This is because young people in these countries depend more on their parents and their resources. Finally, welfare arrangements may also play a role in explaining cross-national variation. If a society has a non-generous welfare regime, young people are generally more dependent on their parents and their resources, so the influence of family (dis)advantage can be expected to be stronger in these societies (Esping-Andersen 1990; Bäckman 2008).

Whereas the existing literature acknowledges the presence of cross-national differences in the role of demographic choices in producing and reproducing social inequalities, empirical evidence supporting and explaining these differences is scarce. This chapter starts from the assumptions of the Second Demographic Transition (SDT) theory as a key explanation for this cross-national variation (the choice of this theoretical orientation will be extensively elaborated in the next section). Thus, the second research question this chapter addresses is:

To what extent does cross-national variation exist in the link between parental socio-economic status and union formation and dissolution and how can this cross-national variation be explained?

In conclusion, this chapter combines the family context with the societal context, which makes this chapter innovative and relevant. If we understand why family (dis)advantage is more important in some countries than in others, for example, due to differences in cultural norms and values, we have unraveled one piece of the bigger question why the level of social inequality differs considerably across countries. First, this chapter provides a theoretical discussion on mechanisms explaining the association between parental socio-economic status (SES) and union dynamics (union formation and dissolution). Second, based on the SDT theory, this chapter addresses why cross-national variation can be expected with regard to the link between parental SES and union dynamics and how this variation, theoretically, can

be explained. Third, a collection of integrated results is shown from existing studies which are recently conducted by the author of this chapter within the Context of Opportunities (CONOPP) project.

## 2.2 Family of Origin and Adult Family Dynamics

Previous studies have shown that young adults from advantaged families delay their first co-residential union and their first marriage compared to young adults from disadvantaged families (e.g. Axinn and Thornton 1992; Barber 2001; Dahlberg 2015; South 2001; Wiik 2009). But why is a higher parental socio-economic status linked to delays in the demographic choices of their offspring? A first explanation is that the delay is in fact determined by the educational level and enrollment of young adults themselves. Higher-SES parents are likely to have higher educational aspirations for their children than lower-SES parents. As a result, children of advantaged families are motivated to invest more energy and time in their educational career, which often leads them to delay romantic unions or parenthood at young ages (e.g. Axinn and Thornton 1992; South 2001). However, whereas young adults' own educational achievement acts as an important mediator between parental SES and demographic transitions, many existing studies indicate that there still remains a significant impact of parental SES (e.g. Dahlberg 2015; Mooyaart and Liefbroer 2016; Wiik 2009). Men and women with higher status parents tend to delay demographic transitions to later ages, even if one takes their level of education and actual enrollment in education into account. Explanations for this remaining link between family (dis)advantage and demographic choices are higher standards regarding their future partner or higher consumption aspirations among young adults from advantaged backgrounds (Axinn and Thornton 1992; Easterlin 1980; Oppenheimer 1988). A second explanation could be that high-SES parents socialize their children to enter a romantic union or a marriage at a later age than lower-SES parents (Wiik 2009). Parents want to have a say in the union formation process, since it is one of the most serious decisions young adults face and which can have enduring negative consequences on the further life course if young adults form a union at an early age. Previous research shows, for example, that those who start a co-residential union young have a higher risk to dissolve that union compared with late starters (Lyngstad 2006). A possible explanation why high-SES parents are more successful in persuading their offspring to avoid early entry into a union can be that these parents are more aware of the potential negative consequences of choices made in the early life-course (Wiik 2009).

Parental status influences not only the timing of demographic events, but also the type of demographic choices (e.g. cohabitation, marriage, union dissolution). Previous research shows that parental SES is differently related to cohabitation versus marriage as first union type (Wiik 2009). Given that marriage is less easily reversible than unmarried cohabitation, parents might want to have a higher stake in

the timing of their children's marriage than their cohabitation. Moreover, young adults from high-status families more often choose for cohabitation instead of marriage as first union compared to young adults from low-status families (Wiik 2009; Mooyaart and Liefbroer 2016). A higher level of education has been associated with more liberal attitudes and values with regard to the choice to cohabit (Billari and Liefbroer 2010). High-SES parents are likely to transmit these values to their children, which can result in a higher probability to cohabit for young adults from advantaged backgrounds.

Another demographic choice, namely union dissolution, is also associated with parental SES. A couple of studies have found that adults from high-status families have a higher risk to dissolve their union compared to adults from low-status families (e.g. Lyngstad 2004, 2006; Todesco 2013). This association has been theorized as reflecting class-related socio-cultural factors or financial support from the parents. Sociocultural factors or values linked to higher-class backgrounds are related to a "bourgeois culture" in which divorce is more accepted (Hoem and Hoem 1992; Lyngstad 2006). Just as education is positively related to the approval of cohabitation, it is also shown to be positively related to the approval of divorce (Rijken and Liefbroer 2012). Moreover, high educated parents are in a better situation to financially support their children if they dissolve their union, which could be another explanation for the impact of parental SES on union dissolution.

### **2.3 Cross-National Variation Explained Through the Second Demographic Transition (SDT) Theory**

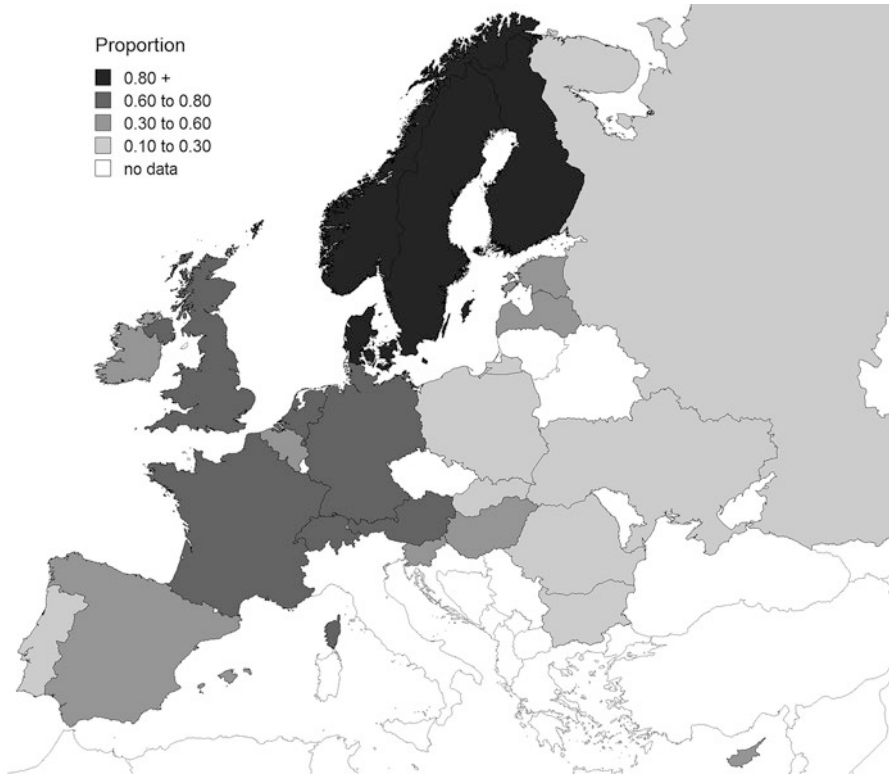
A limitation of most existing research is that it has mostly examined the link between family (dis)advantage and union dynamics within a single societal context, while this link can be expected to vary between countries, due to cultural, economic and institutional differences between them. In this chapter, the focus will be on the Second Demographic Transition (SDT) theory, first proposed by Lesthaeghe and Van de Kaa in 1986, as a key explanation for this expected cross-national variation. It is called the Second Demographic Transition to mark the distinction with the First Demographic Transition. During the first demographic transition, which began in the early 1800s and continued into the early 1900s in Western industrialized countries, mortality and fertility declined mainly due to industrialization and in particular associated with social and economic development, modernization, improvements in food supply and sanitation.

Since the 1960s/1970s, the SDT started and primary trends of this second transition include delays in fertility and marriage and increases in cohabitation, divorce and non-marital childbearing (McLanahan 2004; Van de Kaa 1987; Zaidi and Morgan 2017). The SDT theory has often been used to describe and explain cross-national variation in family and living arrangements (Lesthaeghe 2010; Sobotka

2008; Van de Kaa 2001). According to SDT theory, the major demographic changes across Europe and North-America (e.g., decline in marriage rate, growth of cohabitation, and postponement of union formation) in the twentieth century are the result of changes in values and attitudes (Lappegård et al. 2014; Lesthaeghe 2010; Lesthaeghe and van de Kaa 1986). Improved living standards, weakened normative regulation, and increased female autonomy have resulted in an increasing demand for self-development, autonomy and individualism (Lesthaeghe 2010; Sobotka 2008; Van de Kaa 1987, 2001). These value changes manifested themselves in various demographic changes, like increased acceptance of cohabitation, below-replacement fertility and rising divorce rates. Moreover, due to these value changes, important socializing institutions, such as the church and the family, have lost some of their grip on their members and wider society (Lesthaeghe 2010; Sobotka 2008). Processes of individualization and secularization imply that individuals enjoy more freedom of choice and attach greater importance to self-fulfillment, self-development and autonomy (Lesthaeghe 2010). Due to this focus on autonomy, young adults may have become less responsive to their parents' preferences and less dependent on their parents' resources. It can, therefore, be expected that the impact of family (dis)advantage on their offspring's union dynamics is weaker in more secularized and individualized societies.

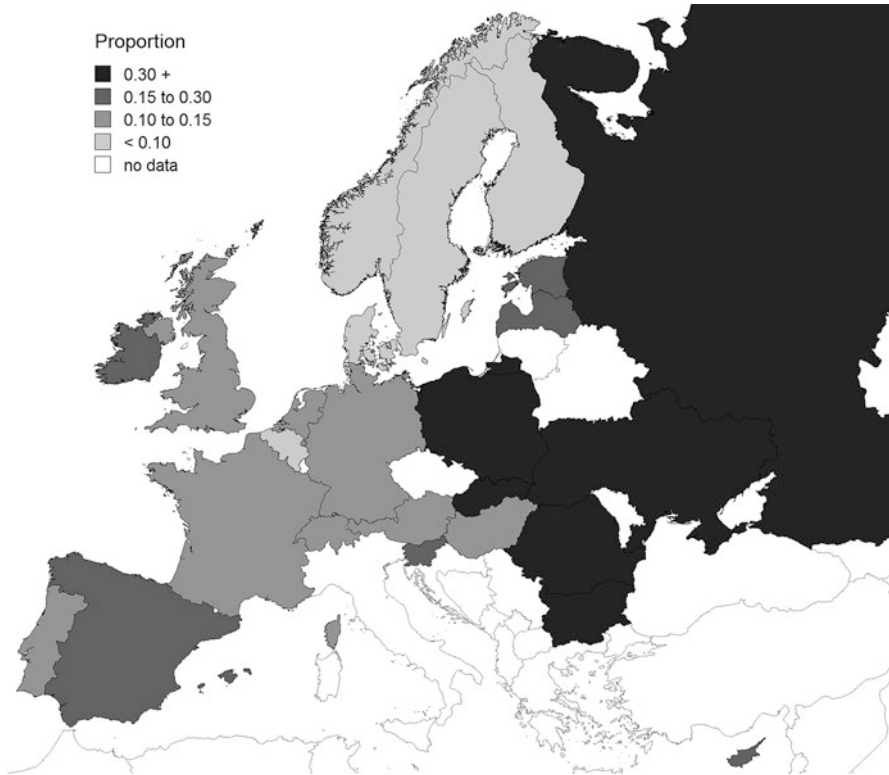
The SDT theory argues that all countries will experience the consequences of growing individualization, secularization and the weakening of family ties, but starting at different points in time and with different speeds of diffusion. Because of these differences in the onset and speed of diffusion of these demographic and value-related changes, countries vary in the extent to which SDT-related values and behaviors have been adopted at a given point in time (Lappegård et al. 2014; Sobotka 2008). Earlier research shows that Sweden and Norway are SDT-forerunners (e.g., high cohabitation and divorce rates and high level of individualistic values), followed by Western, Eastern and Southern European countries (Lesthaeghe 2010; Sobotka 2008). Figures 2.1 and 2.2 show two SDT-indicators for 25 European countries from the ESS (2006), both related to unmarried cohabitation. The proportion of adults who cohabit as their first co-residential union is used as an institutional indicator (Fig. 2.1), while the proportion of people who disapprove of unmarried cohabitation is used as an attitudinal indicator (Fig. 2.2). For both figures, the SDT pattern is clearly visible. In Northern European countries the cohabitation rate is highest (more than 0.80, thus over 80%), followed by Western, Eastern and Southern European countries. Moreover, in Northern European countries, few people disapprove of unmarried cohabitation (less than 10%), while especially in Eastern European countries this proportion is still above 30%.

Both figures show considerable cross-national variation with regard to the demographic changes that all Western countries have experienced. Some countries are further advanced in these demographic changes, as suggested by the SDT theory, than other countries. Because of these country differences with regard to the SDT, the general cross-national hypothesis examined in this chapter is that the impact of



**Fig. 2.1** The proportion of adults who cohabit as their first co-residential union, born between 1960 and 1980. (Source: European Social Survey, 3rd wave (2006), own calculation. Cartography: Peter Ekamper/NIDI)

family (dis)advantage on young adults' union dynamics is weaker in countries that are further advanced in the SDT than in countries that are less advanced in the SDT. In more SDT-advanced countries, processes of individualization have progressed, making family ties less important. In countries where the SDT and related individualization processes are more advanced, young adults can become more detached from their disadvantaged family background, and more focused on developing themselves and making their own choices, while in countries where the SDT and individualization are less advanced, young adults are still very dependent on their parents and their preferences and resources. Therefore, a weaker link between family (dis)advantage and union dynamics can be expected in countries where the SDT is more advanced.



**Fig. 2.2** The proportion of adults who (strongly) disapprove of unmarried cohabitation. (Source: European Social Survey, 3rd wave (2006), own calculation. Cartography: Peter Ekamper/NIDI)

## 2.4 Results on Family (Dis)Advantage, Union Dynamics and Cross-National Differences

To answer the research questions, two large-scale and cross-national comparative datasets are used, namely the third wave of the European Social Survey (ESS 2006) and the first wave of the Generations and Gender Programme (GGP, see for more information Fokkema et al. 2016).

### 2.4.1 Family (Dis)Advantage and Union Formation

As already shown in Fig. 2.1, large country differences exist in whether the first co-residential union of young adults is a cohabitation or not. In Norway, Sweden and Finland, more than 80% of the adults cohabit as their first co-residential union. In many Eastern European countries (e.g. Russia, Poland, Romania) and also in Portugal, this percentage of cohabitation as first union is between 10% and 30%.



**Table 2.1** Median age of entering a first co-residential union for men and women for 25 European countries (from Brons et al. 2017)

	Median age first union for women	Median age first union for men
<b>North</b>		
<i>Denmark</i>	21.3	23.7
<i>Finland</i>	21.9	23.8
<i>Norway</i>	22.1	23.8
<i>Sweden</i>	21.7	23.8
<b>West</b>		
<i>Austria</i>	22.1	24.0
<i>Belgium</i>	22.4	24.2
<i>France</i>	21.7	24.3
<i>Germany</i>	22.3	24.6
<i>Ireland</i>	25.0	27.5
<i>Netherlands</i>	22.8	25.2
<i>Switzerland</i>	23.2	25.3
<i>United Kingdom</i>	22.3	24.3
<b>East</b>		
<i>Bulgaria</i>	20.7	23.8
<i>Estonia</i>	22.3	23.6
<i>Hungary</i>	20.9	24.1
<i>Latvia</i>	22.3	23.4
<i>Poland</i>	22.2	25.1
<i>Romania</i>	21.2	24.3
<i>Russia</i>	21.8	23.3
<i>Slovakia</i>	21.7	24.4
<i>Slovenia</i>	22.6	25.3
<i>Ukraine</i>	21.2	23.4
<b>South</b>		
<i>Cyprus</i>	22.2	24.8
<i>Portugal</i>	22.5	24.8
<i>Spain</i>	24.7	26.8

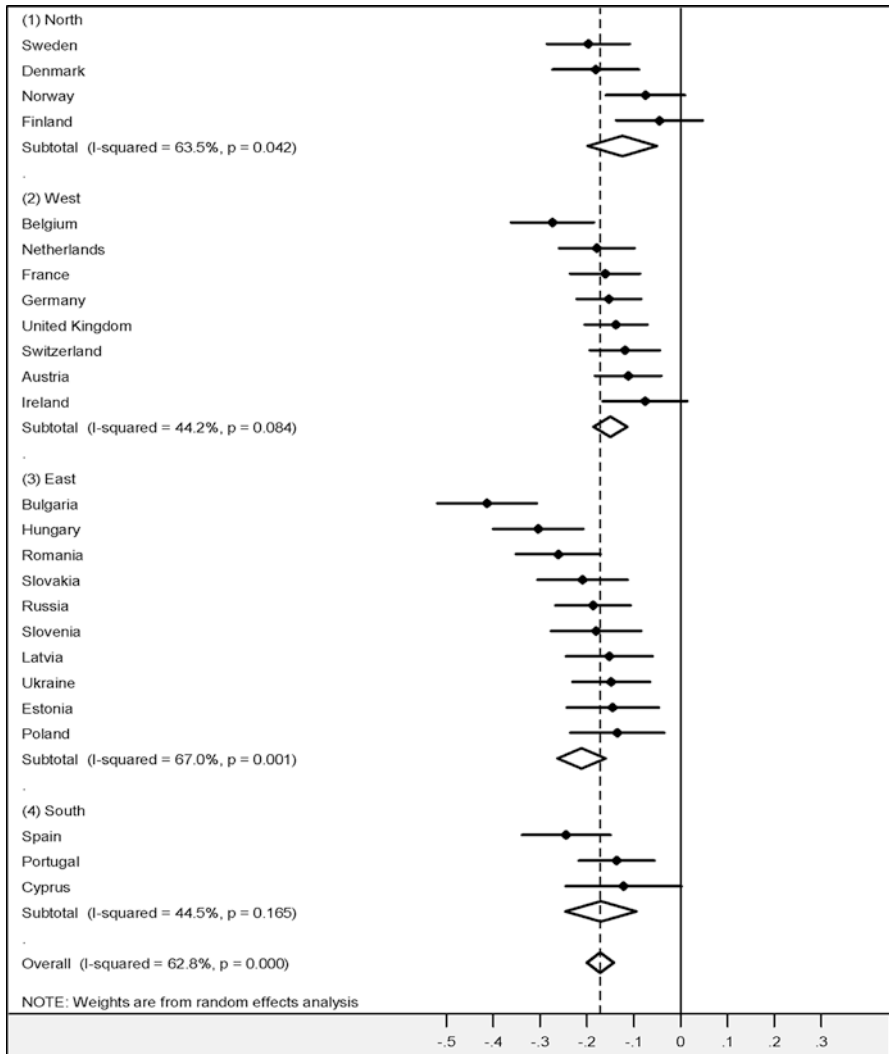
Source: European Social Survey, 3rd wave (2006)

Also, the age at which young adults enter their first co-residential union varies substantially across countries. Table 2.1 shows the median age at which men and women enter their first co-residential union. The median age of entering a first union is 25 years for women in Ireland, while it is just below 21 years for women in Bulgaria. This difference in median age of more than 4 years is also visible among men; the highest median age for men is for Ireland (27.5 years), while the median age for men in Russia is just above 23 years.

Brons et al. (2017) examined to what extent the timing and type of union formation depends on parental SES. They focused on the link between parental SES, measured by an index based on information about parental education and occupation, and the timing of first union formation from a cross-national comparative perspective by using the European Social Survey (3rd wave, 2006). Meta-analytical

tools were used to first analyze whether there is cross-national variation and if so, in a second step test whether this cross-national variation can be explained by specific country-level indicators.

Figure 2.3 shows the results of a meta-analysis in which for 25 European countries the total effect of parental SES on the timing of first union for women is estimated (see Brons et al. 2017 for results among men). The dotted line represents the overall effect of parental SES on the rate of entry into a first union for all European

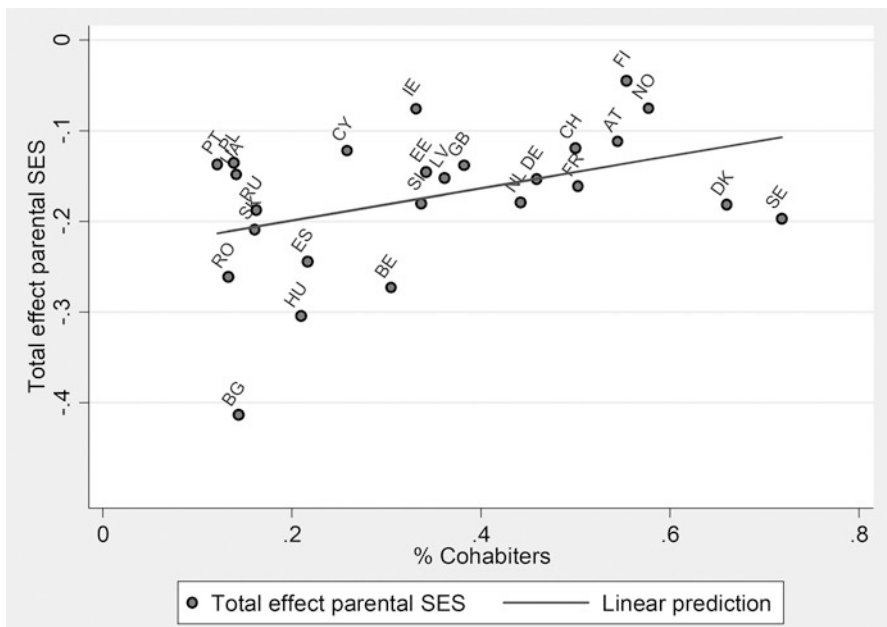


**Fig. 2.3** Total effect of parental SES on the timing of first union for women in 25 European (and EU associated) countries. Meta-analysis of estimates from discrete-time logistic models (from Brons et al. 2017). (Source: European Social Survey, 3rd wave 2006)

countries and this overall effect is negative ( $b = -.171, p < .01$ ), meaning that the higher the SES of parents, the later women enter their first co-residential union. This finding is in line with previous research (e.g. South 2001; Wiik 2009). The delaying effect of parental SES for women is observed in almost all countries, but substantial between-country heterogeneity is also found regarding the link between parental SES and first union formation. The strongest delaying effect is found for Bulgaria ( $b = -.41, p < .01$ ), while there is no significant delaying effect found for Finland ( $b = -.05, p = ns$ ). The  $I^2$  in Fig. 2.3 shows a percentage of 62.8%, which is above 50%, thus substantial heterogeneity across countries exists (Higgins et al. 2003).

The next step was explaining this cross-national variation in the link between parental SES and union formation. Based on the SDT theory, Brons et al. (2017) hypothesized that the impact of parental SES on union formation will be weaker in countries that are more advanced in the SDT.

An SDT-indicator which might be a possible explanation for the cross-national variation is the country-specific prevalence of cohabitation. Figure 2.4 shows that this SDT-indicator indeed explains some of the cross-national variation in the effects investigated. Differences in the timing of first union between young adults from



**Fig. 2.4** Association between the total effect of parental SES on the timing of first union for women and the percentage of men and women in a country who cohabit as their first union (from Brons et al. 2017). Note: AT Austria, BE Belgium, BG Bulgaria, CH Switzerland, CY Cyprus, DE Germany, DK Denmark, EE Estonia, ES Spain, FI Finland, FR France, GB United Kingdom, HU Hungary, IE Ireland, LV Latvia, NL Netherlands, NO Norway, PL Poland, PT Portugal, RO Romania, RU Russia, SE Sweden, SI Slovenia, SK Slovakia, UA Ukraine. (Source: European Social Survey, third wave 2006)

advantaged and disadvantaged backgrounds are smaller in countries where cohabitation is more common.

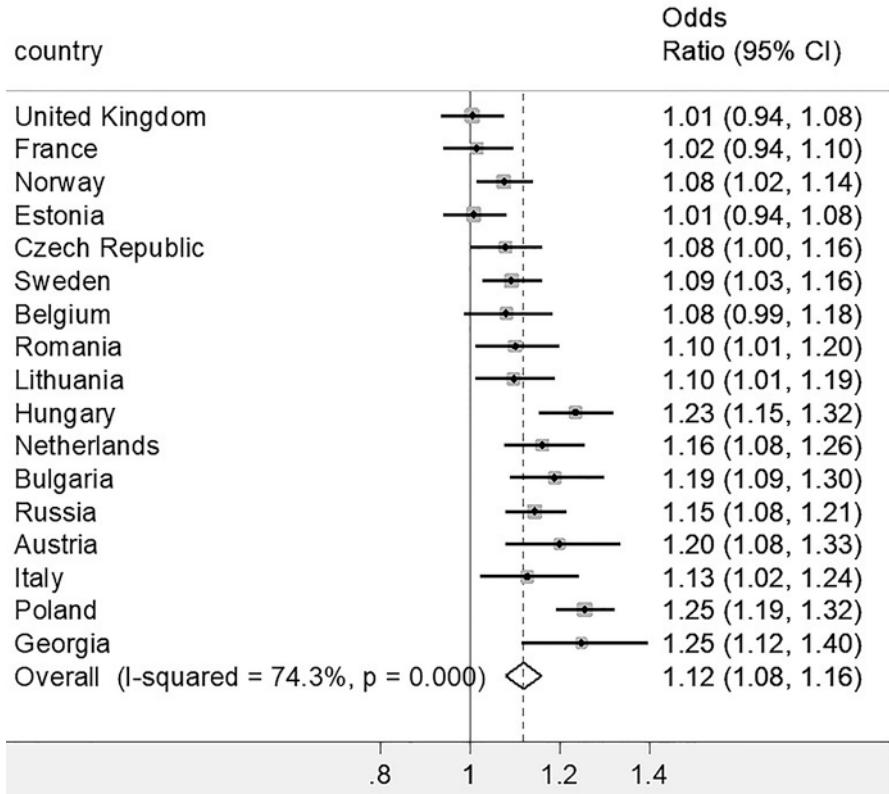
Brons et al. (2017) also analyzed, more specifically, how parental SES is related to the entry into cohabitation versus marriage as first co-residential union and to what extent this link varies across countries. Results show that the delaying impact of parental SES on timing of first union is stronger for marriage than for cohabitation. This is in line with the idea that marriage is a stronger commitment than cohabitation, which implies that parents want to be more involved in the marriage than in the cohabitation process. Moreover, between-country heterogeneity in the impact of parental SES is lower for cohabitation than for marriage as first union, but for both union types cross-national variation is found regarding the impact of parental SES.

As mentioned earlier, an individual's own educational attainment is suggested to be an important mediator in the link between parental SES and the timing of first union. Brons et al. (2017) also examined the role of individual's own educational attainment and the results still show an overall significant, though somewhat reduced, delaying effect of parental SES on the timing of first union. However, once own education and enrollment are included as mediators, the variation across countries completely disappears (see Brons et al. 2017). Thus, country differences in achieved educational level are also an important explanation for the cross-national variation in the link between parental SES and first union formation.

#### ***2.4.2 Family (Dis)Advantage and Union Dissolution***

Parental SES affects the union formation process of young adults, but does the socio-economic status of parents also have an impact on the union dissolution process? Regarding union dissolution, many previous studies focused on the intergenerational transmission of divorce, both in single countries and from a cross-national comparative perspective. However, only a few studies analyzed the link between parental SES and the risk to dissolve a union and these studies were all conducted in single countries. Therefore, Brons and Härkönen (2018) focused on the link between parental SES and union dissolution, or more specifically, the risk to dissolve a childbearing union in 17 different European countries using data from the first wave of the GGP. Parental SES was measured by parental education. They studied the dissolution of first childbearing unions, since this indicator is a better measure of family instability than divorce, given the high cohabitation rates in the countries analyzed. Also, in this study, meta-analytical tools were used to first analyze whether there is cross-national variation and if so, whether this cross-national variation can be explained by a country-level indicator.

Brons and Härkönen (2018), first of all, show that already with regard to the prevalence of union dissolution, large country differences are found. The percentage of people that dissolved their childbearing union was highest in Estonia (29.8%) and Russia (28.9%), while in Georgia, Italy and Bulgaria, this percentage was below 10% (see Brons and Härkönen 2018 for percentages for all the countries).

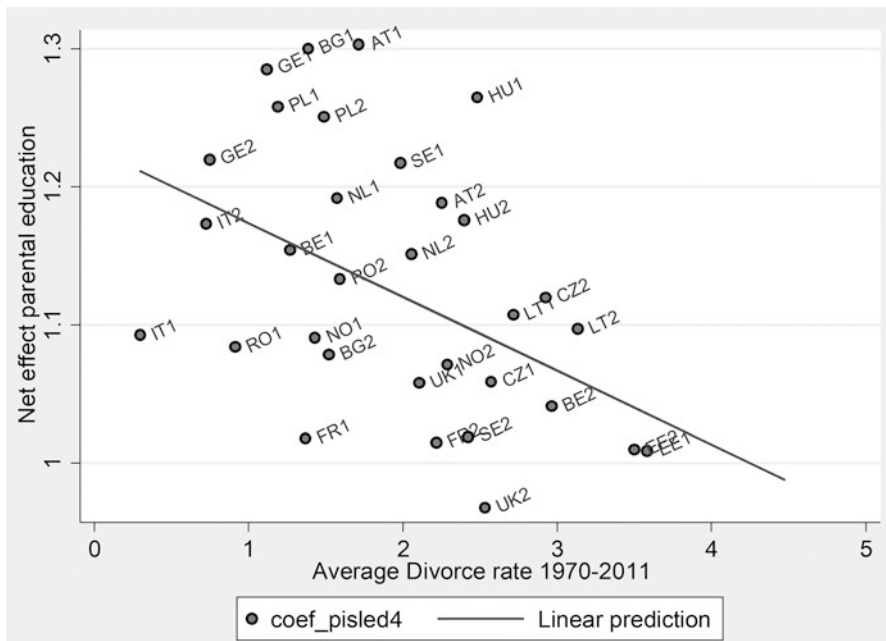


**Fig. 2.5** The net association between parental education and family dissolution. Meta-analysis with discrete-time event-history models – odds ratios and 95% confidence intervals are presented (from Brons and Härkönen 2018). Note: Controlled for gender, year childbearing union started, duration, duration squared, parental separation, own education, age at family formation, and married at family formation. (Source: Generations and Gender Programme (GGP), first wave)

Figure 2.5 shows the results of a meta-analysis in which for 17 European countries the net effect of parental education on union dissolution was estimated (Brons and Härkönen 2018). The dotted line shows that overall, the higher the educational level of parents, the higher the risk to dissolve a childbearing union (OR = 1.12,  $p < .01$ ). The net effect of parental education means that next to some important mediators, namely individuals’ own educational level, parental separation and the timing of union formation, parental education still influences union dissolution. This positive association between parental education and union dissolution is observed in most of the countries, but substantial between-country heterogeneity is also found ( $I^2 = 74.3\%$ ). This is in line with earlier research on the link between own educational attainment and family dissolution, although the variation found appears less strong than the one between own education and family dissolution. Although the size of the relationship between parental education and family dissolution varies

considerably across countries, it is generally positive, whereas the educational gradient of family dissolution shows more variation both in size and in sign. The strongest positive effect of parental education is found for Poland and Georgia (OR = 1.25,  $p < .01$ ), while no significant effect of parental education is found for United Kingdom, France and Estonia.

Since cross-national variation is observed in the link between parental SES and union dissolution, the next step would be to analyze whether this cross-national variation can be explained by the SDT. Brons and Härkönen (2018) expected that the link between parental SES and union dissolution is weaker in countries that are more advanced in the SDT. An SDT-indicator which might be a possible explanation for the cross-national variation is the crude divorce rate. As expected, Fig. 2.6 shows that the strength of the link between parental SES and union dissolution is indeed weaker in countries where the divorce rate is higher (so in countries that are further advanced in the SDT). Another country-level indicator, namely the generosity of the welfare state, could not explain the cross-national variation in the link between parental SES and union dissolution.



**Fig. 2.6** The association between the net effect of parental education and union dissolution, and the average crude divorce rate (without Russia as influential case);  $b = -0.053$ ;  $p = .033$  (from Brons and Härkönen 2018). Note: 1 = old union cohort (1970–1987), 2 = young union cohort (1988–2013). Note: *AT* Austria, *BE* Belgium, *BG* Bulgaria, *CZ* Czech Republic, *EE* Estonia, *FR* France, *GE* Georgia, *HU* Hungary, *IT* Italy, *LT* Lithuania, *NL* Netherlands, *NO* Norway, *PL* Poland, *RO* Romania, *RU* Russia, *SE* Sweden, *UK* United Kingdom. (Source: Generations and Gender Programme (GGP), first wave)

## 2.5 Conclusions and Discussion

Research on the social stratification of union formation and dissolution focused largely on individuals' own educational attainment and enrollment as important determinants (e.g. Blossfeld and Huinink 1991; Härkönen and Dronkers 2006). The focus of this chapter was on another important determinant of union formation and dissolution, namely parental socio-economic status and analyzed the relationship between parental SES and union dynamics from a cross-national comparative perspective. With regard to the first research question, it can be concluded that next to individuals' own education, also parental SES is important in explaining the processes of union formation and union dissolution. Young adults from disadvantaged backgrounds, for example, enter their first co-residential union at an earlier age than those from advantaged backgrounds. This delaying impact of parental SES on the timing of union formation is stronger for young adults who marry as their first union than for young adults who cohabit as their first union. Moreover, research presented in this chapter shows that parental SES not only influences union formation, but also union dissolution. Individuals from advantaged backgrounds have a higher risk to dissolve their union than those from disadvantaged backgrounds.

As already mentioned, demographic choices made during young adulthood can have potentially negative consequences for their subsequent life course. Young adults who enter a co-residential union at an early age have, for example, a higher risk to dissolve this union (Berrington and Diamond 1999). This chapter shows that demographic choices that may result in negative consequences later in life are not always more common among young adults from disadvantaged family backgrounds. Rather, the results regarding union dissolution show that adults with high educated parents do not have a lower, but a higher risk to dissolve a union. Previous research shows that people who dissolve their union can experience several negative consequences later in life, such as lower well-being and economic hardship (Amato 2000).

With regard to individuals' own educational attainment as important mediator, the results show that parental SES still has an influence on union formation and dissolution after taking into account this mediator. Individuals' own educational attainment only partly explains the link between family (dis)advantage and union dynamics. Thus, next to the intergenerational transmission of education, there are more reasons why children from disadvantaged and advantaged backgrounds behave differently on the partner market. But although the results of this chapter show that family (dis)advantage is an important determinant of union formation and dissolution processes, we still do not know what the exact mechanisms are that play a role in the link between family (dis)advantage and demographic choices. Previous research suggests some important mechanisms that might explain this link, like differences in the socialization of norms and values, in family attitudes or in availability of resources. Do high status parents socialize their children to start, for example, a romantic union at a later age? Do high-SES parents have more liberal attitudes towards union dissolution, which they transmit to their children and result in a higher probability to dissolve a union for young adults from advantaged

backgrounds? Or does it have to do with the (financial) resources that parents have and transmit to their offspring? Future empirical endeavors have the important task of answering many follow-up questions related to potential mechanisms explaining the link between family (dis)advantage and union dynamics. Unfortunately, to date, available data is limited in providing country-level information to test specific mechanisms (e.g. information on the transmission of norms, or values and attitudes). Prominent cross-national data platforms such as ESS and GGP may consider (in their future data collection activities) the addition of data facilitating testing of mechanisms related to, for example, the transmission of norms and values regarding cohabitation and union dissolution.

Another innovative aspect of this chapter is the cross-national comparative perspective in the link between family (dis)advantage and union formation and dissolution processes. As already mentioned, it can be expected that this link varies across countries, due to economic, cultural and institutional differences between countries. For example, in more individualistic countries or economically well-developed countries, it can be expected that family (dis)advantage plays a less important role, since young adults are often less dependent on their parents and their resources. This chapter shows that it is indeed important to take into account in which country young adults live when analyzing the link between family (dis)advantage and union dynamics, since this link varies considerably across countries. This finding of cross-national variation is related to the second research question of this chapter, in which the focus is not only on whether there are differences between countries, but also on how this cross-national variation can be explained. In this chapter, the SDT theory is used as the major source of explanation to explain cross-national variation in the relationship between family background and union formation and dissolution processes. Results show that the included SDT-indicators could indeed explain (part of) the considerable cross-national variation in the link between family (dis)advantage and union dynamics. The country-specific cohabitation rate explains part of the cross-national variation in the link between parental SES and union formation and the crude divorce rate explains the cross-national variation in the link between parental education and union dissolution.

However, one of the conclusions of this chapter is that the SDT theory is not the complete explanation for the cross-national variation in the link between family (dis)advantage and union dynamics. On the one hand, the SDT offers a good explanation for part of the analyzed relationships, on the other hand it shows that it is more complicated than just focusing on the country-specific demographic and value changes, resulting from processes of individualization of secularization. Next to these country-level indicators that focus more on the cultural change in norms and values of people in a country, institutional and also economic country-level indicators might also play a role. Next to the cohabitation rate, for example, the educational expansion of a country also offers an important explanation for the link between parental SES and union formation. The SDT theory already suggests that demographic changes are driven by both cultural (values) as well as structural factors (such as the rise of higher education) (Lappegård et al. 2014). More specifically, Lesthaeghe (2010) highlighted change in the educational composition of western



societies as a major contributor to the SDT process, but this has not been analyzed yet. Moreover, Mills and Blossfeld (2013) argue, for example, that the degree of economic uncertainty that young adults face when they make demographic choices, such as those related to union formation and dissolution, is also important. It can be expected that the lower the degree of uncertainty, the less young adults depend on their parents. This level of dependence on the family of origin and the uncertainty that young adults face, are linked to the country-specific culture, but next to this also to the economic possibilities and institutional support from the state. In general, SDT critiques (e.g. Mills and Blossfeld 2013; Zaidi and Morgan 2017) have argued that the SDT-theory has ignored the role of domestic path-dependent institutions, like the welfare regime, the employment systems and the educational system. It is likely that cross-national differences in family patterns are at least partially accounted for by differences in these path-dependent institutions. In countries with social-democratic welfare regimes, young adults make the transition to partnership easier than in countries with conservative welfare regimes. Moreover, educational systems differ in the amount of time spent in schools and the link to the labor market. All these factors influence the degree to which young adults face uncertainty and exacerbate inequality by offering more opportunities to young adults from advantaged backgrounds.

The last issue to keep in mind regarding the SDT theory is that this theory is a developmental theory, so an important question is also to know what is happening over time, in addition to the country differences found in this chapter (Thornton 2013). Next to the country differences, it can also be expected that the impact of family (dis)advantage on union dynamics varies between birth cohorts. The change over time in the impact of parental SES on union dynamics is also analyzed within the CONOPP project, but the impact of parental SES did not change that much over time. Moreover, most country-level indicators did not go that far back in time, which makes it harder to analyze the change over time. In general, the results suggest that the differences between countries in the link between family (dis)advantage and union dynamics seem stronger than the differences in this link within countries over time. However, it would be interesting for future research to also include the temporal dimension, next to the cross-national dimension, especially if more data over a larger time span become available. There is a clear need for more longitudinal analyses on this topic, so that it is possible to better disentangle the temporal and cross-national dimensions.

**Acknowledgements** The research leading to these results has received funding from the European Research Council under the European Union's Seventh Framework Programme (FP/2007-2013)/ERC Grant Agreement n. 324178.

## References

- Amato, P.R. 2000. The consequences of divorce for adults and children. *Journal of Marriage and Family* 62 (4): 1269–1287.
- Axinn, W.G., and A. Thornton. 1992. The influence of parental resources on the timing of the transition to marriage. *Social Science Research* 21 (3): 261–285.
- Bäckman, O. 2008. Institutions, structures and poverty—a comparative study of 16 countries, 1980–2000. *European Sociological Review* 25 (2): 251–264.
- Barber, J.S. 2001. The intergenerational transmission of age at first birth among married and unmarried men and women. *Social Science Research* 30 (2): 219–247.
- Berrington, A., and L. Diamond. 1999. Marital dissolution among the 1958 British Birth Cohort: The role of cohabitation. *Population Studies* 53 (1): 19–38.
- Billari, F.C., and A.C. Liefbroer. 2010. Towards a new pattern of transition to adulthood? *Advances in Life Course Research* 15 (2–3): 59–75.
- Blossfeld, H.P., and J. Huinink. 1991. Human capital investments or norms of role transition? How women's schooling and career affect the process of family formation. *American Journal of Sociology* 97 (1): 143–168.
- Brons, M.D., A.C. Liefbroer, and H.B.G. Ganzeboom. 2017. Parental socio-economic status and first union formation: Can European variation be explained by the Second Demographic Transition theory? *European Sociological Review* 33 (6): 809–822.
- Brons, M.D., and J. Härkönen. 2018. Parental education and family dissolution: A cross-national and cohort comparison. *Journal of Marriage and Family* 80 (2): 426–443.
- Dahlberg, J. 2015. Social background and becoming a parent in Sweden: A register-based study of the effect of social background on childbearing in Sweden. *European Journal of Population* 31 (4): 417–444.
- Easterlin, R. 1980. *Birth and Fortune: The impact of numbers on personal welfare*. New York, NY: Basic Books.
- Esping-Andersen, G. 1990. *Three worlds of welfare capitalism*. Cambridge: Polity Press.
- ESS. 2006. *European social survey round 3 data. Edition 3.5*. Bergen: Norwegian Social Science Data Services.
- Fokkema, T., A. Kveder, N. Hiekel, T. Emery, and A.C. Liefbroer. 2016. Generations and Gender Programme Wave 1 data collection: An overview and assessment of sampling and field-work methods, weighting procedures, and cross-sectional representativeness. *Demographic Research* 34: 499–524.
- Härkönen, J., and J. Dronkers. 2006. Stability and change in the educational gradient of divorce. A comparison of seventeen countries. *European Sociological Review* 22 (5): 501–517.
- Higgins, J.P.T., S.G. Thompson, J.J. Deeks, and D.G. Altman. 2003. Measuring inconsistency in meta-analyses. *British Medical Journal* 327: 557–560.
- Hoem, B., and J.M. Hoem. 1992. The disruption of marital and non-marital union in contemporary Sweden. In *Demographic applications of event history analysis*, ed. J. Trussell, R. Hankinson, and J. Tilton, 61–93. Oxford: Clarendon Press.
- Inglehart, R. 2006. Mapping global values. *Comparative Sociology* 5 (2–3): 115–136.
- Kiernan, K.E., and J. Hobcraft. 1997. Parental divorce during childhood: Age at first intercourse, partnership and parenthood. *Population Studies* 51 (1): 41–55.
- Lappegård, T., S. Klüsener, and D. Vignoli. 2014. Social norms, economic conditions and spatial variation of childbearing within cohabitation across Europe. *Rostock: Max Planck Institute for Demographic Research (MPIDR working paper)*.
- Lesthaeghe, R. 2010. The unfolding story of the second demographic transition. *Population and Development Review* 36 (2): 211–251.
- Lesthaeghe, R., and D.J. van de Kaa. 1986. Twee demografische transitities? In *Bevolking: groei en krimp*, ed. D.J. van de Kaa and R. Lesthaeghe, 9–24. Deventer, Van Loghum Slaterus.
- Lyngstad, T.H. 2006. Why do couples with highly educated parents have higher divorce rates? *European Sociological Review* 22 (1): 49–60.

- . 2004. The impact of parents' and spouses' education on divorce rates in Norway. *Demographic Research* 10: 121–142.
- McLanahan, S. 2004. Diverging destinies: How children are faring under the second demographic transition. *Demography* 41 (4): 607–627.
- McLanahan, S., and C. Percheski. 2008. Family structure and the reproduction of inequalities. *Annual Review of Sociology* 34: 257–276.
- Mills, M., and H.P. Blossfeld. 2013. The Second Demographic Transition meets globalization: A comprehensive theory to understand changes in family formation in an era of rising uncertainty. In *Negotiating the Life Course. Stability and Change in Life Pathways*, ed. A. Evans and J. Baxter, 9–33. Dordrecht: Springer.
- Mooyaart, J.E., and A.C. Liefbroer. 2016. The influence of parental education on timing and type of union formation: changes over the life course and over time in the Netherlands. *Demography* 53 (4): 885–919.
- Oppenheimer, V.K. 1988. A theory of marriage timing. *American Journal of Sociology* 94 (3): 563–591.
- Rijken, A.J., and A.C. Liefbroer. 2012. European views of divorce among parents of young children: Understanding cross-national variation. *Demographic Research* 27: 25–52.
- Schneider, D., and O.P. Hastings. 2015. Socioeconomic variation in the effect of economic conditions on marriage and nonmarital fertility in the United States: Evidence from the Great Recession. *Demography* 52 (6): 1893–1915.
- Sigle-Rushton, W., J. Hobcraft, and K. Kiernan. 2005. Parental divorce and subsequent disadvantage: A cross-cohort comparison. *Demography* 42 (3): 427–446.
- Soons, J.P.M., and M. Kalmijn. 2009. Is marriage more than cohabitation? Ill-being differences in 30 European countries. *Journal of Marriage and Family* 71 (5): 1141–1157.
- Sobotka, T. 2008. Overview chapter 6: The diverse faces of the second demographic transition in Europe. *Demographic Research* 19: 171–224.
- South, S.J. 2001. The variable effects of family background on the timing of first marriage: United States, 1969–1993. *Social Science Research* 30 (4): 606–626.
- Thornton, A. 2013. *Reading history sideways: The fallacy and enduring impact of the developmental paradigm on family life*. University of Chicago Press.
- Todesco, L. 2013. Family social background and marital instability in Italy. Do parental education and social class matter? *The Social Science Journal* 50 (1): 112–126.
- Van de Kaa, D.J. 1987. Europe's Second Demographic Transition. *Population Bulletin* 42 (1): 1–59.
- . 2001. Postmodern fertility preferences: From changing value orientation to new behavior. *Population and Development Review* 27: 290–331.
- Wiik, K.A. 2009. You'd better wait. Socio-economic background and timing of first marriage versus first cohabitation. *European Sociological Review* 25 (2): 139–153.
- Zaidi, B., and S.P. Morgan. 2017. The second demographic transition theory: A review and appraisal. *Annual Review of Sociology* 43: 473–492.

**Open Access** This chapter is licensed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.



# Chapter 3

## Nonmarital Fertility in Europe and North-America: What Is the Role of Parental SES and Own SES?



Judith C. Koops

### 3.1 Introduction

Since the 1960s, Western societies are marked by a postponement of marriage and childbearing, along with an increase in unmarried cohabitation and divorce. These developments resulted in a disconnection between marriage and parenthood (Billari and Liefbroer 2010) and a substantial increase in the number of births that happen outside of marriage (also referred to as nonmarital births or nonmarital fertility). In the 1980s and 1990s, Van de Kaa and Lesthaeghe developed the Second Demographic Transition theory (SDT) in order to explain the observed changes in family-related demographic behavior (Lesthaeghe and Van de Kaa 1986). According to the SDT, the increase in nonmarital fertility is the result of the enhanced freedom of choice in organizing one's individual life and in following non-traditional family formation patterns (Lesthaeghe 2010; Lesthaeghe and Van de Kaa 1986; Van de Kaa 2001). Non-traditional family patterns are expected to spread from a small group of people with more progressive value orientations – such as the younger cohorts and the higher educated – to the whole society (Van de Kaa 2001).

Today, the SDT is a widely used framework to study changes in family formation and childbearing. Nevertheless, the theory has also been criticized, and American scholars have done so in particular with regard to nonmarital fertility. In the USA, women with fewer opportunities and resources are more likely to follow the trajectory of nonmarital births (McLanahan 2004; Musick 2002). The fact that nonmarital fertility is more common among the lower than among the higher educated contrasts with the assumption of the SDT that new demographic behavior tends to be more

---

J. C. Koops (✉)

Netherlands Interdisciplinary Demographic Institute (NIDI), The Hague, The Netherlands

University of Groningen, Groningen, The Netherlands

e-mail: [koops@nidi.nl](mailto:koops@nidi.nl)

© The Author(s) 2021

A. C. Liefbroer, M. Zoutewelle-Terovan (eds.), *Social Background and the Demographic Life Course: Cross-National Comparisons*,  
[https://doi.org/10.1007/978-3-030-67345-1\\_3](https://doi.org/10.1007/978-3-030-67345-1_3)

common among the higher educated during the early stages of the SDT, after which it spreads across different educational groups during later stages. Apart from one's own socio-economic status (SES), parental SES plays a pivotal role in explaining nonmarital fertility in the USA. Research has shown that those growing up with lower-SES parents are more likely to have a nonmarital birth when reaching adulthood than those growing up with higher-SES parents (Aassve 2003; Amato et al. 2008; Högnäs and Carlson 2012; McLanahan 2004; Musick 2002; Wu 1996). Because of the role that the socio-economic background of the childhood family plays in one's adult family-related experiences, scholars have concluded that in the USA nonmarital fertility is part of a "pattern of disadvantage" which plays an important role in the reproduction of inequality from one generation to the next (McLanahan 2009). In the remainder of this chapter I will refer to this view as the Pattern of Disadvantage perspective.

A few single-country studies have examined the influence of socio-economic status of the childhood family on nonmarital fertility outside of the USA. These studies, conducted in the UK (Berrington 2001; Ermisch 2001; Ermisch and Francesconi 2000; Rowlingson and McKay 2005) and Sweden (Bernhardt and Hoem 1985), have come to the same conclusion as the American scholars, namely that those growing up with parents with a lower socio-economic status are more likely to have a nonmarital birth when reaching adulthood. A recent multi-country study examined the influence of parental SES on partnership status at first birth in 16 European and North-American countries (Koops et al. 2017). Results of this study showed that substantial country differences exist in the effect of parental SES on nonmarital fertility. In North-American and East-European countries men and women growing up with lower-SES parents have a higher risk of experiencing a birth in cohabitation as compared to those with higher-SES parents. In West-European countries, this effect was only found in Norway, but not in France, Belgium and Austria. In the Netherlands a positive effect of parental SES on the risk of having a birth in cohabitation was found. Specifically, Dutch individuals growing up with higher-SES parents have a higher risk of experiencing a birth in cohabitation as compared to those with lower-SES parents. The study furthermore shows that in North-American countries and in half of West- and East-European countries, those growing up with lower-SES parents also have a higher risk of experiencing a birth while being single as compared to those with higher-SES parents.

Parental SES is expected to have a direct effect on family-formation behavior through socialization and the availability of resources. In addition, a more indirect pathway is assumed through the intergenerational transmission of a person's own socio-economic status. Those growing up with higher-SES parents may have a higher SES themselves and this may influence their preferences and availability of resources, and, therefore, their family formation behavior. Research in the USA suggests that the effect of parental SES on partnership context at birth is only partially mediated through a person's own SES (Aassve 2003; Amato et al. 2008). A multiple-country study examined the influence of own as well as parental SES on the likelihood of having a first birth in cohabitation or in marriage in 16 European countries (Lappegård et al. 2018). After controlling for own SES, there was no

significant effect of father's education on women's likelihood of having their first birth in cohabitation or in marriage. But although this study included multiple countries, analyses were conducted on the pooled data only. This may have masked the fact that in some countries the effect of socio-economic status of the childhood family is fully mediated through own SES, while in other countries a direct effect of parental SES is found in addition. This is supported by the study of Koops et al. (2017), which showed that in some countries the effect of parental SES on partnership status disappeared after own education was included in the model, while in other countries this was not the case.

To examine mediation through own SES, Koops et al. (2017) compared the effect of parental SES on partnership status at birth between a model excluding and including own SES. This method suffices to answer the question if there is a direct effect of parental education on partnership status once mediation through own SES has been taken into account. However, it does not allow to examine in detail to what extent the effect is mediated through own SES, because of the non-linear character of the models (Karlson et al. 2012). In the current chapter, I aim to make additional steps in unravelling the mechanism behind inequalities found in family formation behavior, by providing a more detailed picture of whether and to which extent the effect of parental education is mediated through own education. I will do so by using the Karlson-Holm-Breen (KHB) method which allows for an unbiased decomposition of the percentage reduction in the effect of parental SES caused by the mediation through own SES for non-linear models (Karlson et al. 2012). Coefficients obtained from (multinomial) logistic regression models, such as odds ratios and relative risk ratios, do not immediately allow for a meaningful interpretation of the reduction in effect sizes. Therefore, in addition to reporting the effect of parental SES on the outcome variable as relative risk ratios, effect sizes will be reported as differences in the predicted probabilities of having a birth in marriage, cohabitation or while being single. This will allow for easy interpretation of the effect size of parental SES before and after mediation through own SES has been taken into account.

## 3.2 Background

Family sociologists have identified several mechanisms through which parents can influence their children's family formation. These mechanisms can roughly be separated into those related to socialization, the availability of resources, and the inter-generational transmission of SES. These mechanisms will be further explained below.

### ***3.2.1 Influence of Parental SES on Nonmarital Fertility Through Socialization***

Socialization can be described as “the process by which children acquire the social, emotional, and cognitive skills needed to function in the social community” (Grusec and Davidov 2010, p. 691). Much of the socialization process occurs at a young age in the context of one’s family of origin. Parents and caregivers are therefore among the most important social agents through which children acquire their social, emotional, and cognitive skills (Grusec and Davidov 2010). Through socialization, children can internalize the values and attitudes of their parents, which in turn influence children’s family-related preferences and behaviors, not only during childhood, but also during their adult life (Axinn et al. 1994; Barber 2000; Barber and Axinn 1998; Liefbroer and Elzinga 2012; Starrels and Holm 2000).

According to the SDT, the increase in cohabitation at the expense of marriage reflects individuals’ need for autonomy and self-actualization in the context of romantic relationships. This view is supported by qualitative studies which have shown that people tend to associate cohabitation with personal freedom, financial independence, and distancing oneself from social norms advocating marriage (Perelli-Harris et al. 2014). The SDT does not specifically address how SES may influence the likelihood of becoming a cohabiting parent. However, research examining differences in parenting styles have shown that generally, higher-SES parents emphasize autonomy more when raising their children, while lower-SES parents tend to underscore conformity (Gauthier 2015; Kohn 1969; Park and Lau 2016; Weininger and Lareau 2009). One could therefore argue that via the socialization mechanism, children of higher-SES parents are more likely to cohabit when starting a family than children growing up with lower-SES parents.

With regard to single parenthood, it has been argued that parents’ SES influences their preferences on the importance of parenthood in relation to other life goals such as educational and occupational attainment. Through socialization, parents may transmit these beliefs to their children. Children growing up with higher-SES parents may therefore have higher educational and occupational aspirations, while those growing up with lower-SES parents may value parenthood more (Friedman et al. 1994; Musick et al. 2009). Due to the difficulty for single parents to combine family life with other socio-economic goals (Härkönen 2016; Lichter et al. 2014), those with higher-SES parents are assumed to be more motivated to avoid unplanned pregnancies and single parenthood than those with lower-SES parents (Brown and Booth 1996; Frisco 2005). One could therefore argue that via the socialization mechanism, children of lower-SES parents may be more likely to be single when starting a family than children of higher-SES parents.

### ***3.2.2 Influence of Parental SES on Nonmarital Fertility Through the Availability of Resources***

When it comes to the influence of parental SES on becoming a cohabiting parent, American literature has sought an explanation in the different meanings that are attached to cohabitation and marriage. It is argued that in the USA, couples hold on to certain goals and objectives which they feel they have to achieve before they are ready to get married (Edin and Kefalas 2005; Gibson-Davis 2011; Gibson-Davis et al. 2005). Several authors (Cherlin 2004; Smock et al. 2005) claimed that the list of prerequisites for marriage includes aspects related to material resources (purchase of a house), financial resources (adequate savings for a 'proper' wedding), and financial stability (stable income). Research has shown that parents tend to transfer money or real estate around the period when children leave the parental home, which suggests that parental assets play a role in children's family transitions (Albertini et al. 2007; Albertini and Kohli 2013; Kohli 1999; Ploeg et al. 2004). Through the transfer of these resources, parents may affect their children's likelihood of having a marital birth, for example by influencing their ability to afford a wedding (Albertini and Kohli 2013; Ploeg et al. 2004). People with lower-SES parents may have more difficulty to meet the requirements for marriage than those with higher-SES parents due to a lower likelihood of receiving direct financial transfers from their parents (Albertini and Kohli 2013; Fingerman et al. 2015). Those with lower-SES parents may therefore be more likely to decide to postpone the wedding until later in their relationship and perhaps after becoming parents, while people with higher-SES parents do not have to postpone the wedding and are therefore more likely to marry before starting a family (McLanahan and Percheski 2008; Oppenheimer 2003). Thus, one could argue that via the resources mechanism, children of lower-SES parents are expected to be more likely to cohabit when starting a family than children of higher-SES parents.

Note that the expectations derived from the socialization mechanism and the resources mechanism clearly differ. Based on the SDT and the socialization mechanism, one would expect that those with higher-SES parents are more likely to experience a birth in cohabitation, while based on the Pattern of Disadvantage perspective and the resources mechanism, one would expect that those with lower-SES parents are more likely to have a birth in cohabitation.

Regarding single parenthood, it has been argued that parental SES may influence children's ability to successfully prevent single parenthood. American studies have shown that children growing up with lower-SES parents have reduced access to medical care, abortions, as well as certain type of modern contraceptive methods (Boussin 2012; Musick et al. 2009; Silverman et al. 1987). Reduced access to family planning methods may in turn have a negative effect on contraceptive use which can increase the chance of an unplanned pregnancy. Compared to those with higher-SES parents, those growing up with lower-SES parents may also be less likely to move in with a partner before the birth of the child when faced with an unplanned pregnancy because they receive less material support to establish their own



household (Albertini and Kohli 2013; Fingerman et al. 2015). Based on these arguments, one would expect that via the resources mechanism, those with lower-SES parents are more likely to have a birth while being single than those with higher-SES parents.

### ***3.2.3 Influence of Parental SES on Nonmarital Fertility Through the Transmission of SES***

The intergenerational transmission of SES refers to the consistently found correlation between the SES of parents and their children (Breen and Jonsson 2005; Ganzeboom et al. 1991; Kurz and Müller 1987). Education plays an important role within this mechanism (Breen and Jonsson 2005; Ganzeboom et al. 1991; Jerrim and Macmillan 2015). Via socialization, parents are expected to shape their children's educational aspirations and school performance (Erikson and Jonsson 1996). Parental material and financial resources may also influence the quality of the school attended by children, as well as their participation in extra-curricular activities and courses (Garner and Raudenbush 1991; Lehmann 2012; Mayer 2002). In addition, genetics play a role in status transmission of parents to children, by affecting for example cognitive ability and personality (Nielsen 2006).

SES of the childhood family may influence the likelihood of having a birth in cohabitation or while being single indirectly through the intergenerational transmission of SES. For example, those growing up with higher-SES parents may have higher educational and occupational aspirations which can increase their motivation to avoid single motherhood. This link may become even stronger due to the actual higher educational and occupational performance of children of higher-SES parents.

## **3.3 Data and Method**

This chapter builds on the research of Koops et al. (2017). For more information on sample selection and analytical approach, I refer the reader to this article.

### ***3.3.1 Data***

This chapter uses data from the Generations and Gender Survey Wave 1 (Generations and Gender Programme 2019; Vikat et al. 2007). In addition, it used data of the Canadian General Social Survey (Béchar and Marchand 2008), and the Dutch Survey on Family Formation (CBS 2012). Post-harmonized data of the American

National Survey on Family Growth and the British Household Panel Survey were taken from the Harmonized Histories dataset (Perelli-Harris et al. 2010).

### 3.3.2 Variables

Parental SES can be captured with various indicators. The most commonly used are parental education, occupational status, and income (Breen and Jonsson 2005). All three indicators have a clear link with economic capital and therefore with parental resources. However, especially education is commonly mentioned as a proxy for cultural capital which may capture parental preferences better (Bourdieu 1986; Kraaykamp and van Eijck 2010). In addition, parental education is rather stable over time, and may therefore give a better reflection of the general situation during childhood. Therefore, this chapter follows the strategy of Koops et al. (2017) by capturing parental SES with parental education.

Father's and mother's education are recoded from the categorical International Standard Classification of Education (ISCED) into a continuous variable (ranging from 0 to 100) based on the International Standard Level of Education (ISLED) coding system, a method developed by Schröder and Ganzeboom (2014). A coding scheme was available for all countries, except for Georgia, the USA, and Canada (Brons and Mooyaart 2018). For these three countries, the general conversion scheme – based on the correspondence between ISCED and ISLED in all available countries – was used instead (Schröder and Ganzeboom 2014). Parental education was constructed to represent the mean value of father and mother's ISLED, or the educational level of only one of the parents if the information was not available for both.

Own education was also converted from ISCED to ISLED. The variable is added as a time-varying covariate in the model by using information on the highest educational level attained by the respondent in combination with information on the year and month in which this highest level was reached. First it was established in which year individuals finished primary school, and which ISLED level was reached at this point. From secondary education onwards, individuals are assumed to be enrolled in school continuously, until they reached their highest attained educational level. After this point in time, education remains at a constant level. Missing information on year and month of reaching the highest educational level was imputed by taking the median age of reaching that level in that country.

Cohort is a continuous variable reflecting respondent's birth year. The variables age, age<sup>2</sup>, and age<sup>3</sup> are time-varying and refer to the respondent's age in months. They are included in the models to correct for the nonlinear effect of age on the risk of having a first birth.

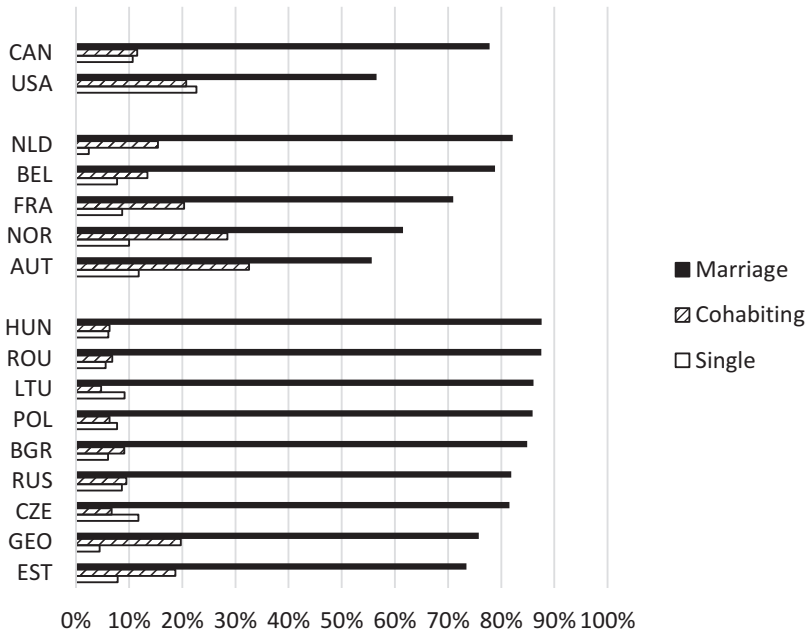
### 3.3.3 Analytical Approach

Discrete-time competing risk models were used to estimate the influence of parental education on the monthly risk of having a first birth in marriage, in cohabitation, or while being single. This model examines the monthly risk of experiencing these events, starting at the age of 15. Those who did not have a biological child at the time of the interview or before the age of 45, were right-censored. Having a birth in marriage is taken as the reference category. The models test if an increase in parental education alters the risk of becoming a cohabiting or a single parent as compared to a married parent. Two models were estimated for each country, one excluding own education and one including own education. The results of the multinomial logistic regressions reported as relative risk ratios are presented in Tables 3.1 and 3.3 of the Appendix. Note that these results are the same as reported in Tables 3 and 5 of Koops et al. (2017).

The multinomial logistic regressions answer the question if parental education influences the risk of having a birth in marriage, cohabitation, or while being single, before and after including own education. However, it is not immediately clear from the coefficients how relevant the effect sizes of parental education are. In order to make the effect sizes easier to interpret, the margins of the dependent variable were estimated for the lowest and for the highest reported level of parental education in a country. The other indicators were set at their average. With these specifications, the margins estimate the predicted probability for a certain outcome given the specified level of parental education. Thereafter, the predicted probability of having a birth in cohabitation (or while being single) was divided by the predicted probability of having a birth in marriage, cohabitation or while being single. With the KHB-method, the percentage reduction in the effect of parental education caused by the mediation through own education was obtained (Karlson et al. 2012). The KHB-method provides unbiased decompositions for non-linear models. Together, this information provides a detailed picture of the extent to which the effect of parental education is partially or fully mediated through own education and how large the effect of parental education on partnership status at first birth is, once own education is accounted for. The results are summarized in Figs. 3.2, 3.3, 3.4, 3.5 and 3.6.

## 3.4 Results

Figure 3.1 gives an overview of the distribution of first births across partnership contexts. In all countries, most births happen in the context of marriage. At the same time, the actual percentage of births in marriage differs substantially between countries. In some Eastern European countries such as Hungary and Romania, close to 90% of first births happen in the context of marriage, while in some Western European countries such as Austria and Norway, about 60% of first births happen in marriage. First births to single people are the least common, about 5–10% of births happen in this partnership context. Compared to the other countries, the USA is an

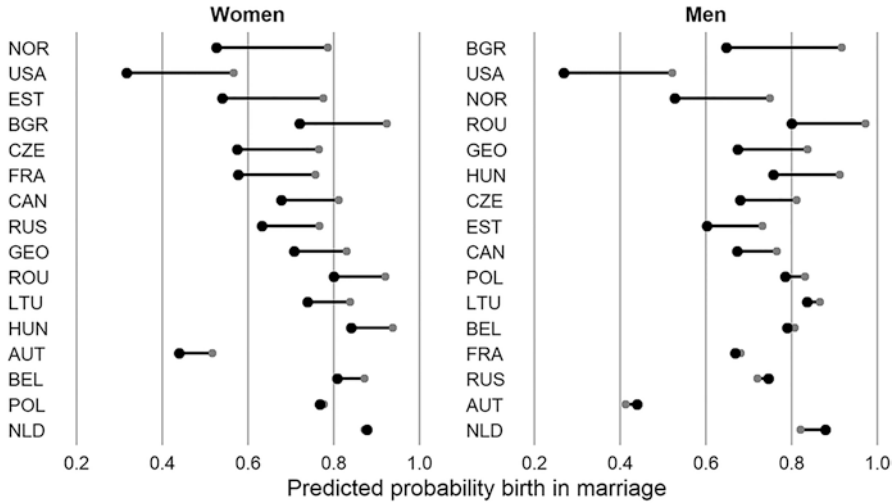


**Fig. 3.1** Weighted percentage of respondents having a first child in marriage, cohabitation, and while being single

outlier when it comes to births to singles. In the USA more than 20% of births happen to men and women who are living single. In Eastern Europe and North-America the percentage of first births that happen in unmarried cohabitation tends to be low and is comparable with the percentage of first births that happen to those who are single. However, in Western Europe and also in some Eastern European countries, such as Georgia and Estonia, the percentage of births to cohabiting couples clearly exceeds the percentage of births to singles.

### 3.4.1 First Births in Marriage

Figure 3.2 provides a graphical representation of the influence of parental education on the probability of having a birth in marriage, when own education is not taken into account. The results are based on multinomial logistic regressions, see Tables 3.1 (for women) and 3.2 (for men) of the Appendix. The dots reflect the predicted probability of having a birth in marriage among those with the lowest level of parental education in that country (black dot) and those with the highest level of parental education in that country (grey dot). The length of the line between the dots reflects the maximum difference in predicted probability of having a birth in marriage based on parental education. A line attached to the right side of the black dot indicates a

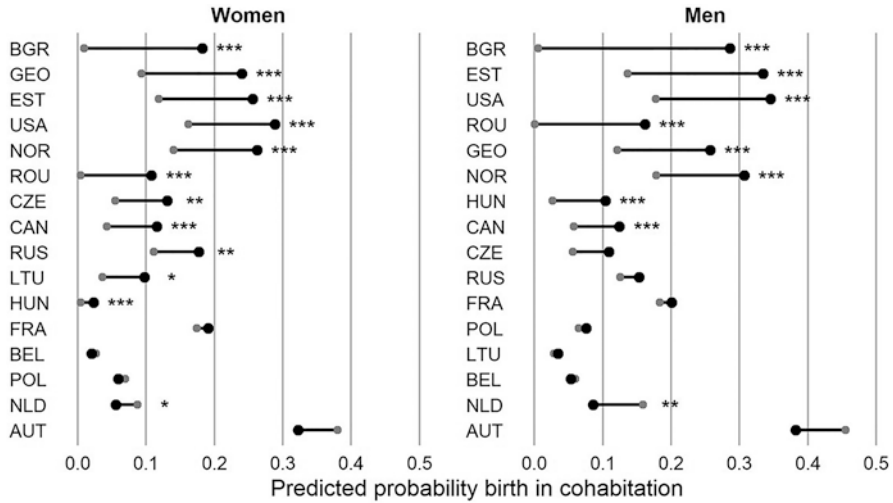


**Fig. 3.2** Differences in the predicted probability of having a first birth in marriage between those with the lowest level of parental education (black dot) and those with the highest level of parental education (grey dot)  
 Note: Results are based on the multinomial logistic regressions excluding own education, presented in Tables 3.1 and 3.2 of the Appendix

positive effect of parental education on the probability of having a birth in marriage, while a line attached to the left side of the black dot indicates a negative effect.

The results show that women with higher educated parents have a higher predicted probability of having a birth in marriage as compared to those with lower educated parents. Differences in the probability of having a birth in marriage are largest in Norway, the USA, and Estonia. In these countries, the predicted probability of having a birth in marriage is about 25 percentage points higher for those with the highest level of parental education as compared to those with the lowest level of parental education. In Bulgaria, the Czech Republic and France the difference is close to 20 percentage points. The difference between educational levels is around 12 percentage points in Canada, Russia, Georgia, Romania, Lithuania, and Hungary. In Austria, Belgium, Poland, and the Netherlands the difference is smaller than 10 percentage points.

For men, the difference in the probability of having a birth in marriage between parental educational levels is largest in Bulgaria, the USA, and Norway, with distinctions of approximately 25 percentage points. In Romania, Georgia, and Hungary the difference is close to 15 percentage points, and in the Czech Republic, Estonia, and Canada close to 12 percentage points. In Poland, Lithuania, Belgium, France, Russia, Austria, and the Netherlands, differences are smaller than 10 percentage points. For women in France and Russia, substantial differences were found in the predicted probability of having a birth in marriage by parental education, but this is not found for men. Apart from these two countries, patterns for men and women are relatively similar.



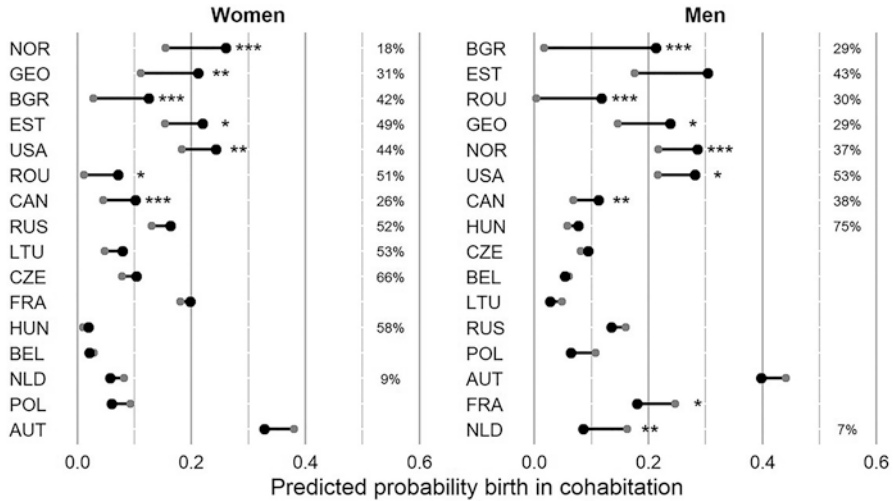
**Fig. 3.3** Differences in the predicted probability of having a first birth in cohabitation between those with the lowest level of parental education (black dot) and those with the highest level of parental education (grey dot)

Note: The asterisks indicate if parental education significantly influences the risk of having a birth in cohabitation or in marriage (\*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ ). Results are based on the multinomial logistic regressions excluding own education presented in Tables 3.1 and 3.2 of the Appendix

### 3.4.2 First Births in Cohabitation

Figure 3.3 displays the influence of parental education on the probability of having a birth in cohabitation, when own education is not taken into account. In the majority of countries, women with lower educated parents have a higher probability of having a birth in cohabitation. The difference between educational levels is largest in Bulgaria, Georgia, and Estonia. In these countries the probability of having a first birth in cohabitation is about 15 percentage points higher for those with the lowest level of parental education as compared to those with the highest level of parental education. In the USA, Norway, and Romania the differences are around 12 percentage points. In all other countries, the differences are smaller than 10 percentage points.

For women it is found that in Norway, North American and East European countries (except Poland) higher parental education is related to an increased risk of having a birth in cohabitation. In the Netherlands and Austria, women with lower educated parents have a lower predicted probability of having a birth in cohabitation compared to women with higher educated parents. However, the differences by educational level are small, and it is only statistically significant for the Netherlands. In France, Belgium, and Poland, parental education does not significantly influence the risk of having a birth in cohabitation or marriage.



**Fig. 3.4** Differences in the predicted probability of having a first birth in cohabitation between those with the lowest level of parental education (black dot) and those with the highest level of parental education (grey dot)

Note: The asterisks indicate if parental education significantly influences the risk of having a birth in cohabitation or in marriage (\*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ ). Results are based on the multinomial logistic regressions including own education presented in Tables 3.3 and 3.4 of the Appendix. The graphs also report on the percentage reduction in the effect of parental education that can be attributed to the mediation effect through own education. This percentage is only reported for those countries for which a significant effect of parental education was found in the models excluding own education

For Bulgarian men, the difference in predicted probability of having a first birth in cohabitation is 28 percentage points higher for those with the lowest level of parental education as compared to those with the highest level of parental education. The difference in Estonia is 20 percentage points, and in the USA, Romania, Georgia, and Norway close to 15 percentage points. In all other countries the difference between educational levels is smaller than 10 percentage points. Generally, the influence of parental education on the risk of having a birth in cohabitation or marriage is similar for men and women. Only in some Eastern European countries the conclusions for men and women are different. In the Czech Republic, Lithuania, and Russia, the negative effect of parental SES on the risk of having a birth in cohabitation is small for men and not statistically significant.

Figure 3.4 shows the influence of parental education on the probability of having a birth in cohabitation once own education is included in the model. In Russia, Lithuania, the Czech Republic, and the Netherlands the effect of parental education on the risk of having a birth in cohabitation or marriage is fully mediated through own education. In Norway, Georgia, Bulgaria, Estonia, the USA, Romania and Canada, the effect of parental education is partially mediated through own

education. The partial reduction in the effect of parental education that can be attributed to the mediation through own education ranges from 18% in Norway to 51% in Romania. When taking mediation through own education into account, the difference between parental educational levels in the probability of having a birth in cohabitation is largest in Norway, Georgia, and Bulgaria, with close to 10 percentage points. In all other countries, the difference is smaller.

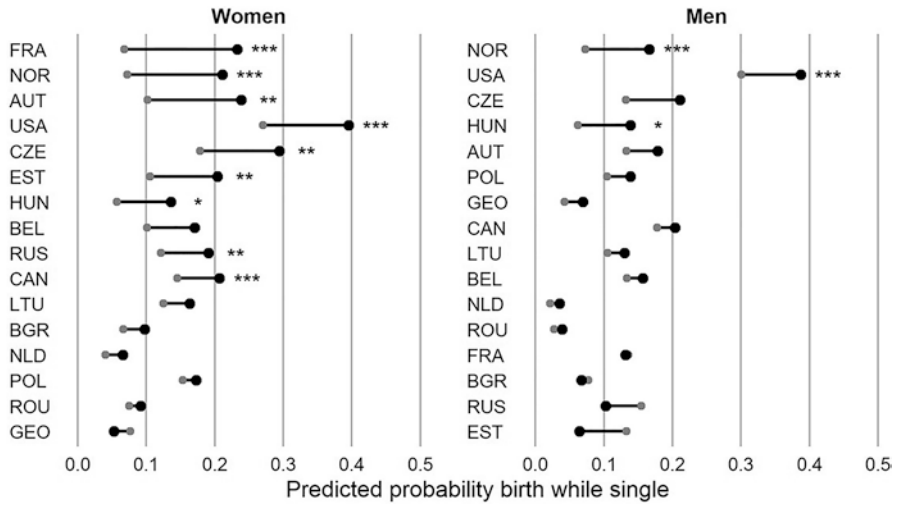
For the model including a respondent's own education, different results for men and women are found in three countries. For men in the Netherlands, the positive effect of parental education on the risk of having a birth in cohabitation is only partially mediated through own education (while it is fully mediated for women). In Estonia, the negative effect of parental education on the risk of having a birth in cohabitation is fully mediated through own education (while it is partially mediated for women). Notably, in France, only after controlling for own education, a positive and significant effect of parental education on the risk of having a birth in cohabitation is found for men (while a negative – non-significant - effect is found for women). The largest difference of parental educational levels on the probability of having a birth in cohabitation is found in Bulgaria (20 percentage points), and Estonia and Romania (around 12 percentage points). In all other countries the difference is smaller than 10 percentage points.

### ***3.4.3 First Births While Being Single***

In the case of births to singles, one has to be wary of data quality issues for men. Previous research has shown that men tend to underreport the number of nonmarital children, especially when they do not share a household with these children (Joyner et al. 2012). It is therefore possible that men who had their first birth while being single are less accurate in providing birth dates or might not report these births. Research has shown that underreporting can affect the influence of background variables on fertility outcomes, by attenuating the coefficients (Joyner et al. 2012). Figures 3.5 and 3.6 show the results of the influence of parental education on the probability of having a birth while being single, for both men and women. However, the results for women will be considered more reliable and will therefore be the focus of the next discussion.

In the majority of countries, women growing up with lower educated parents have a higher probability of having a birth while being single (see Fig. 3.5). The difference between educational levels is largest in France, Norway and Austria, where the probability for a birth while being single is about 15 percentage point higher for those with the lowest level of parental education compared to those with the highest level of parental education. In the USA, the Czech Republic and Estonia, the difference is close to 11 percentage points. In all other countries the difference is less than 10 percentage points.



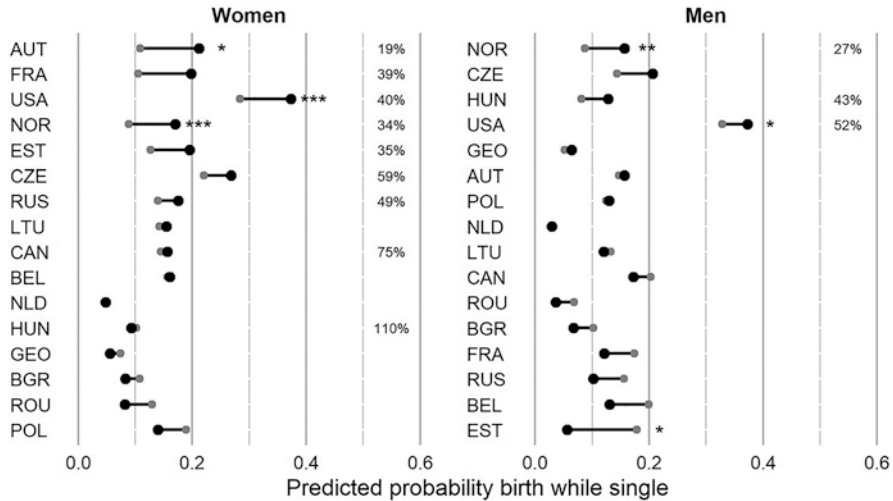


**Fig. 3.5** Differences in the predicted probability of having a first birth while being single between those with the lowest level of parental education (black dot) and those with the highest level of parental education (grey dot)

Note: The asterisks indicate if parental education significantly influences the risk of having a birth while being single or in marriage (\*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ ). Results are based on the multinomial logistic regressions excluding own education presented in Tables 3.1 and 3.2 of the Appendix

In North-America, women with lower educated parents have a higher risk of having a birth while being single than in marriage, as compared to those with higher educated parents. In Western Europe, the negative effect of parental education on the risk of having a birth while being single is statistically significant in France, Norway, and Austria but not in Belgium and the Netherlands. In Central and Eastern Europe, a negative effect of parental education is found for women in the Czech Republic, Estonia, Hungary, and Russia. Parental education does not significantly alter the risk of having a birth while being single or in marriage in Lithuania, Bulgaria, Poland, Romania, and Georgia.

Figure 3.6 shows the effect of parental education on the probability of having a birth while being single when own education has been taken into account. For women in France, Estonia, the Czech Republic, Russia, Canada, and Hungary, the effect of parental education on the risk of having a birth in cohabitation or in marriage is fully mediated through own education. In Austria, the USA, and Norway, the effect of parental education is partially mediated through own education. The reduction in the effect that can be attributed to this mediation ranges from 19% in Austria to 40% in the USA. When taking mediation through own education into account, the difference between parental educational levels on the probability of having a birth in cohabitation is close to 9 percentage points in Austria, the USA, and Norway.



**Fig. 3.6** Differences in the predicted probability of having a first birth while being single between those with the lowest level of parental education (black dot) and those with the highest level of parental education (grey dot)

Note: The asterisks indicate if parental education significantly influences the risk of having a birth while being single or in marriage (\*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ ). Results are based on the multinomial logistic regressions including own education presented in Tables 3.3 and 3.4 of the Appendix. The graphs also report on the percentage reduction in the effect of parental education that can be attributed to the mediation effect through own education. This percentage is only reported for those countries for which a significant effect of parental education was found in the models excluding own education

### 3.5 Discussion

Previous research has shown that parental SES is an important factor in explaining partnership status at first birth. Research suggests that parents influence their children’s family formation through the mechanisms of socialization, availability of resources, and the intergenerational transmission of SES. In this chapter, the methodological approach of Koops et al. (2017) is followed by examining the effect of parental SES on partnership status at first birth in 16 countries. Particular focus has been placed on whether the influence of parental SES on the dependent variable is mediated through own SES.

In most countries investigated (11 out of 16), women with lower-SES parents are more likely to have a birth in cohabitation than women with higher-SES parents. Differences in the predicted probability of having a birth in cohabitation between women with the lowest level of parental SES and women with the highest level of parental SES can be up to 15 percentage points. These results align with the Pattern of Disadvantage perspective which views cohabitation as a ‘poor-man’s marriage’ (Edin and Kefalas 2005; Gibson-Davis et al. 2005). Those with lower parental SES may be less likely to meet the requirements for marriage, and are therefore more likely to have a first birth in cohabitation.

In 4 out of 11 countries (Russia, Lithuania, the Czech Republic, and Hungary), the negative effect of parental SES on the likelihood of having a birth in cohabitation or marriage is fully mediated through own SES. In the remaining 7 countries (Canada, USA, Norway, Bulgaria, Estonia, Georgia, and Romania), the negative effect of parental SES on the likelihood of having a birth in cohabitation is partially mediated through own SES. The partial reduction in the effect of parental SES that can be attributed to the mediation through own SES ranges in these countries between 18–51%. This is a first indication that the influence of parental SES on the likelihood of having a first birth in cohabitation and marriage, is at least partly explained by the intergenerational transmission of SES. At the same time, regardless of the attenuation in the effects, a direct effect of parental SES is also found. A possible explanation is that in these countries, women with lower-SES parents receive fewer financial transfers from their parents (resources mechanism), which hamper them from being married when having their first child.

Only in one country (the Netherlands), a positive effect is found of parental SES on the likelihood of having a first birth in cohabitation. However, the differences in the predicted probability of having a birth in cohabitation between women with the lowest level of parental SES and women with the highest level of parental SES is only 3 percentage points. The results indicate that after including own SES in the model, the positive effect of parental SES becomes smaller and is no longer statistically significant. This indicates that for women in the Netherlands, the effect of parental SES may, for a large part, be explained through the intergenerational transmission of SES.

Existing fertility-related studies tend to focus on women. One of the reasons for not including men in fertility research is their tendency to underreport nonmarital children or to misreport birth dates. Under- and misreporting are especially prevalent when men have not shared a household with their children (Joyner et al. 2012). It is therefore not problematic to include men in research focusing on births that happen within cohabitation or marriage. The results in this chapter show that the influence of parental SES on the likelihood of having a birth in cohabitation or marriage is comparable between men and women. However, in the Netherlands and France some interesting gender differences appear once the models include own SES. As mentioned in the previous paragraph, for women in the Netherlands the effect of parental SES on the likelihood of having a birth in cohabitation is nonsignificant after including own SES in the model. In contrast, for men the positive effect of parental SES becomes stronger after own SES is included in the model and remains statistically significant. A similar pattern is found for men in France. However, in this case the effect of parental SES on the likelihood of having a birth in cohabitation becomes positive and is statistically significant only after own SES is included in the model. These results may suggest that in the Netherlands and in France, men with higher-SES parents are more likely to have a birth in cohabitation, because these parents are more positive about cohabitation than lower-SES parents, and they transmit these preferences to their sons. It is remarkable that these effects are only found for men, and not for women. Some research on the intergenerational transmission of living arrangements has found that the socialization mechanism is

stronger for daughters than for sons (Axinn and Thornton 1993). However, the findings in this chapter are more in line with research showing that parents transmit more traditional family norms to their daughters and more liberal norms to their sons (Barber 2000). The effect sizes are not large. The probability of having a first birth in cohabitation is 7–8 percentage points higher for men with the highest level of parental SES compared to men with the lowest level of parental SES.

This research also contrasted first births occurring while being single and in marriage. The results presented in this chapter show that in 9 out of 16 countries, women with lower-SES parents are more likely to have a birth while being single. In 6 countries (France, Estonia, the Czech Republic, Russia, Canada, and Hungary), the negative effect of parental SES on the likelihood of having a birth while being single or in marriage is fully mediated through own SES. In the USA, Austria, and Norway, the effect of parental SES on the likelihood of having a birth while being single is only partially mediated through own SES. The reduction in the effect of parental SES that can be attributed to this mediation is between 19–40%. These findings may indicate that those growing up with higher-SES parents are more motivated to avoid single parenthood because they may attribute more importance to other life goals than motherhood (socialization mechanism and intergenerational transmission of SES). In addition, they may be better able to prevent unplanned pregnancies and they may be more likely to move in with a partner when confronted with a pregnancy (resources mechanism and intergenerational transmission of SES).

To sum up, the research in this chapter provides consistent evidence that parental SES influences partnership status at first birth in western societies. Overall, lower parental SES is related to a higher likelihood of having a first birth in cohabitation and while being single. It is possible that unequal occurrence of births in cohabitation and while being single aggravate inequalities between groups. Previous research shows that single motherhood has negative socio-economic consequences for mothers and their children (Kollmeyer 2013). Moreover, cohabiting parents are often treated differently than married parents. For example, cohabiters may be entitled to a lesser extent to tax and social security benefits. Also, after separation or death of a partner, the division of property and entitlement to inheritance may depend on the partnership status (Perelli-Harris and Gassen 2012). It is therefore important to understand if inequalities that exist at the start of parenthood could be prohibited. What may help in this regard is understanding why inequalities that are found in some western societies are not found in others. The research in this chapter suggests that the influence of parental SES on the likelihood of having a birth outside of marriage can be partly explained through the intergenerational transmission of SES. In addition, a direct – mostly negative – effect of parental SES is found. Possibly, differences in parental support in the transition to adulthood can explain these differences. In the case of single motherhood, it is also possible that parental SES influences the ability to prevent pregnancies.

**Acknowledgements** The research leading to these results has received funding from the European Research Council under the European Union's Seventh Framework Programme (FP/2007-2013)/ERC Grant Agreement n. 324178.

## Appendix

**Table 3.1** Women: Multinomial logistic regression showing the association of the independent variables (excl. own education) with the relative risk ratio of not having a first birth, or having a first birth in cohabitation, or while being single (ref. having a first birth in marriage)

		CAN	USA	AUT	BEL	FRA	NLD	NOR	BGR
Cohabitation	P_educ.	0.978†	0.973†	1.000	1.003	0.995	1.007§	0.981†	0.953†
	Cohort	1.125†	1.073†	1.063†	1.089†	1.083†	1.154†	1.096†	1.065†
	Age	0.989†	1.010§	0.990	0.959†	0.985†	0.963†	0.995	0.968†
	Age <sup>2</sup>	1.000†	1.000†	1.000	1.000†	1.000†	1.000†	1.000§	1.000†
	Age <sup>3</sup>	1.000§	1.000†	1.000	1.000†	1.000†	1.000†	1.000§	1.000§
Single	P_educ.	0.990†	0.978†	0.985‡	0.990	0.981†	0.993	0.973†	0.990
	Cohort	1.047†	1.032†	1.023	0.996	0.990§	1.022	1.025†	0.992
	Age	0.963†	0.983†	0.978‡	0.955†	0.968†	0.958†	0.970†	0.977†
	Age <sup>2</sup>	1.000†	1.000§	1.000	1.000†	1.000†	1.000§	1.000†	1.000†
	Age <sup>3</sup>	1.000†	1.000†	1.000	1.000‡	1.000†	1.000	1.000†	1.000†
No birth	P_educ.	1.008†	1.016†	1.015†	1.011†	1.012†	1.012†	1.006†	1.019†
	Cohort	1.027†	1.006	1.045†	1.005‡	1.022†	1.036†	1.032†	1.001
	Age	0.950†	0.960†	0.947†	0.931†	0.939†	0.953†	0.944†	0.951†
	Age <sup>2</sup>	1.000†	1.000†	1.000†	1.000†	1.000†	1.000†	1.000†	1.000†
	Age <sup>3</sup>	1.000†	1.000†	1.000‡	1.000†	1.000†	1.000	1.000†	1.000†
		CZE	EST	GEO	HUN	LTU	POL	ROU	RUS
Cohabitation	P_educ.	0.979‡	0.985†	0.985†	0.976†	0.985§	1.002	0.957†	0.991‡
	Cohort	1.047†	1.060†	1.040†	1.093†	1.049†	1.051†	1.048†	1.023†
	Age	0.972†	0.977†	0.991†	0.956†	0.968†	0.972†	0.975†	0.971†
	Age <sup>2</sup>	1.000†	1.000†	1.000‡	1.000†	1.000†	1.000†	1.000†	1.000†
	Age <sup>3</sup>	1.000†	1.000†	1.000‡	1.000†	1.000†	1.000‡	1.000†	1.000†
Single	P_educ.	0.986‡	0.987‡	1.003	0.986§	0.995	0.998	0.996	0.991‡
	Cohort	1.012†	1.027†	0.991	1.021†	1.003	1.009‡	0.973†	1.003
	Age	0.971†	0.968†	0.983†	0.966†	0.980†	0.969†	0.978†	0.977†
	Age <sup>2</sup>	1.000†	1.000†	1.000‡	1.000†	1.000†	1.000†	1.000‡	1.000†
	Age <sup>3</sup>	1.000†	1.000†	1.000§	1.000†	1.000†	1.000†	1.000‡	1.000†
No birth	P_educ.	1.010†	1.006†	1.009†	1.015†	1.008†	1.015†	1.018†	1.008†
	Cohort	1.007†	1.004‡	0.997§	1.009†	0.991†	1.007†	0.993†	0.989†
	Age	0.937†	0.937†	0.957†	0.946†	0.936†	0.940†	0.952†	0.938†
	Age <sup>2</sup>	1.000†	1.000†	1.000†	1.000†	1.000†	1.000†	1.000†	1.000†
	Age <sup>3</sup>	1.000†	1.000†	1.000†	1.000†	1.000†	1.000†	1.000†	1.000†

§  $p < 0.05$ ; ‡  $p < 0.01$ ; †  $p < 0.001$

**Table 3.2** Men: Results of the multinomial logistic regression showing the association of the independent variables (excl. own education) with the relative risk ratio of not having a first birth, or having a first birth in cohabitation, or while being single (ref. having a first birth in marriage)

		CAN	USA	AUT	BEL	FRA	NLD	NOR	BGR
Cohabitation	P_educ.	0.984†	0.969†	1.003	1.001	0.999	1.010‡	0.984†	0.938†
	Cohort	1.117†	1.056†	1.045‡	1.093†	1.090†	1.145†	1.092†	1.071†
	Age	0.979†	0.993	0.984	0.958†	0.983†	0.974§	0.995	0.961†
	Age <sup>2</sup>	1.000†	1.000§	1.000	1.000†	1.000†	1.000†	1.000‡	1.000†
	Age <sup>3</sup>	1.000†	1.000†	1.000	1.000†	1.000†	1.000‡	1.000§	1.000†
Single	P_educ.	0.995	0.979†	0.997	0.997	1.000	0.993	0.978†	0.997
	Cohort	1.028†	0.998	0.991	1.000	1.010	1.064‡	1.019†	0.994
	Age	0.964†	0.980‡	0.995	0.962†	0.959†	0.922†	0.975†	0.962†
	Age <sup>2</sup>	1.000†	1.000§	1.000	1.000†	1.000†	1.000†	1.000§	1.000†
	Age <sup>3</sup>	1.000†	1.000†	1.000§	1.000†	1.000†	1.000§	1.000	1.000†
No birth	P_educ.	1.006†	1.016†	1.010†	1.004§	1.005†	1.009†	1.001	1.011†
	Cohort	1.023†	0.998	1.047†	1.013†	1.028†	1.039†	1.036†	1.013†
	Age	0.933†	0.933†	0.928†	0.917†	0.925†	0.924†	0.931†	0.933†
	Age <sup>2</sup>	1.000†	1.000†	1.000†	1.000†	1.000†	1.000†	1.000†	1.000†
	Age <sup>3</sup>	1.000†	1.000†	1.000†	1.000†	1.000†	1.000†	1.000†	1.000†
		<b>CZE</b>	<b>EST</b>	<b>GEO</b>	<b>HUN</b>	<b>LTU</b>	<b>POL</b>	<b>ROU</b>	<b>RUS</b>
Cohabitation	P_educ.	0.985	0.986†	0.987†	0.978†	0.997	0.997	0.930†	0.998
	Cohort	1.070†	1.071†	1.051†	1.094†	1.067†	1.072†	1.062†	1.016‡
	Age	0.974†	0.974†	0.995	0.956†	0.992	0.961†	0.965†	0.972†
	Age <sup>2</sup>	1.000†	1.000†	1.000	1.000†	1.000§	1.000†	1.000†	1.000†
	Age <sup>3</sup>	1.000†	1.000†	1.000	1.000†	1.000§	1.000†	1.000†	1.000†
Single	P_educ.	0.988	1.007	0.991	0.986§	0.997	0.996	0.993	1.006
	Cohort	1.006	1.003	1.008	1.009	0.991	1.007	0.975†	0.985§
	Age	0.964†	0.968†	0.978‡	0.955†	0.970†	0.959†	0.961†	0.966†
	Age <sup>2</sup>	1.000†	1.000†	1.000	1.000†	1.000†	1.000†	1.000	1.000†
	Age <sup>3</sup>	1.000†	1.000‡	1.000	1.000†	1.000‡	1.000†	1.000	1.000†
No birth	P_educ.	1.004§	0.998	1.007†	1.006†	1.004‡	1.003‡	1.009†	1.006†
	Cohort	1.016†	1.017†	1.010†	1.019†	0.997	1.015†	1.002	1.000
	Age	0.928†	0.925†	0.945†	0.925†	0.926†	0.922†	0.926†	0.920†
	Age <sup>2</sup>	1.000†	1.000†	1.000†	1.000†	1.000†	1.000†	1.000†	1.000†
	Age <sup>3</sup>	1.000†	1.000†	1.000†	1.000†	1.000†	1.000†	1.000†	1.000†

§  $p < 0.05$ ; ‡  $p < 0.01$ ; †  $p < 0.001$

**Table 3.3** Women: Results of the multinomial logistic regression showing the association of the independent variables (incl. own education) with the relative risk ratio of not having a first birth, or having a first birth in cohabitation, or while being single (ref. having a first birth in marriage)

		<b>CAN</b>	<b>USA</b>	<b>AUT</b>	<b>BEL</b>	<b>FRA</b>	<b>NLD</b>	<b>NOR</b>	<b>BGR</b>
Cohabitation	P_educ.	0.983†	0.986†	1.001	1.005	0.997	1.006	0.985†	0.976†
	Own educ.	0.972†	0.956†	0.997	0.996	0.996	1.003	0.989†	0.960†
	Cohort	1.133†	1.068†	1.064†	1.090†	1.085†	1.152†	1.099†	1.062†
	Age	1.000	1.023†	0.992	0.961†	0.987‡	0.963†	1.000	0.976†
	Age <sup>2</sup>	1.000	1.000†	1.000	1.000†	1.000†	1.000†	1.000§	1.000†
	Age <sup>3</sup>	1.000	1.000†	1.000	1.000†	1.000‡	1.000†	1.000	1.000†
Single	P_educ.	0.997	0.986†	0.989§	1.000	0.990	1.000	0.983†	1.003
	Own educ.	0.956†	0.964†	0.987§	0.983†	0.985†	0.969†	0.968†	0.977†
	Cohort	1.056†	1.028†	1.024	1.001	0.995	1.033§	1.030†	0.994
	Age	0.977†	0.993	0.982§	0.960†	0.969†	0.966†	0.976†	0.981†
	Age <sup>2</sup>	1.000†	1.000‡	1.000	1.000†	1.000†	1.000	1.000†	1.000†
	Age <sup>3</sup>	1.000‡	1.000†	1.000	1.000‡	1.000†	1.000	1.000‡	1.000†
No birth	P_educ.	1.006†	1.015†	1.012†	1.009†	1.007†	1.010†	1.005†	1.019†
	Own educ.	1.007†	1.002	1.011†	1.003§	1.008†	1.009†	1.004‡	1.000
	Cohort	1.026†	1.006	1.043†	1.005‡	1.018†	1.032†	1.031†	1.001
	Age	0.948†	0.959†	0.945†	0.931†	0.938†	0.950†	0.943†	0.951†
	Age <sup>2</sup>	1.000†	1.000†	1.000†	1.000†	1.000†	1.000†	1.000†	1.000†
	Age <sup>3</sup>	1.000†	1.000†	1.000†	1.000†	1.000†	1.000	1.000†	1.000†
		<b>CZE</b>	<b>EST</b>	<b>GEO</b>	<b>HUN</b>	<b>LTU</b>	<b>POL</b>	<b>ROU</b>	<b>RUS</b>
Cohabitation	P_educ.	0.993	0.993§	0.990‡	0.990	0.993	1.007	0.976§	0.995
	Own educ.	0.967†	0.975†	0.986†	0.968†	0.968†	0.977†	0.950†	0.977†
	Cohort	1.049†	1.063†	1.040†	1.093†	1.055†	1.057†	1.058†	1.030†
	Age	0.977†	0.984†	0.995	0.963†	0.977†	0.981†	0.980†	0.977†
	Age <sup>2</sup>	1.000†	1.000†	1.000	1.000†	1.000†	1.000†	1.000†	1.000†
	Age <sup>3</sup>	1.000†	1.000†	1.000	1.000†	1.000†	1.000§	1.000‡	1.000†
Single	P_educ.	0.995	0.992	1.003	1.001	0.998	1.006	1.006	0.995
	Own educ.	0.980†	0.984†	1.001	0.966†	0.987‡	0.973†	0.979†	0.979†
	Cohort	1.014†	1.030†	0.991	1.026†	1.007	1.016†	0.979†	1.010‡
	Age	0.974†	0.973†	0.983†	0.971†	0.983†	0.975†	0.980†	0.983†
	Age <sup>2</sup>	1.000†	1.000†	1.000‡	1.000†	1.000†	1.000†	1.000‡	1.000†
	Age <sup>3</sup>	1.000†	1.000†	1.000§	1.000†	1.000†	1.000†	1.000§	1.000†
No birth	P_educ.	1.012†	1.006†	1.007†	1.012†	1.008†	1.014†	1.015†	1.008†
	Own educ.	0.998	0.998	1.003§	1.004†	1.002	1.004†	1.007†	0.999
	Cohort	1.007†	1.005†	0.997§	1.008†	0.990†	1.006†	0.991†	0.989†
	Age	0.938†	0.937†	0.956†	0.945†	0.935†	0.939†	0.951†	0.938†
	Age <sup>2</sup>	1.000†	1.000†	1.000†	1.000†	1.000†	1.000†	1.000†	1.000†
	Age <sup>3</sup>	1.000†	1.000†	1.000†	1.000†	1.000†	1.000†	1.000†	1.000†

§  $p < 0.05$ ; ‡  $p < 0.01$ ; †  $p < 0.001$

**Table 3.4** Men: Results of the multinomial logistic regression showing the association of the independent variables (incl. own education) with the relative risk ratio of not having a first birth, or having a first birth in cohabitation, or while being single (ref. having a first birth in marriage)

		CAN	USA	AUT	BEL	FRA	NLD	NOR	BGR
Cohabitation	P_educ.	0.990‡	0.987‡	1.003	1.003	1.007	1.011‡	0.991†	0.960†
	Own educ.	0.976†	0.951†	1.004	0.996	0.985†	0.997	0.983†	0.961†
	Cohort	1.121†	1.049†	1.045‡	1.093†	1.094†	1.145†	1.093†	1.065†
	Age	0.987†	1.005	0.983	0.959†	0.986‡	0.975§	0.999	0.965†
	Age <sup>2</sup>	1.000†	1.000‡	1.000	1.000†	1.000†	1.000†	1.000	1.000†
	Age <sup>3</sup>	1.000‡	1.000†	1.000	1.000†	1.000†	1.000‡	1.000	1.000†
Single	P_educ.	1.003	0.991§	1.000	1.008	1.007	1.000	0.985‡	1.003
	Own educ.	0.971†	0.964†	0.984§	0.978†	0.987§	0.974‡	0.983†	0.988
	Cohort	1.033†	0.993	0.991	1.002	1.014§	1.065‡	1.020†	0.993
	Age	0.972†	0.989	0.999	0.966†	0.961†	0.931†	0.978†	0.964†
	Age <sup>2</sup>	1.000†	1.000‡	1.000	1.000†	1.000†	1.000‡	1.000§	1.000†
	Age <sup>3</sup>	1.000‡	1.000†	1.000§	1.000†	1.000†	1.000§	1.000	1.000†
No birth	P_educ.	1.007†	1.017†	1.010‡	1.005‡	1.006†	1.009†	1.003§	1.011†
	Own educ.	0.997§	0.997	1.001	0.997§	0.998	1.001	0.994†	0.999
	Cohort	1.024†	0.997	1.047†	1.013†	1.029†	1.039†	1.036†	1.013†
	Age	0.934†	0.934†	0.928†	0.918†	0.925†	0.924†	0.932†	0.933†
	Age <sup>2</sup>	1.000†	1.000†	1.000†	1.000†	1.000†	1.000†	1.000†	1.000†
	Age <sup>3</sup>	1.000†	1.000†	1.000†	1.000†	1.000†	1.000†	1.000†	1.000†
		CZE	EST	GEO	HUN	LTU	POL	ROU	RUS
Cohabitation	P_educ.	0.996	0.993	0.991§	0.995	1.008	1.008	0.951†	1.004
	Own educ.	0.978‡	0.976†	0.988‡	0.965†	0.971†	0.974†	0.953†	0.975†
	Cohort	1.068†	1.072†	1.050†	1.090†	1.069†	1.074†	1.064†	1.020†
	Age	0.977†	0.979†	0.998	0.961†	0.998	0.968†	0.969†	0.977†
	Age <sup>2</sup>	1.000†	1.000†	1.000	1.000†	1.000	1.000†	1.000†	1.000†
	Age <sup>3</sup>	1.000†	1.000†	1.000	1.000†	1.000	1.000†	1.000†	1.000†
Single	P_educ.	0.992	1.015§	0.995	0.993	1.002	1.000	1.007	1.008
	Own educ.	0.993	0.972†	0.988	0.987§	0.986‡	0.987‡	0.973†	0.995
	Cohort	1.005	1.005	1.009	1.008	0.993	1.008	0.979†	0.986§
	Age	0.964†	0.974‡	0.981§	0.956†	0.973†	0.961†	0.965†	0.967†
	Age <sup>2</sup>	1.000†	1.000‡	1.000	1.000†	1.000‡	1.000†	1.000	1.000†
	Age <sup>3</sup>	1.000†	1.000‡	1.000	1.000†	1.000§	1.000†	1.000	1.000†
No birth	P_educ.	1.009†	1.001	1.008†	1.009†	1.006†	1.005†	1.011†	1.007†
	Own educ.	0.990†	0.990†	0.997	0.995†	0.995†	0.994†	0.997‡	0.994†
	Cohort	1.016†	1.017†	1.010†	1.018†	0.998	1.016†	1.002	1.001
	Age	0.929†	0.927†	0.946†	0.925†	0.927†	0.923†	0.926†	0.921†
	Age <sup>2</sup>	1.000†	1.000†	1.000†	1.000†	1.000†	1.000†	1.000†	1.000†
	Age <sup>3</sup>	1.000†	1.000†	1.000†	1.000†	1.000†	1.000†	1.000†	1.000†

§  $p < 0.05$ ; ‡  $p < 0.01$ ; †  $p < 0.001$



## References

- Aassve, A. 2003. The impact of economic resources on premarital childbearing and subsequent marriage among young American women. *Demography* 40 (1): 105–126.
- Albertini, M., and M. Kohli. 2013. The generational contract in the family: An analysis of transfer regimes in Europe. *European Sociological Review* 29 (4): 828–840.
- Albertini, M., M. Kohli, and C. Vogel. 2007. Intergenerational transfers of time and money in European families: Common patterns—Different regimes? *Journal of European Social Policy* 17 (4): 319–334.
- Amato, P.R., N.S. Landale, T.C. Havasevich-Brooks, A. Booth, D.J. Eggebeen, R. Schoen, and S.M. McHale. 2008. Precursors of young women's family formation pathways. *Journal of Marriage and Family* 70 (5): 1271–1286.
- Axinn, W.G., and A. Thornton. 1993. Mothers, children, and cohabitation: The intergenerational effects of attitudes and behavior. *American Sociological Review* 58 (2): 233.
- Axinn, W.G., M.E. Clarkberg, and A. Thornton. 1994. Family influences on family size preferences. *Demography* 31 (1): 65–79.
- Barber, J.S. 2000. Intergenerational influences on the entry into parenthood: Mothers' preferences for family and nonfamily behavior. *Social Forces* 79 (1): 319–348.
- Barber, J.S., and W.G. Axinn. 1998. The impact of parental pressure for grandchildren on young people's entry into cohabitation and marriage. *Population Studies* 52 (2): 129–144.
- Béchar, M., and I. Marchand. 2008. *Cycle 20: Family transitions (2006) – Public use microdata file documentation and user's guide*. Ottawa: Statistics Canada.
- Bernhardt, E., and B. Hoem. 1985. Cohabitation and social background: Trends observed for Swedish women born between 1936 and 1960. *European Journal of Population* 1 (4): 375–395.
- Berrington, A. 2001. Entry into parenthood and the outcome of cohabiting partnerships in Britain. *Journal of Marriage and Family* 63 (1): 80–96.
- Billari, F.C., and A.C. Liefbroer. 2010. Towards a new pattern of transition to adulthood? *Advances in Life Course Research* 15 (2): 59–75.
- Bourdieu, P. 1986. The forms of capital. In *The handbook for theory and research for the sociology of education*, ed. John G. Richardson, 241–258. Greenwood Publishing Group.
- Boussen, C. 2012. Key factors influencing contraceptive use in Eastern Europe and Central Asia findings from a qualitative study in 7 countries and recommendations for improving access to modern contraception in the region. Brussels, Belgium. [www.ippfen.org](http://www.ippfen.org)
- Breen, R., and J.O. Jonsson. 2005. Inequality of opportunity in comparative perspective: Recent research on educational attainment and social mobility. *Annual Review of Sociology* 31 (1): 223–243.
- Brons, M.D., and J.E. Mooyaart. 2018. *The generations and gender Programme: Constructing harmonized, continuous socio-economic variables for the GGS Wave 1*. The Hague: The Netherlands.
- Brown, S.L., and A. Booth. 1996. Cohabitation versus marriage: A comparison of relationship quality. *Journal of Marriage and the Family* 58 (3): 668.
- CBS. 2012. *Documentatierapport Onderzoekgezinsvorming 2008V1*. The Hague: Centraal Bureau voor de Statistiek.
- Cherlin, A.J. 2004. The deinstitutionalization of American marriage. *Journal of Marriage and Family* 66 (4): 848–861.
- Edin, K., and M. Kefalas. 2005. *Promises I can keep: Why poor women put motherhood before marriage*. Berkeley: University of California Press.
- Erikson, R., and J.O. Jonsson. 1996. *Can education be equalized?* Boulder: Westview.
- Ermisch, J. 2001. Cohabitation and childbearing outside marriage in Britain. In *Out of wedlock: Causes and consequences of nonmarital fertility*, ed. L.L. Wu and B. Wolfe, 109–139. New York: Russell Sage Foundation.
- Ermisch, J., and M. Francesconi. 2000. Cohabitation in Great Britain: Not for long, but here to stay. *Journal of the Royal Statistical Society. Series A: Statistics in Society* 163 (2): 153–171.

- Fingerman, K.L., K. Kim, E.M. Davis, F.F. Furstenberg Jr., K.S. Birditt, and S.H. Zarit. 2015. "I'll give you the world": Socioeconomic differences in parental support of adult children. *Journal of Marriage and Family* 77 (4): 844–865.
- Friedman, D., M. Hechter, and S. Kanazawa. 1994. A theory of the value of children. *Demography* 31 (3): 375–401.
- Frisco, M.L. 2005. Parental involvement and young women's contraceptive use. *Journal of Marriage and Family* 67 (1): 110–121.
- Ganzeboom, H.B.G., D.J. Treiman, and W.C. Ultee. 1991. Comparative intergenerational stratification research: Three generations and beyond. *Annual Review of Sociology* 17: 277–302.
- Garner, C.L., and S.W. Raudenbush. 1991. Neighborhood effects on educational attainment: A multilevel analysis. *Sociology of Education* 64 (4): 251–262.
- Gauthier, A.H. 2015. Social class and parental Investment in Children. In *Emerging trends in the social and behavioral sciences*, 1–14. Wiley.
- Generations and Gender Programme. 2019. *Generations and gender survey (GGS) - wave 1*. DANS.
- Gibson-Davis, C. 2011. Mothers but not wives: The increasing lag between nonmarital births and marriage. *Journal of Marriage and Family* 73 (1): 264–278.
- Gibson-Davis, C., K. Edin, and S. McLanahan. 2005. High hopes but even higher expectations: The retreat from marriage among low-income couples. *Journal of Marriage and Family* 67 (5): 1301–1312.
- Grusec, J.E., and M. Davidov. 2010. Integrating different perspectives on socialization theory and research: A domain-specific approach. *Child Development* 81 (3): 687–709.
- Härkönen, J. 2016. *Diverging destinies in international comparison*, Education, single motherhood, and child poverty. Working paper. Stockholm University.
- Högnäs, R.S., and M.J. Carlson. 2012. "Like parent, like child?": The intergenerational transmission of nonmarital childbearing. *Social Science Research* 41 (6): 1480–1494.
- Jerrim, J., and L. Macmillan. 2015. Income inequality, intergenerational mobility, and the great Gatsby curve: Is education the key? *Social Forces* 94 (2): 505–533.
- Joyner, K., H.E. Peters, K. Hynes, A. Sikora, J.R. Taber, and M.S. Rendall. 2012. The quality of male fertility data in major U.S. surveys. *Demography* 49 (1): 101–124.
- Karlson, K.B., A. Holm, and R. Breen. 2012. Comparing regression coefficients between same-sample nested models using logit and Probit: A new method. *Sociological Methodology* 42 (1): 286–313.
- Kohli, M. 1999. Private and public transfers between generations: Linking the family and the state. *European Societies* 1 (1): 81–104.
- Kohn, M.L. 1969. *Class and conformity: A study in values*. Homewood: The Dorsey Press.
- Kollmeyer, C. 2013. Family structure, female employment, and national income inequality: A cross-national study of 16 western countries. *European Sociological Review* 29 (4): 816–827.
- Koops, J.C., A.C. Liefbroer, and A.H. Gauthier. 2017. The influence of parental educational attainment on the partnership context at first birth in 16 Western societies. *European Journal of Population* 33 (4): 533–557.
- Kraaykamp, G., and K. van Eijck. 2010. The intergenerational reproduction of cultural capital: A threefold perspective. *Social Forces* 89 (1): 209–231.
- Kurz, K., and W. Müller. 1987. Class mobility in the industrial world. *Annual Review of Sociology* 13: 417–442.
- Lappegård, T., S. Klüsener, and D. Vignoli. 2018. Why are marriage and family formation increasingly disconnected across Europe? A multilevel perspective on existing theories. *Population, Space and Place* 24 (2).
- Lehmann, W. 2012. Extra-credentia experiences and social closure: Working-class students at university. *British Educational Research Journal* 38 (2): 203–218.
- Lesthaeghe, R. 2010. The unfolding story of the second demographic transition. *Population and Development Review* 36 (2): 211–251.
- Lesthaeghe, R., and D.J. Van de Kaa. 1986. Twee demografische transitities. *Bevolking: groei en krimp*: 9–24.

- Lichter, D.T., S. Sassler, and R.N. Turner. 2014. Cohabitation, post-conception unions, and the rise in nonmarital fertility. *Social Science Research* 47: 134–147.
- Liefbroer, A.C., and C.H. Elzinga. 2012. Intergenerational transmission of behavioural patterns: How similar are parents' and children's demographic trajectories? *Advances in Life Course Research* 17 (1): 1–10.
- Mayer, S.E. 2002. How economic segregation affects children's educational attainment. *Social Forces* 81 (1): 153–176.
- McLanahan, S. 2004. Diverging destinies: How children are faring under the second demographic transition. *Demography* 41 (4): 607–627.
- . 2009. Fragile families and the reproduction of poverty. *Annals of the American Academy of Political and Social Science* 621 (1): 111–131.
- McLanahan, S., and C. Percheski. 2008. Family structure and the reproduction of inequalities. *Annual Review of Sociology* 34 (1): 257–276.
- Musick, K. 2002. Planned and unplanned childbearing among unmarried women. *Journal of Marriage and Family* 64 (4): 915–929.
- Musick, K., P. England, S. Edgington, and N. Kangas. 2009. Education differences in intended and unintended fertility. *Social Forces* 88 (2): 543–572.
- Nielsen, F. 2006. Achievement and ascription in educational attainment: Genetic and environmental influences on adolescent schooling. *Social Forces* 85 (1): 193–216.
- Oppenheimer, V.K. 2003. Cohabiting and marriage during young men's career-development process. *Demography* 40 (1): 127–149.
- Park, H., and A.S. Lau. 2016. Socioeconomic status and parenting priorities: Child Independence and obedience around the world. *Journal of Marriage and Family* 78 (1): 43–59.
- Perelli-Harris, B., and N.S. Gassen. 2012. How similar are cohabitation and marriage? Legal approaches to cohabitation across Western Europe. *Population and Development Review* 38 (3): 435–467.
- Perelli-Harris, B., M. Kreyenfeld, and K. Kubisch. 2010. *Harmonized Histories - Manual for the Preparation of Comparative Fertility and Union Histories*, No. 2010–011. Germany: Rostock. <http://www.demogr.mpg.de>.
- Perelli-Harris, B., M. Mynarska, A. Berrington, C. Berghammer, A. Evans, O. Isupova, et al. 2014. Towards a new understanding of cohabitation: Insights from focus group research across Europe and Australia. *Demographic Research* 31 (1): 1043–1078.
- Ploeg, J., L. Campbell, M.A. Denton, A. Joshi, and S. Davies. 2004. Helping to build and rebuild secure lives and futures: Financial transfers from parents to adult children and grandchildren. *Canadian Journal on Aging/La Revue canadienne du vieillissement* 23 (5): 113–125.
- Rowlingson, K., and S. McKay. 2005. Lone motherhood and socio-economic disadvantage: Insights from quantitative and qualitative evidence. *The Sociological Review* 53 (1): 30–49.
- Schröder, H., and H.B.G. Ganzeboom. 2014. Measuring and modelling level of education in European societies. *European Sociological Review* 30 (1): 119–136.
- Silverman, J., A. Torres, and J.D. Forrest. 1987. Barriers to contraceptive services. *Family Planning Perspectives* 19 (3): 94–102.
- Smock, P.J., W.D. Manning, and M. Porter. 2005. “Everything's there except money”: How money shapes decisions to marry among cohabitators. *Journal of Marriage and Family* 67 (3): 680–696.
- Starrels, M.E., and K.E. Holm. 2000. Adolescents' plans for family formation: Is parental socialization important? *Journal of Marriage and the Family* 62.
- Van de Kaa, D.J. 2001. Postmodern fertility preferences: From changing value orientation to new behavior. *Population and Development Review* 27: 290–331.
- Vikat, A., Z. Spéder, G. Beets, F.C. Billari, C. Bühler, A. Désesquelles, et al. 2007. Generations and gender survey: Concept and design. *Generations and gender programme: Concepts and guidelines*: 3–32.
- Weininger, E.B., and A. Lareau. 2009. Paradoxical pathways: An ethnographic extension of Kohn's findings on class and childrearing. *Journal of Marriage and Family* 71 (3): 680–695.
- Wu, L.L. 1996. Effects of family instability, income, and income instability on the risk of a premarital birth. *American Sociological Review* 61 (3): 386–406.

**Open Access** This chapter is licensed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.



# Chapter 4

## The Persistent Influence of Socio-Economic Background on Family Formation Pathways and Disadvantage in Young Adulthood



Jarl Mooyaart

### 4.1 Introduction

Starting from the second half of the twentieth century there have been dramatic changes in the family formation pathways in most Western countries (Buchmann and Kriesi 2011; Lesthaeghe 2010; Shanahan 2000). Pathways have become less standard and more diverse, with increases in unmarried cohabitation, childbirth within unmarried couples, and separation and divorce (Brückner and Mayer 2004). These new family behaviors have spread across all social strata (Lesthaeghe 2010). Some suggest that family formation patterns have been increasingly shaped by individual preferences, resulting in a ‘choice biography’ (Giddens 1991; Woodman 2009). Others claim that there is a diverging pattern in family formation between those of high and low socio-economic class. McLanahan (2004) describes how lower educated women are increasingly likely to become single parents compared with highly educated women in the United States, in what she calls “Diverging Destinies”. Perelli-Harris and colleagues (Perelli-Harris and Gerber 2011; Perelli-Harris et al. 2010) argue that many family behaviors in Europe are not the result of individual choice, but of structural constraints, and they describe for instance the increasing rate of childbearing within cohabitation rather than marriage as a result of a “Pattern of Disadvantage”. Thus, there is some debate to what extent the new diverse set of family formation patterns are the result of cultural changes in individual preferences or the result of changes in structural conditions.

In this chapter I will focus on the influence of socio-economic background on family formation behavior and disadvantage in young adulthood, drawing on results

---

J. Mooyaart (✉)

Netherlands Interdisciplinary Demographic Institute (NIDI), The Hague, The Netherlands

University of Groningen, Groningen, The Netherlands

e-mail: [mooyaart@nidi.nl](mailto:mooyaart@nidi.nl)

© The Author(s) 2021

A. C. Liefbroer, M. Zoutewelle-Terovan (eds.), *Social Background and the Demographic Life Course: Cross-National Comparisons*,  
[https://doi.org/10.1007/978-3-030-67345-1\\_4](https://doi.org/10.1007/978-3-030-67345-1_4)

61

of my dissertation titled “Linkages between family background, family formation and disadvantage in young adulthood” (Mooyaart 2019). The first question I address in this chapter is: *To what extent has the influence of socio-economic background on family formation changed over time?* I will offer answers to this question in two ways. First, I will report on changes over time in the link between parental education and the timing of the first union, the timing of first marriage and the choice of marriage versus cohabitation, using survey data from the Netherlands. Whereas some previous studies examined the association between parental socio-economic status and family formation over time, they focused predominantly on single transitions (marriage or first union) (South 2001; Wiik 2009). However, as these studies have been conducted in countries with relatively different transition patterns (US and Norway) it remained unclear whether their results are generalizable to other countries as well. My study extends the pool of countries on which these relationships are studied by examining changes over time in the link between parental education and timing of first union and first marriage in the Netherlands. My study uniquely advances knowledge on aspects related to the choice of marriage versus cohabitation (Mooyaart and Liefbroer 2016). Second, I will report on a cross-national study that I conducted in which the influence of parental education on the family formation process across countries is examined. Such a direct comparison is provided for four distinct European countries: France, Sweden, Romania and Italy. The novelty of my approach is that it focusses on family formation pathways as an outcome rather than on single outcomes (e.g. marriage and cohabitation separately). With such an approach, the family formation process is viewed from a holistic perspective, acknowledging a key point from the life-course framework, which is that life-course transitions are embedded in trajectories which provide them with a specific meaning (Elder Jr 1994). In order to examine family formation as a process, demographers have increasingly used sequence analysis to capture differences in type, timing and ordering of family transitions (e.g. Aassve et al. 2007; Elzinga and Liefbroer 2007; Zimmermann and Konietzka 2017). In this chapter I will use results from a study that combines sequence analysis and event-history analysis.

While socio-economic background sets the stage for how youths make the transition into adulthood, the second question I will address in this chapter is: *Does socio-economic background continue to play an influential role throughout young adulthood regarding aspects related to family formation and socio-economic position?* I will report on three sets of research findings that provide valuable answers to this question. First, I will discuss how the association between parental education and union formation changes with age (over the young adult period). Moreover, I will examine whether the influence of parental education on the timing of marriage changes when someone enters a cohabiting union. Next, I will discuss to what extent socio-economic disadvantage continues to affect one’s own socio-economic position beyond the life-course transitions that the individual makes in young adulthood. In particular, I will illustrate the link between family background, career and family transitions between the age 17 to 25 and personal income trajectories between 25 and 32, using panel data from the United States. I will specifically focus on the extent to which the influence of socio-economic background on personal income

would persist even if there were no differences between individuals in their career and family pathways up to age 25. While there is ample research on the intergenerational transmission of disadvantage, its focus has been mainly on the transmission of advantage through educational attainment of the individual (e.g., Blau and Duncan 1967; Blossfeld and Shavit 1993; Breen and Goldthorpe 1997). My findings strongly suggest that a more holistic life-course approach, examining the role of both career and family pathways, can improve our understanding on the intergenerational transmission of (dis)advantage.

## 4.2 Socio-Economic Background and Family Formation Over Time

An important societal change has been the growing social acceptance of unmarried cohabitation. Whereas living with a partner outside marriage was once not done, it has become an accepted phenomenon in most Western countries (Kiernan 2004). Some couples first cohabit before they get married, while other couples never get married. Nowadays, in many Western countries (including the Netherlands), most couples cohabit before they marry, but at the same time most people do eventually marry rather than forego marriage. However, for many in older birth cohorts, unmarried cohabitation with a partner was not considered an option. Lesthaeghe and Van de Kaa (1986) claim that many (Western) countries have gone through the so called Second Demographic Transition (SDT). Changes related to the SDT include the earlier mentioned social acceptance of unmarried cohabitation, but also the postponement of marriage/unions, decline of fertility and postponement of childbearing, and the increasing divorce rate. According to the SDT theory, the changes in demographic behaviors (in the Netherlands starting around the 1960s) occurred because increasing welfare allowed individuals to live more individualistically, less reliant on their social surroundings, as the state would provide its citizens in their basic needs. According to the SDT, the elite social classes were the frontrunners of this social change. The changes described above would, according to the theory, start among the higher classes and then diffuse across all social classes as these behaviors would become increasingly accepted. Thus, new behaviors such as unmarried cohabitation (before or as an alternative to marriage) would first be popular among high social classes and later diffuse among all social classes.

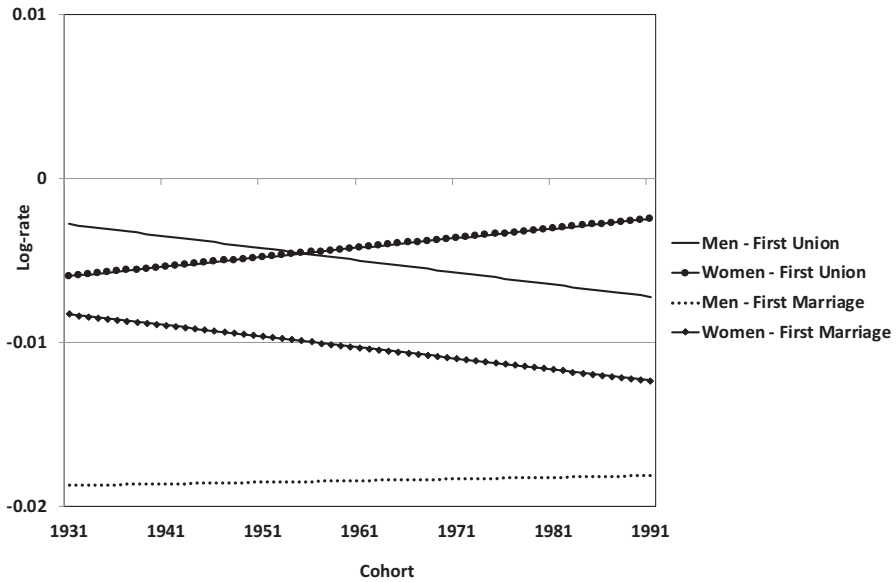
To examine this issue, I focused on the influence of parental socio-economic status (measured by parental education) on union formation, changes over time and across the life-course. One aspect receiving considerable attention in the empirical literature has been the timing of union formation. There is ample research that indicates that children of higher educated parents tend to form unions later than children of lower educated parents (Axinn and Thornton 1992; Cavanagh 2011; Mulder et al. 2006). Several reasons are given in the literature mostly linked with socialization and resources. First, children with highly educated parents are more likely to attend

higher education themselves (both as a result of resources and socialization) and people that are enrolled in education are less likely to form unions, particularly marriage (Thornton et al. 1995). Second, although wealthy highly educated parents may be able to provide the resources to marry (Avery et al. 1992), the youths themselves may be reluctant to leave the parental home and start a cohabiting union, when it means having to give up on the luxurious life-style that they are used to in the parental home (Easterlin 1980). Finally, highly educated parents are more likely to have started their first unions relatively late in life and therefore their children may postpone union formation themselves as well (Thornton 1991). To examine this issue, I studied the influence of parental education on the timing of the first union, timing of first marriage and the choice for either unmarried or married cohabitation as the first union among Dutch born between 1930 and 1990 (Mooyaart and Liefbroer 2016).

If we have a close look at the existing literature, we notice that only few studies analyzed changes in the influence of parental education on union formation over time and across the life-course (Wiik 2009; South 2001). The results from these studies are somewhat in line with the SDT theory as these studies find that the influence of parental background decreases over time. My study has been the first to analyze the change in the influence of parental education in the Netherlands and also over a long time period, which covers birth cohorts born both before and after the demographic changes associated with the SDT started. Furthermore, another feature of this study is that it takes into account fluctuations in the economy, in order to examine to what extent change in union formation patterns may be the result of economic changes rather than cultural change as predicted by the SDT.

The most surprising result of my study is that the influence of parental education on union formation remains rather stable across birth cohorts. Figure 4.1 shows the interaction between parental education and birth cohort on timing of first union and first marriage separately for men and women. The figure shows negative coefficients of parental education for the 1931 birth cohort, indicating that young adults with higher educated parents are more likely to postpone cohabitation and marriage compared with those with lower educated parents. This most strongly applies for marriage and in particular for young adult men. As the expectation is that differences in parental education will have a weaker influence on cohabitation and marriage timing in younger cohorts, one would expect that the lines gradually approach the x-axis line, indicating a decrease in effect size. However, contrary to expectations the lines do not approximate zero with every increasing birth cohort. Instead the lines are rather flat indicating that the effects for the 1931 cohort are about the same as those for the other birth cohorts. Other results in this study reveal that regarding the choice for marriage or cohabitation as a first union, only for men a decreasing impact of parental education over birth cohort is found. Furthermore, economic circumstances have little impact on the relationship between parental education and union formation as the study finds no significant effect for the interaction between parental education and yearly national economic circumstances. Thus, the influence of parental social class through mechanisms described above remains important. This challenges the idea that societies such as the Netherlands have individualized to the extent that family and institutions no longer influence the





**Fig. 4.1** Parameter estimates of the effect of parental education on first union and marriage rates by birth cohort

decision-making of young adults. This contradicts the idea of the SDT that life-courses would become less stratified.

Although this study showed cohort changes in the influence of parental education on union formation, the research only covers one national context, the Netherlands. In another study reported in Mooyaart (2019), I took a cross-national perspective and compared four national contexts (France, Sweden, Romania and Italy). In this study, family formation is examined as a whole, including both union formation and entry into parenthood. Parental education is again measured as the highest educational level of both parents, dividing parental education into three groups, low, middle and high educated. The goal was to observe to what extent the process of the SDT is visible among all four countries. According to the SDT theory one would expect that in all countries new family formation pathways, i.e. family pathways that diverge from the “traditional” marriage and having children, first appear in the older birth cohorts among those with higher educated parents, and that these new family behaviors will only become more widespread among those of all socio-economic backgrounds in younger birth cohorts. However, given that the SDT occurred two to three decades later in Southern and Eastern Europe than in Northern and Western Europe (Lesthaeghe 2010), one would expect this transition to have occurred earlier in France and Sweden than in Italy and Romania.

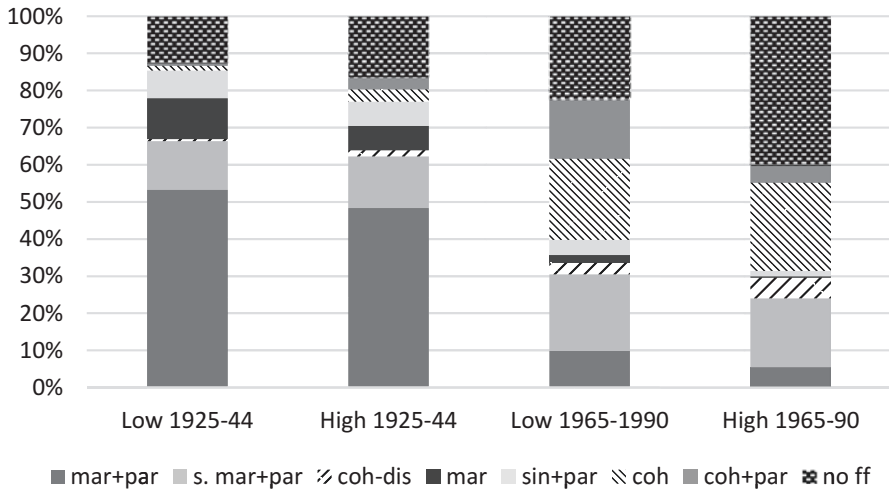
This study uses Competing Trajectories Analysis – CTA (Studer et al. 2018), combining sequence analysis with event-history analysis. Following the CTA procedure, sequences are constructed based on the first 6 years after young adults have entered their family formation pathway (either by entering a cohabiting relationship

or by becoming a parent). In the second step of the procedure sequences are clustered in a typology of family formation pathways. Finally, we conduct event-history analysis, and present its results in graphs showing predicted cumulative entry into the different family formation pathways at age 30.

The most optimal number of clusters is seven, based on cluster quality statistics (Mooyaart 2019). Here, I briefly describe the different clusters, in decreasing order of popularity across countries and cohorts:

- *marriage and parenthood (43.9%)*. In this cluster the vast majority marries directly and has a child within 2 years after marrying.
- *slow marriage and parenthood (19.6%)*. In this cluster one enters family formation through direct marriage or unmarried cohabitation and after 6 years almost all have entered marriage and parenthood.
- *cohabitation (12.3%)*. Everyone starts with entering unmarried cohabitation and stay in this state for 3–6 years, after which some dissolve their union, some marry and some enter parenthood.
- *marriage (9.7%)*. This cluster is characterized by the vast majority directly entering marriage and staying in this state for (at least) 6 years.
- *cohabitation and parenthood (7.0%)*. In this cluster one starts by entering unmarried cohabitation, which is followed by parenthood. A minority in this cluster also marry after about 3 years.
- *single parent (4.2%)*. This cluster is characterized by entering parenthood without entering a union and being in this state mostly for 6 years.
- *cohabitation dissolution (3.3%)*. In this cluster one starts with entering unmarried cohabitation, in which this union dissolves within 3 years. Some then enter a new union (mostly unmarried cohabitation).

While this study covers four country contexts, I focus in this chapter on two countries, France (a country experiencing the SDT relatively early) and Romania (a country experiencing the SDT relatively late), to illustrate the influence of parental education over time. Figure 4.2 shows the predicted cumulative entry into the different family formation types at age 30 for France. The results are shown separately for those with high and low educated parents. The two bars on the left side contain the predicted cumulative entry at age 30 into the different family formation types for the oldest birth cohort (1925–1944) and the two bars on the right those for the youngest birth cohort in this study (1965–1990). Results add up to 100%, as we also display those who have not entered family formation or have been censored at timing of interview (for more details see Mooyaart (2019)). In the oldest French cohort (1925–1944), the dominant family formation pathway was marriage and parenthood. Although only few enter into pathways that contain long spells of unmarried cohabitation, this is somewhat more common among young adults with highly educated parents, whereas young adults with low educated parents hardly enter into these pathways at all. This result is in line with predictions from the SDT theory, i.e. those from higher educated background are more likely to initiate these new types of family formation pathways. The bars on the right side show a dramatic shift in the landscape of family formation in France among the 1965–1990 cohort, when

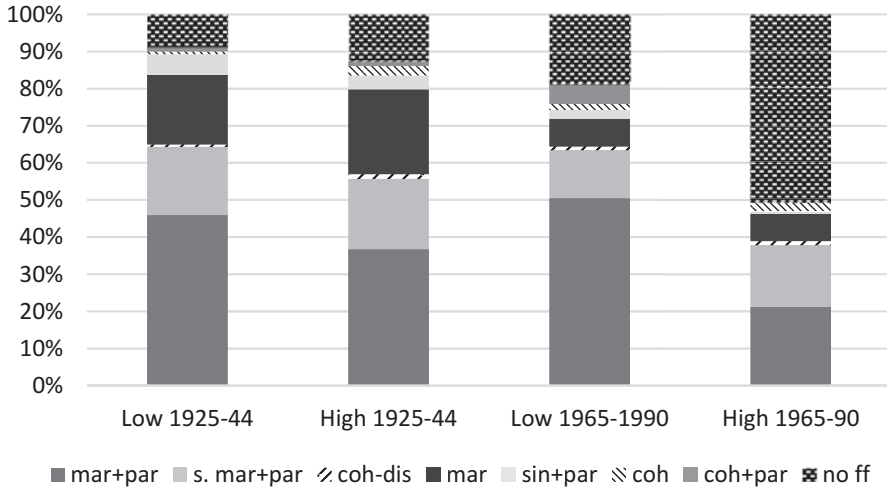


**Fig. 4.2** Predicted cumulative entry into family formation types at age 30 by birth cohort and parental educational level in France

Note: *mar+par* marriage and parenthood, *s. mar+par* slow marriage and parenthood, *coh-dis* cohabitation dissolution, *mar* marriage, *sin+par* single parenthood, *coh* cohabitation, *coh+par* cohabitation and parenthood, *no ff* no family formation pathway entered/censored

compared with the 1925–1944 cohort. Marriage and parenthood is no longer the dominant family formation pathway, and pathways with cohabitation are becoming more common. Yet, differences remain between those with high and low educated parents. In fact, the differences appear to be stronger in this cohort compared to the older cohort, which is in contrast to what the SDT theory would predict. In the youngest cohort, those with low educated parents are relatively more likely to follow the more “traditional” family formation pathway, i.e. the marriage, marriage and parenthood and slow marriage and parenthood pathways compared with their peers with highly educated parents. They are also more likely to enter the cohabitation and parenthood and single parenthood pathways. Those with high educated parents, on the other hand, generally enter family formation later and more often enter a cohabiting union that dissolves later.

Figure 4.3 displays the results for Romania. Here one can observe less of change in family formation patterns between the cohorts. However, in both cohorts, differences between those with high and low educated parents are visible. In the 1925–1944 birth cohort those with high educated parents show a relatively lower entry into marriage and parenthood, while having a higher entry into the marriage pathway. Moreover, a small proportion enters into the cohabitation pathway, which is hardly present among those with low educated parents. In the 1965–1990 cohort fewer have entered a family formation pathway before age 30, particularly those with highly educated parents. The marriage and parenthood pathway is still clearly dominant among those with low educated parents, yet they also enter the cohabitation and parenthood pathway more often compared to those with highly educated parents.



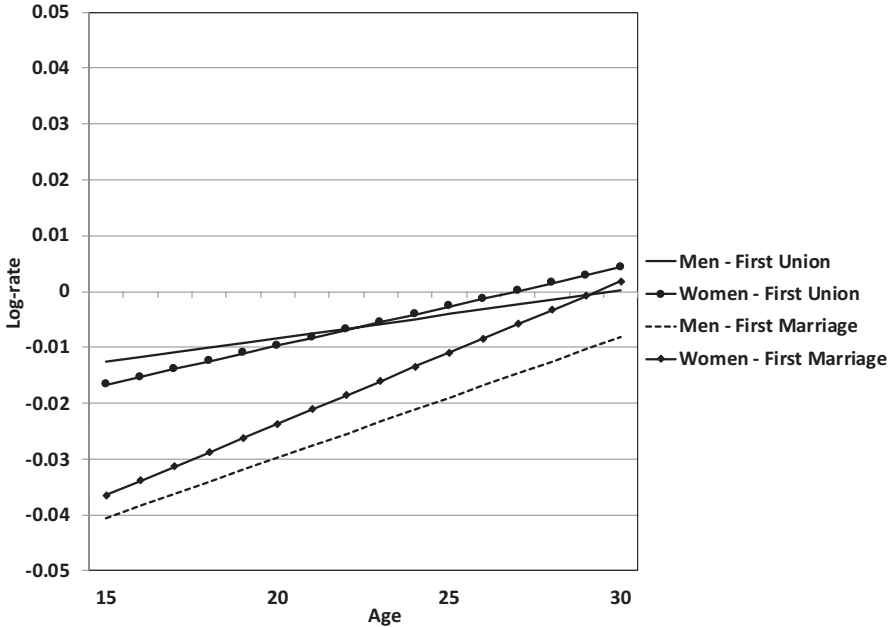
**Fig. 4.3** Predicted cumulative entry into family formation types at age 30 by birth cohort and parental educational level in Romania

Note: *mar+par* marriage and parenthood, *s. mar+par* slow marriage and parenthood, *coh-dis* cohabitation dissolution, *mar* marriage, *sin+par* single parenthood, *coh* cohabitation, *coh+par* cohabitation and parenthood, *no ff* no family formation pathway entered/censored

Generally, among children of higher educated parents the chance is higher that they opt for a more reversible family formation pathway, i.e. cohabitation dissolution and cohabitation, or even postpone family formation altogether. Children of low educated parents have remained to be more likely to opt for more “traditional” types of pathways and for the family pathways that are more associated with disadvantage, i.e. single parenthood and cohabitation and parenthood. Thus, in line with the first study discussed above there remains a visible impact of parental education that continues to divide individuals in the type of family formation pathways they follow. One could even argue that in the time period covered by this data, divergence occurred.

### 4.3 The Influence of Socio-economic Background Over the Young Adult Life-Course

Whereas the results presented in the previous section demonstrate the persistent influence of parental socio-economic status on family formation over time, another question is how persistent the influence of family background is over the life-course? Using results from the first study reported on above, Fig. 4.4 shows that the influence of parental education on the timing of entry into a union decreases as young adults age. At a young age (adolescence and the first years of young adulthood), the effect of parental education on timing of first marriage is particularly



**Fig. 4.4** Parameter estimates of the effect of parental education on first union and marriage rates by age

strong. Moreover, this effect is slightly stronger for men than for women. The graphs show that for both the timing of the first union and of the first marriage, the influence of parental education decreases as the young adults age and lose importance when they reach their late twenties. Other results from this study show that the influence of parental education on timing of first marriage decreases once someone enters a cohabiting union. These results show the relevance of the life-course perspective. The impact of parents is not constant, but is stronger at younger ages and the influence of parents decreases when the young adult enters a cohabiting relationship.

The results thus far covered the link between parental background and family formation and have shown that parental background is associated with different family formation pathways, but that the influence of parental background appears to decrease with age and as individuals enter transitions (such as entering a cohabiting relationship). Yet, what is unclear is what consequences these differences in life-course pathways between those from advantaged and disadvantaged background have on their socio-economic position. Also, the question is to what extent these socio-economic differences are a consequence of the different life-course pathways that young adults from advantaged and disadvantaged background follow or whether the influence of parental background on their socio-economic position reaches past young adulthood. In order to unravel this, one needs to consider another important aspect in the life-course, which is one's career. Career tracks can also can be better

understood using a more holistic perspective. For instance, the school-to-work transition is better understood as a process than as a single transition (Brzinsky-Fay 2014). I therefore conducted a study, reported on in Mooyaart (2019) that examines the influence of family background and career and family pathways during the transition to adulthood (ages 17 to 25) on income trajectories in young adulthood (ages 25 to 32). This study examines the influence of career and family from a holistic life-course perspective, by distinguishing the different career and family pathways that young adults in the US typically follow and examining the impact that they pathways have income trajectories. Furthermore, this study assesses to what extent family background differences in income trajectories in young adulthood can be explained by these career and family pathways. In other words, can the differences in income trajectories between those of advantaged or disadvantaged background be explained by differences in the career and family pathways they follow or does the influence of family background reach further into young adulthood?

This study uses data from the National Longitudinal Survey of Youth of 1997 (NLSY97), an ongoing panel study conducted by the U.S. Bureau of Labor statistics, following the life courses of high school students in 1997 until well into young adulthood. With information on multiple aspects of family background such as parental income, parental educational level, childhood family structure and race, the multifaceted nature of family background influences could also be taken into account. A typology of the most typical career pathways was created and the same was done for family pathways, using hierarchical clustering and Optimal Matching (Abbott and Tsay 2000). Instead of including categorical cluster membership variables, I constructed continuous Grade of Membership (GoM) measures indicating the extent that someone's career and family pathways matches that of the most typical pathway of a particular career or family pathway cluster. The influence of both the family background indicators and the career and family GoM measures were estimated using growth curve modeling. More information on the methods can be found in my dissertation (Mooyaart 2019).

Results from this study show that the personal incomes of young adults depend both on their career pathway during young adulthood and on their family formation pathway. However, overall, their career pathway is a more important determinant of their personal income than their family formation pathway. In this chapter, however, I will focus on the impact of family background on income trajectories after taking into account differences in career and family pathways. The results of this study indicate that while the effect sizes of family background indicators decrease, many of them are still significant even when the career and family pathways are included. In order to visualize these differences, I will present the predicted incomes for a group with advantaged background characteristics and for a group with disadvantaged background characteristics. *Advantaged* is defined as coming from a white family with married parents from the top income quartile, with at least one parent with a 4-year college education. The *Disadvantaged* background is defined as the opposite, i.e. non-intact and non-white homes, lowest income quartile, with neither parent having more than high-school education. Figures 4.5 and 4.6 show these predicted income trajectories between ages 25 and 32 for the advantaged and

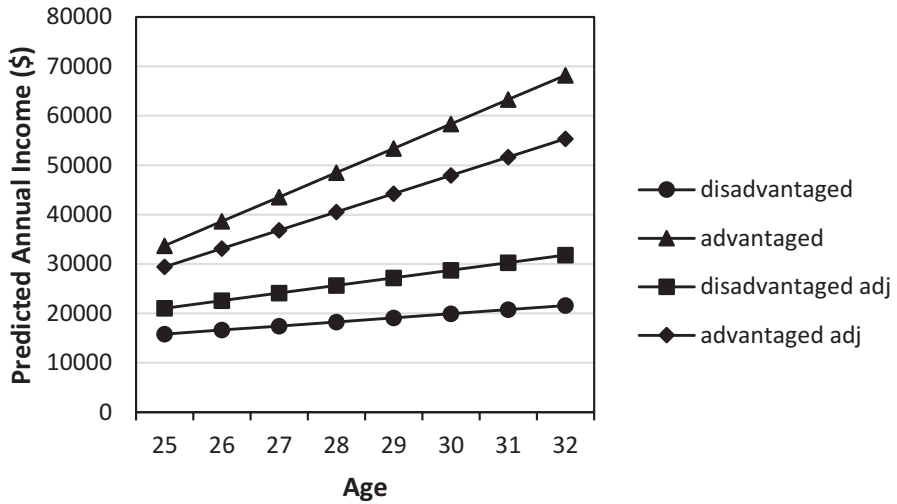


Fig. 4.5 Predicted income trajectories for men from “advantaged” and “disadvantaged” family backgrounds, with and without adjusting for pathways in young adulthood (GoM adjustment)

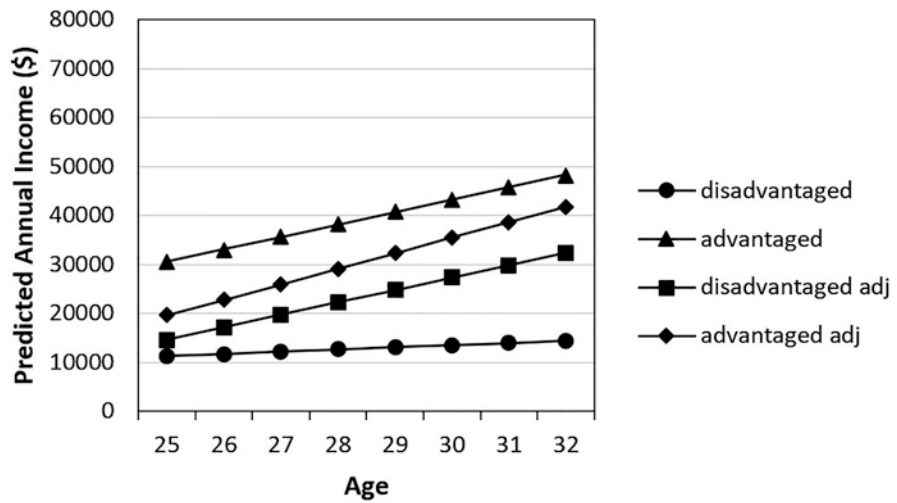


Fig. 4.6 Predicted income trajectories for women from “advantaged” and “disadvantaged” family backgrounds, with and without adjusting for pathways in young adulthood (GoM adjustment)

disadvantaged group, for men and women respectively. The figures display both the total difference between the two groups and how much difference would remain if one were to remove differences in career and family pathways that individuals follow (GoM adjusted).

In both figures, a large difference can be observed between the advantaged and disadvantaged group. Not only are there large income differences, the differences

also become larger with age. For instance, in Fig. 4.5, the income for a man with an advantaged background is estimated to be around \$35,000 annually at age 25, while this is around \$15,000 for a man from a disadvantaged background. At age 32, the man from an advantaged background is estimated to earn almost \$70,000, while the man from a disadvantaged background only earns around \$22,000 annually. Thus, a clear pattern of divergence is observed. However, this pattern of divergence is still observed (although somewhat reduced) when taking into account differences in the career and family pathways that individuals follow. At age 32, the estimated annual income for a man of an advantaged background is now around \$55,000, whereas a man from disadvantaged background earns about \$32,000. Thus, even after controlling for the career and family pathways up to age 25, socio-economic background differences account for large income gaps between those from advantaged and disadvantaged background. Figure 4.6 shows that for women differences are somewhat smaller, particularly after taking into account the different career and family pathways that women follow. However, also for women there is a substantial remaining impact of socio-economic background. This indicates that family background does not only increase the likelihood of having a career and family pathway that is more associated with a higher income trajectory, but that regardless of one's career pathway, coming from a higher socio-economic background still boosts one's income.

#### 4.4 Conclusion and Discussion

In this chapter, I examined the relationship between socio-economic background and family formation over time and over the (young) adult life-course and to what extent disadvantage persists in young adulthood. The first question that was posed in this chapter was about whether there has been any change in the relationship between socio-economic background and family formation over time. To answer this question, I used results from two studies in which I examined the union and family process in more detail and more holistically than was done in previous research. My results show that while family formation patterns have changed dramatically over time for individuals from all social backgrounds, *socio-economic background continues to stratify family formation pathways*. My results show that union and family formation behavior still varies strongly by the educational level of the parents. My results even suggest that differences between social classes in terms of family pathways have increased over time. These results run counter to the ideas of a choice biography (Giddens 1991; Woodman 2009) and SDT theory (Lesthaeghe 2010; Lesthaeghe and Van de Kaa 1986), which would have predicted an increasingly more equal diffusion of family formation behaviors across people of different social background. Instead, the results in this chapter appear to resonate with the findings of the Pattern of Disadvantage and Diverging Destinies literatures (McLanahan and Jacobsen 2015; Perelli-Harris et al. 2010). That is not to say that the SDT theory is of no merit, but rather that it needs to acknowledge the continuing divide between social classes in their family formation patterns. I would even argue



that the cultural changes associated with the SDT, i.e. the acceptance of unmarried cohabitation, childbirth outside of marriage, and divorce, have created new pathways towards disadvantage, as pathways that include these behaviors are particularly common among young adults from low socio-economic backgrounds. Parents with high socio-economic status, on the other hand, are more successful in steering their children towards pathways that involve relative low risk, by letting them postpone more serious family commitments, such as marriage and childbearing.

The results of the studies in this chapter are in line with recent research by Brons et al. (2017) and Koops et al. (2017) who have demonstrated that in most European and North American countries parental education impacts the timing of first union and partnership context of first birth. While in these studies the effect of parental education became non-significant once accounted for the educational level of the individual, I argue that it is still important to continue to investigate the link between social background and family formation, since the way young adults form their families may be the bedrock for the transfer of advantage or disadvantage to their children. Furthermore, while enrollment in education may shape family formation patterns, it is also family formation patterns that shape educational attainment. Thus, highly educated parents may be more able to let their children become highly educated because they prevent their children from making family formation choices that entail strong commitments early in their young adult life-course. While both studies have demonstrated this continuing influence of socio-economic background on family formation, it would be important to continuously update these results with more recent information, and also from more different country contexts.

The second question posed in this chapter was a broader one focusing on how far the influence of socio-economic background reaches. The studies in this chapter suggest that while the influence decreases with age, *socio-economic background continues to impact aspects related to family formation and the socio-economic position of young adults*. I first showed some results on how the influence of parental education develops during young adulthood. I showed that, in the Netherlands, the negative effect of parental education on the timing of first union and first marriage is stronger at younger ages and more influential for the timing of first marriage than for the timing of the first union. In addition, the influence of parental education on marriage timing decreased substantially once young adults had entered a cohabiting union. This is in line with the idea that highly educated parents are more likely to support their children in following paths in which serious family commitments are postponed to ensure a good romantic match and a well-developed work career. Still, this comes with the side note that once a cohabiting partner is involved it is likely that the partner replaces the parents as the most important influence on marriage timing decisions.

Apart from the influence of socio-economic background on family formation, I also examined the influence of socio-economic background on personal income after taking into account different family and career pathways that individuals follow in their early to mid-twenties. With this study, I showed the benefits of applying a life-course perspective for the literature on the intergenerational transmission of (dis)advantage. Results showed that those who come from an advantaged social

background still benefit from this background during young adulthood in that their personal income remains substantially higher than that of those from a disadvantaged background, and that these differences even increase between ages 25 and 32, particularly among men. This shows that socio-economic advantages stemming from the parental home not only help guide young adults taking the “right” paths in terms of career and family transitions, but help young adults even beyond these aspects to obtain advantaged social positions in life. In other words, the intergenerational transmission of advantage does not only run through education and family transitions. Potential mechanisms as to how socio-economic background would continue to impact income, could be the social networks that parents provide that help their children with acquiring (high-quality) jobs, or providing resources to help children move to locations where high paying jobs are to be found. Future research should uncover not only the mechanisms by which socio-economic background continues to influence the lives of young adults, but also examine whether socio-economic background also continues to influence young adults in other aspects of life. Mooyaart et al. (2019) for instance found that social background has a weaker impact on obesity after taking into account career and family transitions in young adulthood, but that the impact of parental education on obesity still is far from negligible. This type of research should be extended to other outcomes such as mental health, substance use and criminal activity. Furthermore, my example on inequalities in income in this chapter only focused on the United States. Future studies should conduct comparative research both between country contexts and over time.

Research on the link between socio-economic background and family formation and on the intergenerational transmission of (dis)advantage could benefit from the growing number of longitudinal life-course studies that are being conducted. However, currently only a couple of countries have such extensive longitudinal surveys. Another approach could be to try to use information from the internet and social media as individuals leave a “digital footprint” of characteristics of their life courses. This information could then possibly be linked to survey or register data. Apart from getting the ‘right’ data, it is also important that our methodology is improved in order to better capture the meaning of the life course. My first example used the more classic approach of event-history analysis also including competing risks analysis. However, with event-history analysis one can only focus on a single transition. My second example, using CTA, shows that event-history analysis can be used in combination with sequence analysis, allowing one to examine the family process in its complexity (holistically). With respect to sequence analysis, the CTA approach allowed a clearer distinction between clusters as the variation on timing of the first family event was removed. My third example also used sequence analysis in an innovative way, by using Grade of Membership variables to indicate how close someone’s career and family pathway is to a typical pathway, rather than simply using cluster categorical (dummy) variables. Not only did I find that these variables better predicted income differences compared with cluster dummy variables, but also that they are better at predicting income differences compared with models using simple indicators such as level of education and marital status. These examples have shown possible directions for future research on life-course to further explore.

All and all, results in this chapter have shown that the influence of socio-economic background on family formation is persistent over time and that the impact of socio-economic background reaches far into young adulthood, across multiple country contexts. Yet, more research with a life-course perspective is needed to improve our understanding further on how social inequality persists.

**Acknowledgements** The research leading to these results has received funding from the European Research Council under the European Union's Seventh Framework Programme (FP/2007-2013)/ERC Grant Agreement n. 324178.

## References

- Aassve, A., F.C. Billari, and R. Piccarreta. 2007. Strings of adulthood: A sequence analysis of young British women's work-family trajectories. *European Journal of Population* 23 (3–4): 369–388.
- Abbott, A., and A. Tsay. 2000. Sequence analysis and optimal matching methods in sociology: Review and prospect. *Sociological Methods & Research* 29 (1): 3–33.
- Avery, R., F. Goldscheider, and A. Speare. 1992. Feathered nest/gilded cage: Parental income and leaving home in the transition to adulthood. *Demography* 29 (3): 375–388.
- Axinn, W.G., and A. Thornton. 1992. The influence of parental resources on the timing of the transition to marriage. *Social Science Research* 21 (3): 261–285.
- Blau, P.M., and O.D. Duncan. 1967. *The American occupational structure*. New York: Free Press.
- Blossfeld, H.-P., and Y. Shavit. 1993. Persisting barriers: Changes in educational opportunities in thirteen countries. In *Persistent inequality: Changing educational attainment in thirteen countries*, ed. Y. Shavit and H.-P. Blossfeld, 1–23. Boulder: Westview Press.
- Breen, R., and J.H. Goldthorpe. 1997. Explaining educational differentials: Towards a formal rational action theory. *Rationality and Society* 9 (3): 275–305.
- Brons, M.D., A.C. Liefbroer, and H.B.G. Ganzeboom. 2017. Parental socio-economic status and first union formation: Can European variation be explained by the Second Demographic Transition theory? *European Sociological Review* 33 (6): 809–822.
- Brückner, H., and K.U. Mayer. 2004. De-standardization of the life course: What it might mean? And if it means anything, whether it actually took place? *Advances in Life Course Research* 9: 27–53.
- Brzinsky-Fay, C. 2014. The measurement of school-to-work transitions as processes. *European Societies* 16 (2): 213–232.
- Buchmann, M.C., and I. Kriesi. 2011. Transition to adulthood in Europe. *Annual Review of Sociology* 37 (1): 481–503.
- Cavanagh, S.E. 2011. Early pubertal timing and the union formation behaviors of young women. *Social Forces* 89 (4): 1217–1238.
- Easterlin, R.A. 1980. *Birth and fortune: The effects of numbers on personal welfare*. New York: Basic Books.
- Elder, G.H., Jr. 1994. Time, human agency, and social change: Perspectives on the life course. *Social Psychology Quarterly* 57 (1): 4–15.
- Elzinga, C.H., and A.C. Liefbroer. 2007. De-standardization of family-life trajectories of young adults: A cross-national comparison using sequence analysis. *European Journal of Population* 23 (3–4): 225–250.
- Giddens, A. 1991. *Modernity and self-identity. Self and society in the modern age*. Cambridge: Polity Press.

- Kiernan, K. 2004. Unmarried cohabitation and parenthood in Britain and Europe. *Law & Policy* 26 (1): 33–35.
- Koops, J.C., A.C. Liefbroer, and A.H. Gauthier. 2017. The influence of parental educational attainment on the partnership context at first birth in 16 Western societies. *European Journal of Population* 33 (4): 533–557.
- Lesthaeghe, R. 2010. The unfolding story of the Second Demographic Transition. *Population and Development Review* 36 (2): 211–251.
- Lesthaeghe, R., and D.J. Van de Kaa. 1986. *Twee demografische transitie's*, 9–24. Groei En Krimp: Bevolking.
- McLanahan, S. 2004. Diverging destinies: How children are faring under the Second Demographic Transition. *Demography* 41 (4): 607–627.
- McLanahan, S., and W. Jacobsen. 2015. Diverging destinies revisited. In *Families in an era of increasing inequality*, ed. P.R. Amato, A. Booth, S.M. McHale, and J. Van Hook, 3–23. New York: Springer.
- Mooyaart, J.E. 2019. Linkages between family background, family formation and disadvantage in young adulthood (Doctoral dissertation, Rijksuniversiteit Groningen).
- Mooyaart, J.E., and A.C. Liefbroer. 2016. The influence of parental education on timing and type of union formation: Changes over the life course and over time in the Netherlands. *Demography* 53 (4): 885–919.
- Mooyaart, J.E., A.C. Liefbroer, and F.C. Billari. 2019. Becoming obese in young adulthood: The role of career-family pathways in the transition to adulthood for men and women. *BMC Public Health* 19 (1511) 12pp.
- Mulder, C.H., W.A.V. Clark, and M. Wagner. 2006. Resources, living arrangements and first union formation in the United States, the Netherlands and West Germany. *European Journal of Population* 22 (1): 3–35.
- Perelli-Harris, B., and T.P. Gerber. 2011. Nonmarital childbearing in Russia: Second demographic transition or pattern of disadvantage? *Demography* 48 (1): 317–342.
- Perelli-Harris, B., W. Sigle-Rushton, M. Kreyenfeld, T. Lappegård, R. Keizer, and C. Berghammer. 2010. The educational gradient of childbearing within cohabitation in Europe. *Population and Development Review* 36 (4): 775–801.
- Shanahan, M.J. 2000. Pathways to adulthood in changing societies: Variability and mechanisms in life course perspective. *Annual Review of Sociology* 26 (1): 667–692.
- South, S.J. 2001. The variable effects of family background on the timing of first marriage: United States, 1969–1993. *Social Science Research* 30 (4): 606–626.
- Studer, M., A.C. Liefbroer, and J.E. Mooyaart. 2018. Understanding trends in family formation trajectories: An application of Competing Trajectories Analysis (CTA). *Advances in Life Course Research* 36: 1–12.
- Thornton, A. 1991. Influence of the marital history of parents on the marital and cohabitational experiences of children. *American Journal of Sociology* 96 (4): 868–894.
- Thornton, A., W.G. Axinn, and J.D. Teachman. 1995. The influence of school enrollment and accumulation on cohabitation and marriage in early adulthood. *American Sociological Review* 60 (5): 762–774.
- Wiik, K.A. 2009. ‘You’d better wait!’ – Socio-economic background and timing of first marriage versus first cohabitation. *European Sociological Review* 25 (2): 139–153.
- Woodman, D. 2009. The mysterious case of the pervasive choice biography: Ulrich Beck, structure/agency, and the middling state of theory in the sociology of youth. *Journal of Youth Studies* 12 (3): 243–256.
- Zimmermann, O., and D. Konietzka. 2017. Social disparities in destandardization—Changing family life course patterns in seven European Countries. *European Sociological Review* 34 (1): 64–78.

**Open Access** This chapter is licensed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.



# Chapter 5

## Adding Well-Being to Ageing: Family Transitions as Determinants of Later-Life Socio-Emotional and Economic Well-Being



Mioara Zoutewelle-Terovan and Joanne S. Muller

### 5.1 Introduction

Well-being in later life is a theme with tremendous weight in an ageing society and concepts such as loneliness, employment and earnings have been defined as important facets of well-being (Dykstra 2009; Kearns et al. 2015; Yanguas et al. 2018). However, key determinants of these later-life well-being facets await to be unraveled. One key domain with major consequences for the lives of individuals is the family domain (Neugarten 1979). Still, to date, empirical evidence on the long-term associations between family-life events and well-being in later life is sorely lacking. This chapter provides a discussion of the concept of well-being in later-life, highlights prominent theoretical models explaining how mid-life family transitions (union formation and parenthood) are linked to later-life well-being (loneliness, employment and income), and presents recent cutting-edge results on the socio-emotional and economic outcomes of adults in a cross-national perspective.

In spite of over a century of research conducted on the topic of well-being, providing a widely agreed upon definition remains a challenge (Bowling et al. 2002) because the concept is extremely complex (Salvador-Carulla et al. 2014). However, it is widely accepted that mapping the concept is essential, and that this outlining should provide a multi-dimensional and multi-faceted approach to later-life well-being (Diener et al. 2009; Salvador-Carulla et al. 2014). To date, many elements of this map still await to be conceptualized, decomposed and tested.

Whereas the medical field focused on the role of disease, human functioning and healthcare in depicting later-life well-being, the social sciences have concentrated

---

M. Zoutewelle-Terovan (✉) · J. S. Muller  
Netherlands Interdisciplinary Demographic Institute (NIDI), The Hague, The Netherlands  
University of Groningen, Groningen, The Netherlands  
e-mail: [zoutewelle@nidi.nl](mailto:zoutewelle@nidi.nl); [muller@nidi.nl](mailto:muller@nidi.nl)

on the psychological, social, economic and cultural aspects of it. Within the social sciences we have vast understanding of the psychological experiences of older adults (e.g. anxiety, depression, happiness or life satisfaction), social participation, integration and cohesion, and economic circumstances and opportunities (see for example Cherchye et al. 2012; Crystal and Shea 1990; Keyes 1998; Ryff 1995; Smeeding 1991). Still, much awaits to be unraveled with regard to determinants of well-being. In this chapter we address the socio-emotional and economic dimensions of well-being, as well as the cultural and welfare context affecting well-being, by identifying determinants of later-life loneliness, employment and earnings across multiple European nations.

The most common approach in investigating factors affecting later-life well-being is to focus on aspects of the recent environment of older people and uncover features and experiences linked to their well-being (short-term associations). To date, we have valuable knowledge on how health and functional abilities, personality traits, social activities and social support, family circumstances (e.g. having a partner) and socio-economic positioning are linked to well-being outcomes (Bowling et al. 2002; Hansen and Slagsvold 2015; Hansen et al. 2009; Kearns et al. 2015; McMunn et al. 2006; Siegrist and Wahrendorf 2010; Sundstrom et al. 2009; Yang and Victor 2011). Still, the life-course framework emphasizes that a full understanding of later-life well-being requires a broader approach in which well-being must be explained also in the context of experiences occurring earlier in life (long-term associations). Family-related events are crucial in one's life and may trigger a set of events and circumstances affecting later-life socio-emotional and economic outcomes. Based on the life-course perspective, this chapter provides a theoretical discussion of mechanisms explaining the association between family-life and later-life well-being outcomes (loneliness, employment and earnings), and a collection of integrated results on the matter emerging from various studies recently conducted by the authors of this chapter within the Context of Opportunities (CONOPP) project.

A closer look at the social scientific empirical evidence on the psychological, social, economic and cultural dimensions of well-being shows that the cultural dimension is considerably underrepresented empirically. A proper investigation across various societies has been often hindered by methodological aspects such as the unavailability of data across multiple countries (in Europe, data for Southern and Eastern-European countries is often unavailable) and/or limited observation periods (inability to capture all adult family transitions and later-life outcomes across countries). Our article aims to discuss important family-life predictors of well-being across multiple European nations and explain the strength of relationships based on existing cultural norms and values regarding family-life and the available national socio-economic opportunities.

This chapter addresses various knowledge gaps in the uncharted area of long-term associations between family life and well-being. First, it provides an integrated discussion on the key tenets underlying the manner in which adult family transitions (union formation, parenthood) can be linked to well-being in later-life. Second, it accommodates recent cutting-edge results on the afore-mentioned socio-emotional

and economic aspects of well-being by focusing on loneliness, employment and earnings in later-life. Third, it assembles unique evidence on cultural aspects by revealing the existence of cross-national variation in the family-life – well-being nexus and explains such variation based on contextual family-related norms and values or social and economic capital. The results presented in this chapter are part of a bigger research project – the CONOPP Project – a pioneer in revealing the complex links between various life experiences: childhood disadvantages (e.g. divorced parents, low socio-economic status in the family of origin), educational achievements, adult family and career pathways, and later-life well-being (visit site [www.conopp.com](http://www.conopp.com) for an overview of all studies conducted within the project). The analyses underlying these results are based on data from various surveys (see following sections) on European or European related nations.

## 5.2 Family Transitions and Well-Being in a Life-Course Perspective

The life-course framework argues that earlier life experiences may affect one's life in the long run (O'Flaherty et al. 2016; Wrosch and Heckhausen 1999). Family-related transitions are key events, with crucial consequences for one's life (Neugarten 1979). However, as most of the existing empirical research examined the link between relatively recent family-related experiences and later-life well-being, to date, we lack considerable knowledge on the long arm of family-related experiences on well-being in later life. Specifically, a significant knowledge gap exists on how family-related events (e.g. marriage, cohabitation, parenthood) in earlier adult phases affect well-being outcomes in later life.

A key idea in the life-course perspective is that adult family events should be investigated through their occurrence, timing, duration, quantum and ordering (Liefbroer and Billari 2010; Settersten and Hagestad 1996). For the family domain, the behavioral guidelines structuring one's life course are provided by social norms and values (Billari et al. 2011; Settersten 2003). Individuals are well aware of the 'ideal' social scenario for experiencing events such as romantic relationships and parenthood (Billari et al. 2011; Liefbroer and Billari 2010; Liefbroer et al. 2015; Settersten and Hagestad 1996) and can evaluate for themselves whether they are 'on-track' or 'off-track' with this ideal script (Neugarten et al. 1965). Deviations from the 'ideal' time-line trigger an array of emotional, social and economic disadvantages perpetuating throughout life into the old age.

Several theoretical mechanisms explain how socio-emotional and economic vulnerability in later life (loneliness, unemployment or low earnings) are the result of transgressing norms in the family domain, with the norm noncompliance either being a complete violation of the norm (non-transitions) or reflecting (partial) deviation(s) from the norm (off-time or unusual sequence of events). The *social support* mechanism suggests that individuals not complying with social customs



experience a lack of peer support (Wrosch and Freund 2001), which can have negative consequences for emotional well-being and career development. The *stigma* mechanism evokes experiences of social sanctions and exclusion for individuals who disobey norms (Thornton and Young-DeMarco 2001). The *economic* model has various facets and offers several explanations for different types of norms non-compliance. Individuals who violate timing norms by experiencing family transitions early in life may compromise their later economic prospects by limiting their education, employment and earnings opportunities (Alexander and Reilly 1981; Moore and Waite 1977; Ross and Huber 1985). However, for women in particular, the economic argument suggests that non-events such as the absence of children and partner may actually boost one's employment and individual earnings (Correll et al. 2007; Davies and Joshi 1994; Harkness and Waldfogel 2003; Killewald and Zhuo 2019; Roman 2017; Sigle-Rushton and Waldfogel 2007; Zhang 2009). A psychological perspective on family transitions discusses the *emotional immaturity* mechanism explaining that early transitions to marriage and parenthood may capture the individual emotionally unprepared (Marini 1984), with the negative affect resulting from this immaturity accumulating throughout life affecting later-life well-being.

It is interesting to note that, with the exception of the stigma mechanism, the theoretical models discussed above explain predominantly transgression of norms in terms of occurrence and timing of events. Empirical research also predominantly focused on these two aspects. Still, previous research rendered mixed results. *With regard to socio-emotional determinants of later-life well-being*, some studies have shown that non-transitions such as childlessness and singleness affect later-life well-being (Byrne 2000; Dykstra 2006; Houseknecht 1977; Koropeckyj-Cox et al. 2007; Mullins et al. 1996). Yet, others found no differences in later-life socio-emotional well-being between parents and non-parents (Dykstra and Keizer 2009; Hansen et al. 2009; Koropeckyj-Cox 1998; Vikstrom et al. 2011). The few studies investigating the timing of transitions focused mainly on parenthood and showed that early transitions to parenthood have negative consequences for socio-emotional well-being (Koropeckyj-Cox et al. 2007) and postponement of parenthood is associated with better well-being outcomes (Koropeckyj-Cox et al. 2007; Mirowsky and Ross 2002). Yet, others found little evidence that social sanctioning occurs for those who delay parenthood (Liefbroer and Billari 2010). *With regard to later-life labor market outcomes of women*, prior studies have shown that outcomes differ by women's age at first childbirth, time intervals between births as well as partnership context (Gough 2017; Killewald and Garcia-Manglano 2016; Miller 2011). It has been empirically proven that women who delay having children tend to work more hours and have higher earnings in the years following childbirth than women who have children at a young age (Gough 2017; Miller 2011). Moreover, Gough (2017) found that mid-range birth intervals (i.e., around two years between births) lead to the smallest cumulative earnings penalties for women. Finally, empirical research suggests that partnered women, especially after childbirth, tend to specialize in the parenting role while their (male) partner tends to specialize in providing (Juhn and Mccue 2017; Killewald and Garcia-Manglano 2016; Killewald and Gough 2013; Langner 2015). This specialization strategy among couples was most certainly

dominant in the Baby Boom cohorts, but is still prevalent among couples today after childbirth.

However, rather than studying life events such as births and partnerships separately, scholars such as (Elder et al. 2004) discussed the necessity of introducing a holistic approach in studying life-course events. In their view, the occurrence, timing, duration, quantum and ordering of events should be captured as an integrated chain of events (holistically) rather than as independent elements defining one's pathway. This approach is particularly important in modern times given the increasing diversity in family structure and family transitions such as increases in single-ness, cohabitation, and divorce, childlessness or postponement of parenthood, residential distancing between family members and decrease in multigenerational households (Billari and Liefbroer 2010; Cherlin 2010; Dykstra 2009; Hantrais and Letablier 1996; Sobotka 2004, 2010; Victor et al. 2002). Still, to date, the holistic approach requires extensive theoretical and empirical attention. Advanced analytical techniques that enable a comprehensive investigation of complex life-pathways in social sciences open great opportunities towards the development of new and integrated ways of theorizing and researching the link between family trajectories and well-being.

A final aspect to be discussed here is the cultural perspective in linking family pathways and later-life well-being (an aspect only limitedly addressed in the existing literature). First, as there is considerable variation across nations in age norms and values regarding family life, we expect that the strength of the link between family-related experiences and well-being depends on these culture-specific customs. Reher (2005) explained that societies recognized for their strong family values (e.g. Southern and Eastern European nations) are more traditional and conservative in thinking and behavior than countries with weaker family values. This suggests higher levels of social control in these traditionalist nations. For example, Liefbroer et al. (2015) showed that disapproval of certain family choices (namely voluntary childlessness) is strongest in Eastern European/former communist countries. In countries with such traditionalist family customs, disobeying the norms may be associated with higher levels of social pressure, stigmatization, or withdrawal of emotional, social and financial support. In contrast, in individualistic nations (e.g. Western European or Nordic countries) in which one's family transitions are less dependent on the social environment (Lesthaeghe 2010), deviations from social customs may have fewer or no well-being consequences. Second, substantial cross-national variation in terms of welfare and economic development may affect the relationship between family pathways and later-life well-being. In countries with lower levels of state support and economic security, engaging in family roles represents an investment (Balestrino and Ciardi 2008). Transgressing family norms in less economically developed contexts may have stronger negative consequences for one's emotional, social and economic well-being. Especially for females, employment and earnings strongly depend on contextual factors that support opportunities to reconcile family and work (Abendroth et al. 2014; Budig et al. 2012; Hallden et al. 2016), progressive gender role attitudes and the level of formalization of the care sector. Women's labor market opportunities depend on cultural

role norm expectations regarding parenting and marriage (Fortin 2005). Moreover, societies differ to what extent care for young children is considered a public responsibility, and hence supported by public services, or a mere family matter (Bettio and Plantenga 2004; Esping-Andersen 1999; Saraceno and Keck 2010). While public childcare provisions support women's labor market participation, women in countries with extensive family provisions paradoxically on average work in lower earning occupations and hold fewer managerial positions (Mandel and Semyonov 2006).

### 5.3 Family-Related Events and Later-Life Loneliness

Several scholars defined loneliness as a key facet of well-being (see for example Dykstra 2009; Kearns et al. 2015; Yanguas et al. 2018). Perlman and Peplau (1982) explained loneliness as an incongruity between desired and actual quantity and quality of social relationships. Despite the vast amount of loneliness research, to date we know little on how non-normative family behaviors affect later-life loneliness. The few studies focusing on these aspects revealed that feelings of loneliness are lower among partnered or married individuals (De Jong Gierveld and Van Tilburg 2006; Dykstra and Keizer 2009; Fokkema et al. 2012; Hansen and Slagsvold 2015; Sundstrom et al. 2009). Still, the majority of existing studies focused on partnerships (or the lack of) in later-life, and did not take into account partnership experiences throughout the entire adult period (exception – Peters and Liefbroer 1997). In contrast to union formation experiences, the transition to parenthood received longer-term attention, however, existing results linking childlessness to later-life loneliness are inconclusive. Some studies find that childless individuals are lonelier than parents in later-life (Koropecjy-Cox et al. 2007; Mullins et al. 1996) whereas others find no differences in loneliness between parents and non-parents (Dykstra and Keizer 2009; Hansen et al. 2009; Vikstrom et al. 2011). Empirical evidence linking the timing of family transitions to later-life loneliness is to date solely lacking. However, studies focusing on perceived well-being showed that early transitions to parenthood are linked to lower well-being (Koropecjy-Cox et al. 2007), whereas postponement of parenthood was associated with a better well-being for fathers (Mirowsky and Ross 2002) and lower risk of loneliness for mothers (Koropecjy-Cox et al. 2007).

Within the CONOPP project, Zoutewelle-Terovan and Liefbroer (2018) conducted a study that shed some light on the manner in which deviations from the social norms regarding the occurrence and timing of family transitions (union formation and parenthood) have long-term consequences for loneliness in later life. The authors used data from the Generations and Gender Survey (GGS) on 61,082 individuals aged 50 years or older, in 12 European countries (Bulgaria, Belgium, Czech Republic, France, Georgia, Germany, Lithuania, Norway, Poland, Romania, Russia, and Sweden). Next to the general aim of understanding how norms transgression affects loneliness later in life, the authors also provided evidence on cross-national variation in the relationships investigated, and explained differences in the strength of effects through country-specific levels of familialism and economic

security. To test the latter (the moderating role of familialism and economic security), the authors used the classification of cultural values and beliefs developed by Inglehart (Inglehart 1997, 2006; Inglehart and Baker 2000) based on the World Values Survey. The most important results from this study are summarized in this section. For further information on the methodology used see Zoutewelle-Terovan and Liefbroer (2018).

Following a multi-step analysis approach, the authors first estimated the effects of non-transitions in the family domain (never partnering and never having children) on later-life loneliness separately for each country. In the next step, variations in country-specific OLS regression estimates were analyzed using random-effects meta-analyses and these results are shown in Figs. 5.1 and 5.2. Interesting to note that in all countries investigated, those who never lived with a partner (in marriage or cohabitation) and never had children were significantly lonelier in later-life compared to the ones who experienced such events. This outcome is also reflected in the averaged effect across countries (.53 for never partner and .50 for childlessness). The meta-analyses also revealed substantial cross-national variation for never having a partner ( $I^2 = 68.2%$ ) with strongest effect observed in Bulgaria and weakest in France and Romania. Substantial between-country heterogeneity was also observed for childlessness ( $I^2 = 78.2%$ ) with the strongest effect observed in Poland and weakest in Belgium. Whereas for never partnering no clear geographical pattern was revealed, childlessness was associated with higher levels of loneliness in Eastern European countries

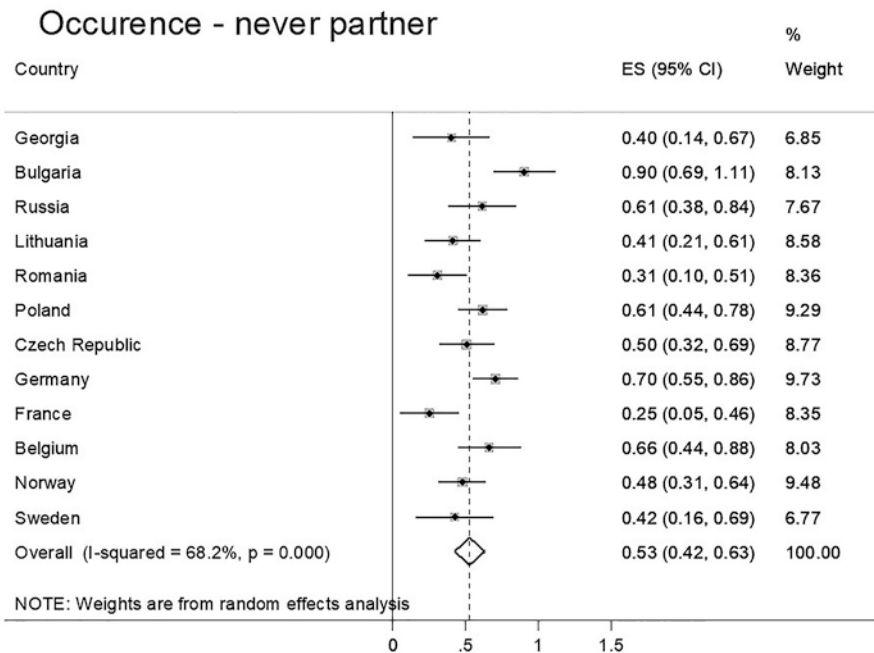
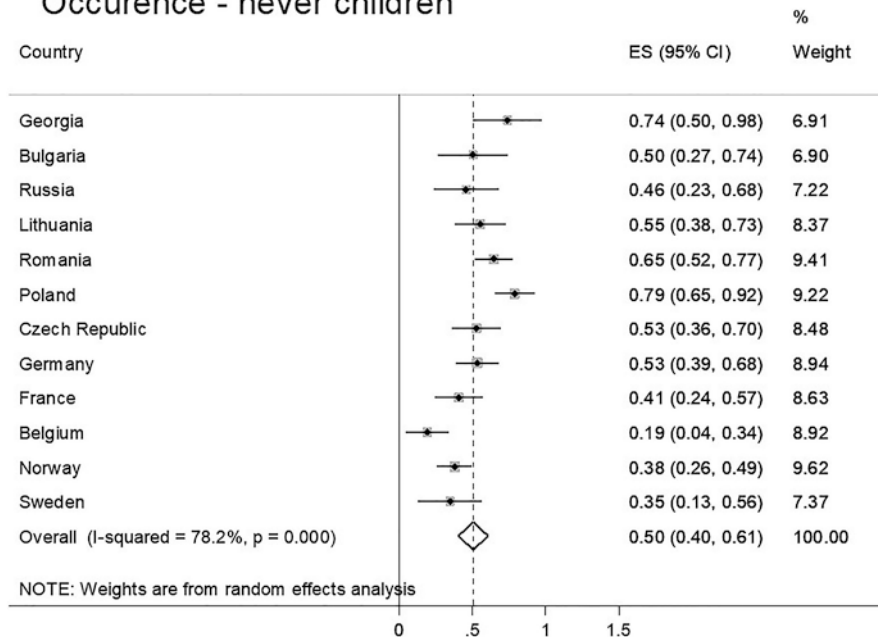


Fig. 5.1 Forest plot never partner (From Zoutewelle-Terovan and Liefbroer, 2018). Note: nonsignificant country effects and confidence intervals are represented by a dotted line

### Occurrence - never children



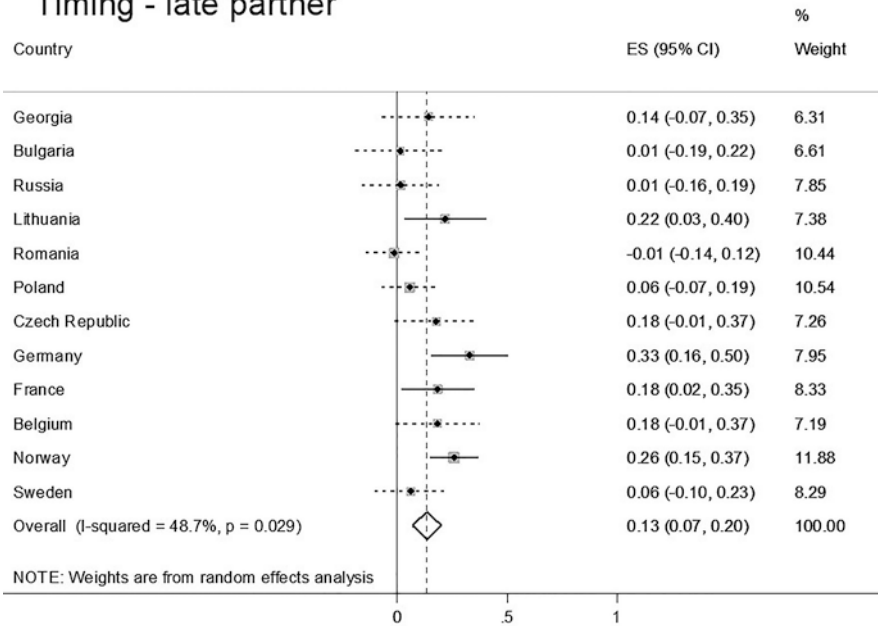
**Fig. 5.2** Forest plot never children (From Zoutewelle-Terovan and Liefbroer, 2018). Note: nonsignificant country effects and confidence intervals are represented by a dotted line

(Poland, Romania and Georgia) and lower levels of loneliness in Western and Northern European countries (Belgium, France, Sweden and Norway).

Zoutewelle-Terovan and Liefbroer (2018) also examined the effects of off-time transitions (both too early and too late) on loneliness. To establish the group norm, the authors calculated the average age at which an event (first living with a partner or first-time childbearing) occurred within specific groups given the country of origin, birth cohort, level of education and gender. A family event was classified as occurring early or late if it happened at least 2 years before, respectively 2 years after the average of the group. Whereas early transitions are weakly linked to later-life loneliness and little cross-national variation is observed, postponed transitions revealed an interesting pattern (Figs. 5.3 and 5.4). Opposite to our expectations, averages across countries showed that postponed transitions are associated with higher levels of loneliness (0.13 for late partnering and 0.15 for late parenthood). Also, a moderate level of cross-national heterogeneity is observed for late partnering ( $I^2 = 48.7%$ ) and late parenthood ( $I^2 = 57.5%$ ). Zooming in on the country level, we observed that late partnering was significantly associated with higher levels of loneliness only in France, Germany, Norway and Lithuania and late parenthood was significantly associated with higher levels of loneliness only in Bulgaria, Romania, Belgium, Poland, and Sweden.

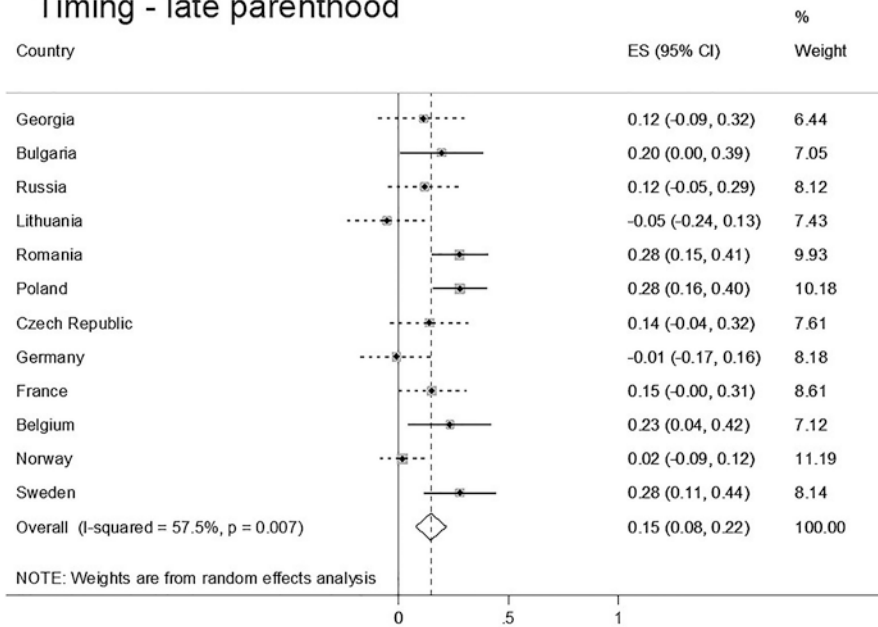
In short, the previous results reveal that only non-occurrences and late transitions are associated with higher levels of loneliness. Still, the effects of postponed transitions are much smaller than the effects of non-transitions.

## Timing - late partner



**Fig. 5.3** Forest plot late partner (From Zoutewelle-Terovan and Liefbroer, 2018).  
 Note: nonsignificant country effects and confidence intervals are represented by a dotted line

## Timing - late parenthood



**Fig. 5.4** Forest plot late parenthood (From Zoutewelle-Terovan and Liefbroer, 2018).  
 Note: nonsignificant country effects and confidence intervals are represented by a dotted line

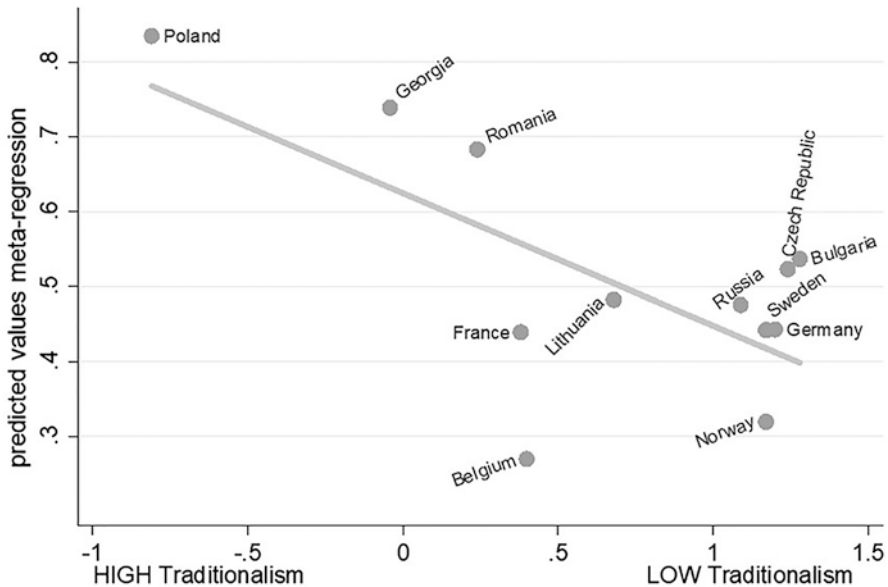


Fig. 5.5 Meta-regression never parent effects – traditionalism as moderator (From Zoutewelle-Terovan and Liefbroer, 2018)

Another goal of the study of Zoutewelle-Terovan and Liefbroer (2018) was to offer explanations for the cross-national variation based on cultural values. To do so they focused on cross-national differences in traditionalism/secular-rational values and survival/self-expression values measured through the World Values Survey. The traditionalism/secular-rational macro-measures reflect the manner in which a society adheres to religious and traditional family values, whereas the survival/self-expression measures reveal the level of economic and physical security, interpersonal trust and tolerance. Random-effects meta-analyses were used to investigate the moderating role of cultural values on the effects of never-events and late-events on loneliness. The value dimensions were not able to explain variations in effect sizes with one exception: childless individuals are lonelier in more traditional societies (for details see Zoutewelle-Terovan and Liefbroer 2018). This moderation effect is plotted in Fig. 5.5. Specifically, childless individuals are lonelier in countries scoring high on traditionalism such as Poland or Georgia.

#### 5.4 Women’s Family-Related Events and Later-Life Labor Market Outcomes

The twentieth century marked a revolution in women’s labor market position with a rapid, but uneven, increase in women’s employment and earnings across Western societies (Esping-Andersen 2009; Goldin 2006). It is uneven, because women’s work career and family life course remain closely intertwined. Prior studies showed a lag in

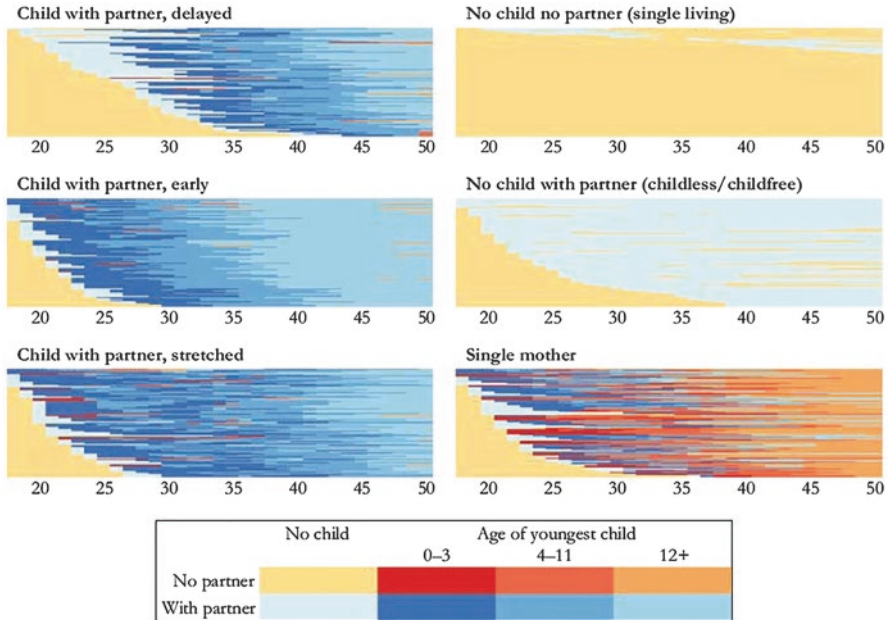
mothers' employment and earnings compared to non-mothers and to men (see for example Correll et al. 2007; Harkness and Waldfogel 2003; Sigle-Rushton and Waldfogel 2007). Furthermore, the younger women's transition to motherhood, the stronger the earnings 'penalty' (Abendroth et al. 2014; Gough and Noonan 2013; Miller 2011). These studies focused on specific elements in the family-life course however, rather than taking the entire partnership and fertility trajectory into account.

Within the CONOPP project, Muller et al. (2020) contributed to this literature by studying women's fertility and partnership trajectories simultaneously. They showed that the consequences of women's transition to motherhood – or of not making this transition – can be better understood by taking into account the partnership context. Furthermore, they showed the importance of a long-term perspective on the family-life course. Existing studies mainly examine short-term effects of women's family events on their labor market position. Muller et al. (2020) revealed that family decisions in early and mid-life continue to affect women's economic position until the end of their careers (age 50–60).

Muller et al. (2020) combined three major surveys: SHARELIFE, the Generations and Gender Survey and the British Household Panel Survey. Their combined dataset covers full fertility and partnership histories from 18,656 women aged 50–59, from 22 European countries (Austria, Belgium, Bulgaria, Czech Republic, Denmark, Estonia, France, Georgia, East-Germany, West-Germany, Greece, Ireland, Italy, Lithuania, Netherlands, Norway, Poland, Romania, Spain, Sweden, Switzerland and the United Kingdom). Their sample consists of women from the Baby Boom Cohort – born between 1943 and 1963. They applied sequence analysis to the family history data, which resulted in a typology of women's family life courses. Subsequently, Muller and colleagues used this typology to predict women's later life employment and earnings across countries. More information regarding the methodological approach can be found in Muller et al. (2020).

Based on the fertility and partnership histories, Muller et al. (2020) derived a family life course typology using sequence analysis. Figure 5.6 shows the sequence index plots of the family trajectory typology they found. They labeled each cluster based on its characteristics. First, they identified two types of child with partner trajectories, i.e., the most traditional or standard motherhood trajectories characterized by a lifelong partnership with one or more children. These trajectories only differ in the timing of childbearing and the number of children. On the one hand, "Child with partner, stretched" (CWP stretched) is characterized by many children or a large time gap between births, whereas "Child with partner, early" (CWP early) is characterized by early and rapid childbearing. Second, the other trajectories represent deviations from the traditional, most common partnered motherhood trajectory. Women in the "Child with partner, delayed" (CWP delayed) cluster started their partnership and childbearing relatively late. Two other clusters include childless women who spent most of their life (1) with a partner – "No child with partner" (NCWP) or (2) without a partner – "No child, no partner" (NCNP). A final cluster was comprised of women who experienced a substantial spell of single motherhood – "Single mother". The CWP clusters were most common. Namely, 69.6% of women were in one of the three CWP clusters, while 12.3% were in one of the two childless trajectories and 18.1% in the single mother cluster.



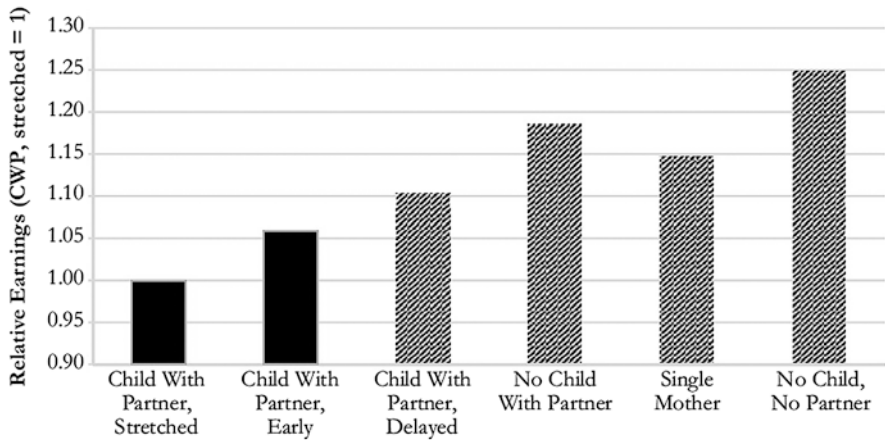


**Fig. 5.6** Sequence index plots of women’s family trajectories – ages 18 and 50 – across 22 European countries (From Muller et al., 2020). Note: n = 18,656

In the next analytical step, Muller et al. (2020) used the family trajectory typology to predict women’s later-life employment and earnings. Figure 5.7 shows women’s relative later-life earnings by family trajectory type (all countries pooled). The authors find that mothers with a traditional family trajectory – i.e., a lifelong partner and early childbearing – have lowest later-life earnings. Furthermore, partnered mothers who delayed motherhood earned more in later life than women with CWP early or CWP stretched trajectories. Thus, for partnered mothers, a longer period spent with dependent children is associated with lower earnings in later life.

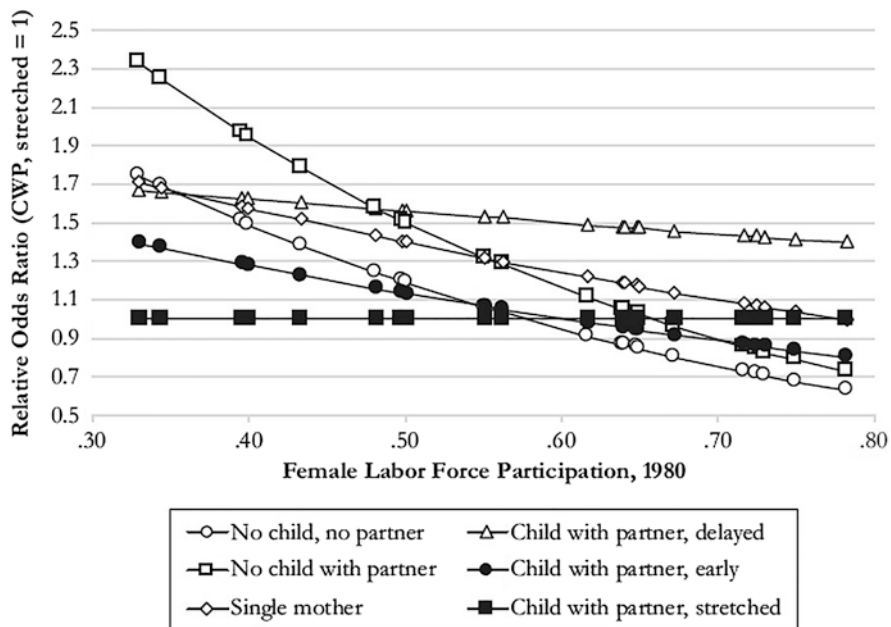
Next, Muller et al. (2020) find that childless women, and especially childless women without a partner, had highest later life earnings. Single mothers did earn significantly more than women with a partnered motherhood trajectory. The authors concluded that there is evidence for a gradient in women’s later-life earnings based on intertwined partnership and fertility histories, rather than a gap between mothers and non-mothers.

Figures 5.8 and 5.9 show respectively the predicted later-life employment rate and the predicted later-life earnings for women by family trajectory type, across the levels of female labor force participation in the sample of countries. Muller et al. (2020) find that in countries with low levels of female labor force participation during childrearing years differences in employment and earnings (at ages 50–59) between women with different family-life trajectories were considerable, but they are relatively small in countries with high levels of female labor force participation.



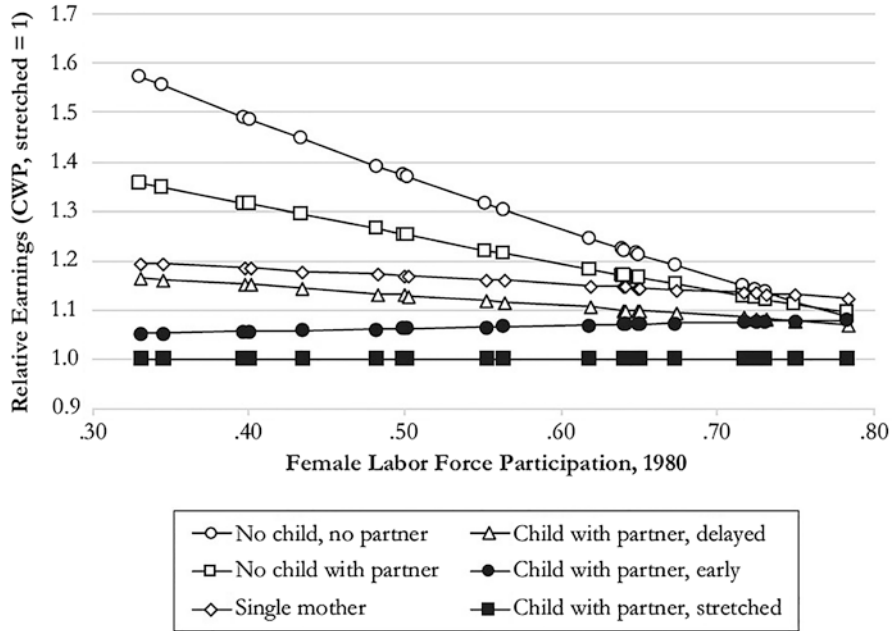
**Fig. 5.7** Relative earnings of women employed at age 50–59 by type of family trajectory (From Muller et al., 2020).

Notes: Child with partner, stretched = 1; Coefficients are exponentiated (based on information in Table 5 in the original paper mentioned above); Traditional trajectories have a solid fill and deviations from traditional pathways are striped



**Fig. 5.8** Relative odds ratio to be employed – women aged 50–59 – by type of family trajectory and level of female labor force participation in 1980 (From Muller et al., 2020).

Notes: Child with partner, stretched = 1; Coefficients are exponentiated (based on regression Table 4 in the original paper); Traditional trajectories have a solid fill and deviations from traditional pathways have no fill



**Fig. 5.9** Relative earnings of women employed at age 50–59 by type of family trajectory and level of female labor force participation in 1980 (From Muller et al., 2020).

Notes: Child with partner, stretched = 1; Coefficients are exponentiated (based on Table 5 in the original paper mentioned above); Traditional trajectories have a solid fill and deviations from traditional pathways have no fill

### 5.5 Discussion

This chapter focused on family-life experiences as determinants of socio-emotional and economic well-being in later life (loneliness, employment, earnings). Next to providing an integrated discussion of several theoretical models explaining associations of interest and a short review of existing empirical knowledge, we reported recent results from two studies developed by the authors of this chapter within the CONOPP project. The presented results are supported by state-of-the-art methodology involving unique combinations of data sources (e.g. to include a wide variety of European nations; to integrate macro-level indicators), advanced techniques of data analysis (e.g. meta-analytical approaches, sequence analysis) and a comprehensive depiction of cross-national variation and moderating cultural effects. Overall, the results indicate that similar family-related experiences in adulthood differently impact socio-emotional and economic well-being outcomes in later life. Our results show that undergoing more traditional family events links to lower levels of loneliness, whereas a more traditional life course relates to lower earnings and employment for women in later life. We also found considerable cross-national variation in

the manner in which the family history affects socio-emotional and economic well-being, and focused on explaining this variation through family-related cultural aspects and well-fare state regime. Below, we provide a more nuanced discussion on all these findings, their implications for theory, policy and practice, and offer several directions for future research.

When analyzing later-life loneliness we showed evidence on how transgressing group norms in terms of family-related experiences is associated with higher levels of loneliness. We call this the *non-normative family penalty*. The contribution of the above-mentioned study is that it provided unique insights on family-related penalties from three different angles. First, it contrasted the two most important roles in the family domain namely partnering (in cohabitation and marriage) and parenthood, and revealed that the penalties for non-partnering and childlessness for later-life loneliness are independent but still quite similar in size. Second, it investigated penalty degrees based on the extent of deviation from group-defined norms and uncovered that complete violations of family norms (never experiencing cohabitation/marriage or parenthood) have a stronger negative impact on later-life loneliness than other deviations from the norm (experiencing the same family transitions ‘off-time’). Finally, it investigated within-event differences in penalties based on the timing of deviations from group norms and showed that early transitions have no consequences for later-life loneliness, however, postponement of events (both living with a partner and parenthood) was associated with higher levels of loneliness.

As the emotional, social and economic theoretical models generally discuss penalties reflected in lower levels of well-being for norm non-compliance (with the exception of economic model for postponed transitions), the results presented in this chapter ask for a more nuanced approach of these theories. First, the occurrence of events seems to have a much bigger impact on later-life loneliness than the timing of events (effects were strongest for people who never experienced family-transitions). In other words, the strength of family penalty for loneliness should be explained also in terms of degrees of norm non-compliance. Second, whereas early or late transitions are both seen as deviations from the norm, they have different impacts on later-life loneliness. Specifically, feelings of loneliness in later-life do not differ much between ‘early birds’ and ‘on-time’ transiterers. However, it is the postponement of family-related events that triggers negative consequences for loneliness. Given that based on the economic perspective we would expect that postponers should be less lonely in later-life and ‘early birds’ lonelier, we conclude that the presented results offer no support for the economic argument. Rather, the negative loneliness outcomes seem to be more the result of socio-emotional penalties people may encounter as they postpone or skip family-related events. Still, further research on (dis)advantages to non-occurrences and postponement is necessary in order to properly establish whether the negative consequences are the result of stigmatization or of reductions in social contacts and/or support.

Differences across countries in the effects of family-related experiences on loneliness have also been investigated. Considerable variation across European nations has been found for both occurrence and postponement effects. We argued

that cross-national variation can be explained through culture-specific characteristics (level of traditionalism in terms of family formation; economic development and welfare). Interestingly, the survival/self-expression macro-measure (used as a proxy for economic development) did not explain any cross-national variation. However, the degree of traditionalism explained cross-national differences in the effects of childlessness on loneliness (but was unable to explain variation in the effects of non-partnering or postponement of events on loneliness). Such results emphasize the higher value of parenthood in one's life-course.

On the other hand, when analyzing economic outcomes for women in later-life, we found a *non-normative family bonus*. While women with the most traditional family life course of life-long partnership and multiple children have the lowest earnings in later life, women who deviated from this 'standard' life course on average earned more at the end of their careers. Especially women who lived mostly without a partner and without children have high earnings in later life. Contrary to the *motherhood penalty* suggested by prior studies (see for example Harkness and Waldfogel 2003; Sigle-Rushton and Waldfogel 2007) we found no evidence for a strict divide in terms of employment or earnings between mothers and nonmothers. Rather, we see a gradient in women's later-life earnings based on their mid-life family trajectories. Still, no such gradient is found for employment.

Furthermore, by comparing these long-term links across 22 European countries, we showed that the association between women's family life course and later-life labor market outcomes was smaller in countries with higher female labor force participation during women's childrearing years. The authors argue that in societies which support the reconciliation of work and family, and hence show higher levels of female labor market participation during women's mid-life, women's labor market outcomes converge until the end of women's careers.

With an ageing population, we witness a worldwide interest in the improvement of later-life well-being. This places considerable pressure on public health professionals and policy makers to increase the quality of life on one side and diminish public costs on the other side. To date, many available interventions address later-life well-being through programs concentrating on older persons. Projects such as hot lines for emotional support, volunteers visiting older individuals, community-based activities engaging the elderly, financial support for difficulties in making ends meet have clearly proven their benefits. Still, the protecting capacity of these interventions remains limited. In order to properly address later-life difficulties and boost well-being levels, we must additionally implement adequate prevention and effective intervention strategies addressing earlier life-stages of these individuals. Our results offer valuable insights for shareholders, organizations and policy-making bodies. For example, such knowledge can be used for an early identification of people at risk in order to provide opportunities for improving social and economic circumstances earlier in life, with great preventive capacity for adverse well-being outcomes later in life (e.g. improving opportunities to properly combine education, family and work domains in early and mid-adulthood; supporting

family life based on its size and composition in order to increase quality of social support networks as well as career development opportunities). Moreover, as loneliness and economic adversity in later life are further linked to various physical and mental health outcomes such as cognitive decline, depression, dementia, decrease in physical activity, stroke and hypertension, poor sleep, obesity or alcohol abuse and even mortality (Adena and Myck 2014; Akerlind and Hornquist 1992; Akerstedt et al. 1994; Cacioppo et al. 2006, 2014; Chen 2019; Friedman et al. 2005; Gow et al. 2007; Hawkey et al. 2009; Lauder et al. 2006; Tilvis et al. 2011; Wilson et al. 2007), we argue that a more efficient prevention approach targeting socio-emotional and economic well-being may render considerable reductions in public (health) expenditures. To conclude, improving the well-being of individuals is beneficial for both individuals and the society at large, and long-term prevention should gain a more central role in prevention and intervention programs targeting well-being.

Whereas the two CONOPP studies extensively discussed in this chapter provide valuable knowledge on the long-term associations between family-related events and several later-life well-being outcomes, more research is required to fully explain the complexity of these relationships. First, future research should enrich the life-course perspective by moving beyond the effects of occurrence and timing of family-related experiences and addressing family roles also in terms of duration, quantum and sequencing. Within this framework, the role of other family-related transitions (e.g. separation/divorce, widowhood) should be established as well. Second, as modern family-life is rather complex in terms of types of transitions and structure (Billari and Liefbroer 2010; Cherlin 2010; Sobotka 2010), it is desirable for forthcoming research to holistically approach this complexity. The embracement of advanced analytical techniques enabling a comprehensive investigation of complex life-pathways in social sciences (e.g. sequence analysis) opens great opportunities for the development of new and integrated ways of theorizing and researching the long-term link between family trajectories and later-life well-being. Third, a natural progression within the holistic approach is to focus on cross-domain trajectories (e.g. intertwines between family and work pathways). Such procedures may shed light on the underlying mechanisms explaining the relationship between adult transitions and later-life well-being. Fourth, future empirical endeavors should be able to provide a clearer hierarchy of long-term and short-term determinants of well-being. Finally, as cross-national diversity in the effects of family transitions on later-life well-being is not random, studies must be carried out to reveal the impact of other cultural values, circumstances and opportunities (which we did not consider) in order to explain cross-national variation (e.g. better national measures for economic well-being, more refined regional measures reflecting family norms).

**Acknowledgements** The research leading to these results has received funding from the European Research Council under the European Union's Seventh Framework Programme (FP/2007-2013)/ERC Grant Agreement n. 324178.

## References

- Abendroth, A., M.L. Huffman, and J. Treas. 2014. The parity penalty in life course perspective: Motherhood and occupational status in 13 European countries. *American Sociological Review* 79 (5): 993–1014.
- Adena, M., and M. Myck. 2014. Poverty and transitions in health in later life. *Social Science & Medicine* 116: 202–210.
- Akerlind, I., and J.O. Hornquist. 1992. Loneliness and alcohol abuse: A review of evidences of an interplay. *Social Science & Medicine* 34 (4): 405–414.
- Akerstedt, T., K. Hume, D. Minors, and J. Waterhouse. 1994. The meaning of good sleep: A longitudinal study of polysomnography and subjective sleep quality. *Journal of Sleep Research* 3 (3): 152–158.
- Alexander, K.L., and T.W. Reilly. 1981. Estimating the effects of marriage timing on educational attainment: Some procedural issues and substantive clarifications. *American Journal of Sociology* 87 (1): 143–156.
- Balestrino, A., and C. Ciardi. 2008. Social norms, cognitive dissonance and the timing of marriage. *The Journal of Socio-Economics* 37 (6): 2399–2410.
- Bettio, F., and J. Plantenga. 2004. Comparing care regimes in Europe. *Feminist Economics* 10 (1): 85–113.
- Billari, F.C., and A.C. Liefbroer. 2010. Towards a new pattern of transition to adulthood? *Advances in Life Course Research* 15 (2): 59–75.
- Billari, F.C., A. Goisis, A.C. Liefbroer, R.A. Settersten, A. Aassve, G. Hagestad, and Z. Speder. 2011. Social age deadlines for the childbearing of women and men. *Human Reproduction* 26 (3): 616–622.
- Bowling, A., D. Banister, S. Sutton, O. Evans, and J. Windsor. 2002. A multidimensional model of the quality of life in older age. *Aging & Mental Health* 6 (4): 355–371.
- Budig, M.J., J. Misra, and I. Boeckmann. 2012. The motherhood penalty in cross-national perspective: The importance of work-family policies and cultural attitudes. *Social Politics* 19 (2): 163–193.
- Byrne, A. 2000. Singular identities: Managing stigma, resisting voices. *Women's Studies Review* 7: 13–24.
- Cacioppo, J.T., M.E. Hughes, L.J. Waite, L.C. Hawkley, and R.A. Thisted. 2006. Loneliness as a specific risk factor for depressive symptoms: Cross-sectional and longitudinal analyses. *Psychology and Aging* 21 (1): 140–151.
- Cacioppo, S., J.P. Capitano, and J.T. Cacioppo. 2014. Toward a neurology of loneliness. *Psychological Bulletin* 140 (6): 1464–1504.
- Chen, J. 2019. Experience of poverty and problem sleep in later life. *Research on Aging* 41 (7): 697–722.
- Cherchye, L., B. De Rock, and F. Vermeulen. 2012. Economic well-being and poverty among the elderly: An analysis based on a collective consumption model. *European Economic Review* 56 (6): 985–1000.
- Cherlin, A.J. 2010. Demographic trends in the United States: A review of research in the 2000s. *Journal of Marriage and Family* 72 (3): 403–419.
- Correll, S.J., S. Benard, and I. Paik. 2007. Getting a job: Is there a motherhood penalty? *American Journal of Sociology* 112 (5): 1297–1338.
- Crystal, S., and D. Shea. 1990. The economic well-being of the elderly. *Review of Income and Wealth* 36 (3): 227–247.
- Davies, H., and H. Joshi. 1994. The foregone earnings of Europe's mothers. In *Standards of living and families: Observation and analysis*, ed. O. Eckert, 101–134. Paris: INED John Libbey Eurotext.
- De Jong Gierveld, J., and T. Van Tilburg. 2006. A 6-item scale for overall, emotional, and social loneliness confirmatory tests on survey data. *Research on Aging* 28 (5): 582–598.
- Diener, E., C.N. Scollon, and R.E. Lucas. 2009. The evolving concept of subjective Well-being: The multifaceted nature of happiness. In *Social indicators research series: Vol. 39. Assessing*

- well-being: The collected works of Ed Diener*, ed. E. Diener, 67–100. New York: Springer Science & Business Media.
- Dykstra, P.A. 2006. Off the beaten track: Childlessness and social integration in late life. *Research on Aging* 28 (6): 749–767.
- . 2009. Older adult loneliness: Myths and realities. *European Journal of Ageing* 6 (2): 91–100.
- Dykstra, P.A., and R. Keizer. 2009. The wellbeing of childless men and fathers in mid-life. *Ageing and Society* 29 (08): 1227–1242.
- Elder, G.H., M.K. Johnson, and R. Crosnoe. 2004. The emergence and development of life course theory. In *Handbook of the life course*, ed. J.T. Mortimer and M.J. Shanahan, 3–19. New York: Springer.
- Esping-Andersen, G. 1999. *Social foundations of postindustrial economies*. New York: Oxford University Press.
- . 2009. *The incomplete revolution: Adapting to women's new roles*. Cambridge: Polity Press.
- Fokkema, T., J. De Jong Gierveld, and P.A. Dykstra. 2012. Cross-national differences in older adult loneliness. *The Journal of Psychology* 146 (1–2): 201–228.
- Fortin, N.M. 2005. Gender role attitudes and the labour-market outcomes of women across OECD countries. *Oxford Review of Economic Policy* 21 (3): 416–438.
- Friedman, E.M., M.S. Hayney, G.D. Love, H.L. Urry, M.A. Rosenkranz, R.J. Davidson, B.H. Singer, and C.D. Ryff. 2005. Social relationships, sleep quality, and interleukin-6 in aging women. *Proceedings of the National Academy of Sciences* 102 (51): 18757–18762.
- Goldin, C. 2006. The quiet revolution that transformed women's employment, education, and family. *American Economic Review: Papers & Proceedings* 96 (2): 1–21.
- Gough, M. 2017. Birth spacing, human capital, and the motherhood penalty at midlife in the United States. *Demographic Research* 37: 363–416.
- Gough, M., and M. Noonan. 2013. A review of the motherhood wage penalty in the United States. *Sociology Compass* 7 (4): 328–342.
- Gow, A.J., A. Pattie, M.C. Whiteman, L.J. Whalley, and I.J. Deary. 2007. Social support and successful aging: Investigating the relationships between lifetime cognitive change and life satisfaction. *Journal of Individual Differences* 28 (3): 103–115.
- Hallden, K., A. Levanon, and T. Kricheli-Katz. 2016. Does the motherhood wage penalty differ by individual skill and country family policy? A longitudinal study of ten European countries. *Social Politics: International Studies in Gender, State & Society* 23 (3): 363–388.
- Hansen, T., and B. Slagsvold. 2015. Late-life loneliness in 11 European countries: Results from the Generations and Gender Survey. *Social Indicators Research* 129 (1): 445–464.
- Hansen, T., B. Slagsvold, and T. Moum. 2009. Childlessness and psychological well-being in midlife and old age: An examination of parental status effects across a range of outcomes. *Social Indicators Research* 94 (2): 343–362.
- Hantrais, L., and M. Letablier. 1996. *Families and family policies in Europe*. New York: Longman.
- Harkness, S., and J. Waldfogel. 2003. The family gap in pay: Evidence from seven industrialized countries. *Research in Labor Economics* 22 (1): 369–414.
- Hawkey, L.C., R.A. Thisted, and J.T. Cacioppo. 2009. Loneliness predicts reduced physical activity: Cross-sectional & longitudinal analyses. *Health Psychology* 28 (3): 354–363.
- Houseknecht, S.K. 1977. Reference group support for voluntary childlessness: Evidence for conformity. *Journal of Marriage and Family* 39 (2): 285–292.
- Inglehart, R. 1997. *Modernization and postmodernization: Cultural, economic, and political change in 43 societies*. Princeton: Princeton University Press.
- . 2006. Mapping global values. *Comparative Sociology* 5 (2–3): 115–136.
- Inglehart, R., and W.E. Baker. 2000. Modernization, cultural change, and the persistence of traditional values. *American Sociological Review* 65 (1): 19–51.
- Juhn, C., and K. Mccue. 2017. Specialization then and now: Marriage, children, and the gender earnings gap across cohorts. *Journal of Economic Perspectives* 31 (1): 183–204.
- Kearns, A., E. Whitley, C. Tannahill, and A. Ellaway. 2015. Loneliness, social relations and health and well-being in deprived communities. *Psychology, Health & Medicine* 20 (3): 332–344.
- Keyes, C.L.M. 1998. Social well-being. *Social Psychology Quarterly* 61 (2): 121–140.



- Killewald, A., and J. Garcia-Mangano. 2016. Tethered lives: A couple-based perspective on the consequences of parenthood for time use, occupation, and wages. *Social Science Research* 60: 266–282.
- Killewald, A., and M. Gough. 2013. Does specialization explain marriage penalties and premiums? *American Sociological Review* 78 (3): 477–502.
- Killewald, A., and X. Zhuo. 2019. US mothers' long-term employment patterns. *Demography* 56 (1): 285–320.
- Koropecky-Cox, T. 1998. Loneliness and depression in middle and old age: Are the childless more vulnerable? *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences* 53 (6): S303–S312.
- Koropecky-Cox, T., A.M. Pienta, and T.H. Brown. 2007. Women of the 1950s and the “normative” life course: The implications of childlessness, fertility timing, and marital status for psychological well-being in late midlife. *The International Journal of Aging and Human Development* 64 (4): 299–330.
- Langner, L.A. 2015. Within-couple specialisation in paid work: A long-term pattern? A dual trajectory approach to linking lives. *Advances in Life Course Research* 24: 47–65.
- Lauder, W., K. Mummery, M. Jones, and C. Caperchione. 2006. A comparison of health behaviours in lonely and non-lonely populations. *Psychology, Health & Medicine* 11 (2): 233–245.
- Lesthaeghe, R. 2010. The unfolding story of the second demographic transition. *Population and Development Review* 36 (2): 211–251.
- Liefbroer, A.C., and F.C. Billari. 2010. Bringing norms back in: A theoretical and empirical discussion of their importance for understanding demographic behaviour. *Population, Space and Place* 16 (4): 287–305.
- Liefbroer, A.C., E. Merz, and M.R. Testa. 2015. Fertility-related norms across Europe: A multi-level analysis. In *Reproductive decision-making in a macro-micro perspective*, ed. D. Philipov, A.C. Liefbroer, and J.E. Klobas, 141–163. Dordrecht: Springer.
- Mandel, H., and M. Semyonov. 2006. A welfare state paradox: State interventions and women's employment opportunities in 22 countries. *American Journal of Sociology* 111 (6): 1910–1949.
- Marini, M.M. 1984. Age and sequencing norms in the transition to adulthood. *Social Forces* 63 (1): 229–244.
- McMunn, A., E. Breeze, A. Goodman, J. Nazroo, and Z. Oldfield. 2006. Social determinants of health in older age. In *Social determinants of health*, ed. M. Marmot and R. Wilkinson, 267–298. Oxford: Oxford University Press.
- Miller, A.R. 2011. The effects of motherhood timing on career path. *Journal of Population Economics* 24 (3): 1071–1100.
- Mirowsky, J., and C.E. Ross. 2002. Depression, parenthood, and age at first birth. *Social Science & Medicine* 54 (8): 1281–1298.
- Moore, K.A., and L.J. Waite. 1977. Early childbearing and educational attainment. *Family Planning Perspectives* 9 (5): 220–225.
- Muller, J.S., N. Hiekel, and A.C. Liefbroer. 2020. The long-term costs of family trajectories: Women's later-life employment and earnings across Europe. *Demography* 57: 1007–1034.
- Mullins, L.C., C.H. Elston, and S.M. Gutkowski. 1996. Social determinants of loneliness among older Americans. *Genetic, Social, and General Psychology Monographs* 122 (4): 453–473.
- Neugarten, L. 1979. Time, age, and the life cycle. *American Journal of Psychiatry* 136 (7): 887–894.
- Neugarten, B.L., J.W. Moore, and J.C. Lowe. 1965. Age norms, age constraints, and adult socialization. *American Journal of Sociology* 70 (6): 710–717.
- O'Flaherty, M., J. Baxter, M. Haynes, and G. Turrell. 2016. The family life course and health: Partnership, fertility histories, and later-life physical health trajectories in Australia. *Demography* 53 (3): 777–804.
- Perlman, D., and L.A. Peplau. 1982. Perspectives on loneliness. In *Loneliness: A sourcebook of current theory, research and therapy*, ed. L.A. Peplau and D. Perlman, 1–18. New York: John Wiley.

- Peters, A., and A.C. Liefbroer. 1997. Beyond marital status: Partner history and well-being in old age. *Journal of Marriage and Family* 59 (3): 687–699.
- Reher, D. 2005. *Family ties in Western Europe strong family and low fertility: A paradox?* 45–76. Dordrecht: Springer.
- Roman, C. 2017. Between money and love: Work-family conflict among Swedish low-income single mothers. *Nordic Journal of Working Life Studies* 7 (3): 23–41.
- Ross, C.E., and J. Huber. 1985. Hardship and depression. *Journal of Health and Social Behavior* 26 (4): 312–327.
- Ryff, C.D. 1995. Psychological well-being in adult life. *Current Directions in Psychological Science* 4 (4): 99–104.
- Salvador-Carulla, L., R. Lucas, J.L. Ayuso-Mateos, and M. Miret. 2014. Use of the terms “Wellbeing” and “Quality of Life” in health sciences: A conceptual framework. *The European Journal of Psychiatry* 28 (1): 50–65.
- Saraceno, C., and W. Keck. 2010. Can we identify intergenerational policy regimes in Europe? *European Societies* 12 (5): 675–696.
- Settersten, R.A.J. 2003. Age structuring and the rhythm of the life course. In *Handbook of the life course*, ed. J.T. Mortimer and M.J. Shanahan, 81–98. New York: Kluwer Academic Press.
- Settersten, R.A., and G.O. Hagestad. 1996. What’s the latest? Cultural age deadlines for family transitions. *The Gerontologist* 36 (2): 178–188.
- Siegrist, J., and M. Wahrendorf. 2010. Socioeconomic and psychosocial determinants of well-being in early old age. In *Ageing, health and pensions in Europe*, ed. L. Bovenberg, A. van Soest, and A. Zaidi, 107–139. London: Palgrave Macmillan.
- Sigle-Rushton, W., and J. Waldfogel. 2007. Motherhood and women’s earnings in Anglo-American, continental European, and Nordic countries. *Feminist Economics* 13 (2): 55–91.
- Smeeding, T.M. 1991. Cross-national comparisons of inequality and poverty position. In *Economic inequality and poverty: International perspectives*, ed. L. Osberg, 39–59. London: M.E. Sharpe, Inc.
- Sobotka, T. 2004. *Postponement of childbearing and low fertility in Europe*. Amsterdam: Dutch University Press.
- . 2010. Shifting parenthood to advanced reproductive ages: Trends, causes and consequences. In *A young generation under pressure?* ed. J. Tremmel, 129–154. Berlin: Springer.
- Sundstrom, G., E. Fransson, B. Malmberg, and A. Davey. 2009. Loneliness among older Europeans. *European Journal of Ageing* 6 (4): 267–275.
- Thornton, A., and L. Young-DeMarco. 2001. Four decades of trends in attitudes toward family issues in the United States: The 1960s through the 1990s. *Journal of Marriage and Family* 63 (4): 1009–1037.
- Tilvis, R.S., V. Laitala, P.E. Routasalo, and K.H. Pitkala. 2011. Suffering from loneliness indicates significant mortality risk of older people. *Journal of Aging Research* 2011: 1–5.
- Victor, C.R., S.J. Scambler, S. Shah, D.G. Cook, T. Harris, E. Rink, and S. De Wilde. 2002. Has loneliness amongst older people increased? An investigation into variations between cohorts. *Ageing & Society* 22 (5): 585–597.
- Vikstrom, J., M. Bladh, M. Hammar, J. Marcusson, E. Wressle, and G. Sydsjo. 2011. The influences of childlessness on the psychological well-being and social network of the oldest old. *BMC Geriatrics* 11 (1): 78.
- Wilson, R.S., K.R. Krueger, S.E. Arnold, J.A. Schneider, J.F. Kelly, L.L. Barnes, Y. Tang, and D.A. Bennett. 2007. Loneliness and risk of Alzheimer disease. *Archives of General Psychiatry* 64 (2): 234–240.
- Wrosch, C., and A.M. Freund. 2001. Self-regulation of normative and non-normative developmental challenges. *Human Development* 44 (5): 264–283.
- Wrosch, C., and J. Heckhausen. 1999. Control processes before and after passing a developmental deadline: Activation and deactivation of intimate relationship goals. *Journal of Personality and Social Psychology* 77 (2): 415–427.

- Yang, K., and C. Victor. 2011. Age and loneliness in 25 European nations. *Ageing and Society* 31 (8): 1368–1388.
- Yanguas, J., S. Pinazo-Henandis, and F.J. Tarazona-Santabalbina. 2018. The complexity of loneliness. *Acta Bio Medica: Atenei Parmensis* 89 (2): 302–314.
- Zhang, X. 2009. *Earnings of women with and without children*, 5–13. Ottawa: Statistics Canada.
- Zoutewelle-Terovan, M., and A.C. Liefbroer. 2018. Swimming against the stream: Non-normative family transitions and loneliness in later life across 12 nations. *The Gerontologist* 58 (6): 1096–1108.

**Open Access** This chapter is licensed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.



# Chapter 6

## Meta-Analysis and Meta-Regression: An Alternative to Multilevel Analysis When the Number of Countries Is Small



Aart C. Liefbroer and Mioara Zoutewelle-Terovan

### 6.1 Introduction

Cross-national comparative research often is based on the analysis of hierarchically nested data structures containing information on multiple levels. A common situation integrates data at two levels, with micro-level (level-1) information about individuals and macro-level (level-2) information about countries. In the social sciences, the most popular way of analyzing such hierarchical cross-national data is by means of multilevel techniques (Hox et al. 2010; Rabe-Hesketh and Skrondal 2008; Snijders and Bosker 1999).

Multilevel analysis is very effective when dealing with data at multiple levels because it allows the estimation of effects occurring at all these levels (e.g. individual effects, country effects) simultaneously, as well as the estimation of interactions between variables at different levels (cross-level effects). A multilevel model may have the following structure:

$$y_{ic} = X_{ic}\beta + Z_c\gamma + X_{ic} * Z_c\theta + e_{ic} + u_c$$

---

A. C. Liefbroer (✉)

Netherlands Interdisciplinary Demographic Institute (NIDI), The Hague, The Netherlands

Department of Epidemiology, University Medical Centre Groningen, University of Groningen, Groningen, The Netherlands

Department of Sociology, Vrije Universiteit, Amsterdam, The Netherlands

e-mail: [liefbroer@nidi.nl](mailto:liefbroer@nidi.nl)

M. Zoutewelle-Terovan

Netherlands Interdisciplinary Demographic Institute (NIDI), The Hague, The Netherlands

University of Groningen, Groningen, The Netherlands

e-mail: [zoutewelle@nidi.nl](mailto:zoutewelle@nidi.nl)

© The Author(s) 2021

A. C. Liefbroer, M. Zoutewelle-Terovan (eds.), *Social Background and the Demographic Life Course: Cross-National Comparisons*, [https://doi.org/10.1007/978-3-030-67345-1\\_6](https://doi.org/10.1007/978-3-030-67345-1_6)

101

where the outcome  $y_{ic}$  (for person  $i$  in country  $c$ ) depends on observed individual characteristics ( $X_{ic}$ ), observed country-level characteristics ( $Z_c$ ), cross-level interactions between observed characteristics at the individual and country level ( $X_{ic} * Z_c$ ), unobserved individual effects ( $e_{ic}$ ) and unobserved country effects ( $u_c$ ), under the assumption that unobserved effects are normally distributed and uncorrelated with observed effects.

Nowadays, most software packages offer a broad suite of multilevel models that are easy to use by social scientists. However, one considerable problem in estimating multilevel models concerns a low number of level-2 observations in a sample. For instance, many multi-country datasets contain large numbers of individuals per country (often hundreds or thousands), but include only a small number of countries (often less than 30 or even less than 20). With few level-2 units, the use of multilevel models may result in unreliable inferences because of biased estimates (coefficients and variance components) and inaccurate (often underestimated) standard errors (Arend and Schafer 2019; Austin 2010; Bell et al. 2010; Bryan and Jenkins 2016; Hox 1998; Maas and Hox 2004; McNeish and Stapleton 2016; Van der Leeden et al. 2008). When an increase in level-2 units is not feasible, one could consider alternative analytical tools such as the implementation of completely different analyses techniques or the use of multilevel simulation-based models able to surmount estimation bias and provide accurate statistical tests (Bryan and Jenkins 2016; Goldstein 2011; Hamaker and Klugkist 2010; Maas and Hox 2004; McNeish and Stapleton 2016). Yet, many of these techniques may not be feasible for various substantive or practical reasons.

This paper discusses aspects related to the analysis of nested data structures with a small level-2 sample size in the context of cross-national research. Specifically, we will discuss several alternative analytical tools one can apply to overcome problems of standard multilevel modeling, as well as their limitations. However, our main goal is to propose and illustrate a viable alternative technique – what we term *the 2-step meta-analytic approach* – suited for the analysis of multi-country datasets with a small number of countries (but the method can be easily applied to any type of analysis of nested data with few level-2 sample size). This method provides accurate estimators and standard errors (*SEs*) and allows for reliable inference when one is interested in modeling both individual and country effects. Next to providing accurate estimations, the method we propose is highly info-graphic ensuring a fast and clear information communication, and is accessible to the average social scientist (not skilled in using more advanced simulation techniques).

## 6.2 Unreliability of Estimates in Multilevel Models with a Small Level-2 Sample Size

The reliability of multilevel estimates may be questioned when the number of level-2 units (e.g. countries) is low (Arend and Schafer 2019; Bell et al. 2010; Bryan and Jenkins 2016; Hox et al. 2010; Hox 1998; McNeish and Stapleton 2016). This warning has been evoked regularly in multilevel textbooks (Rabe-Hesketh and Skrondal 2008; Snijders and Bosker 1999), but in practice it has been often disregarded for several reasons. For one thing, many of these warnings were quite abstract and not accompanied by clear explanations and guidelines about which number of level-2 units is considered too low and which problems a researcher may encounter if model assumptions are violated. General rules of thumb regarding the minimum number of level-2 units required for accurate estimation in multilevel analyses varies considerably between authors, and range from 10 to 100 level-2 units (Hox 1998; Kreft and de Leeuw 1998; Rabe-Hesketh and Skrondal 2008; Snijders and Bosker 1999), with 30 units as the most common recommendation (Hox 1998; Maas and Hox 2004).

In essence, the standard multilevel models rely on maximum likelihood estimation methods which are based on the assumption that errors are normally distributed and variances across groups are heterogeneous (Seco et al. 2013). When the level-2 distributional assumption is violated (which may be the case when dealing with few units), multilevel estimates and their standard errors (especially for the variance components) may not be accurate. Several Monte-Carlo simulation studies have shown that the minimum sample size for obtaining unbiased estimates in multilevel analysis depends on the type of dependent variable (e.g. continuous, categorical), the type and number of predictor variables, the use of (un)balanced group sizes, the specific model parameters of interest (fixed, random or variance components), the potential interest in cross-level interactions, the specification of the random and fixed parts, or the choice of estimation method (Austin 2010; Bell et al. 2010; Bryan and Jenkins 2016; Maas and Hox 2004, 2005; McNeish and Stapleton 2016; Schmidt-Catran and Fairbrother 2015; Stegmueller 2013; Van der Leeden et al. 2008). For example, to obtain unbiased point estimates of coefficients of model predictors, Maas and Hox (2004) recommend a minimum of 10 level-2 units, for good variance estimates at least 30 units, and for accurate *SEs* a minimum of 50 units. In practice, it remains hard to draw general conclusions from the existing studies that are directly applicable to many complex research designs in multi-country studies.

The article of Bryan and Jenkins (2016) came as a real wake-up call for the multilevel community conducting cross-national research. Their Monte-Carlo simulations showed the conditions under which multilevel estimates and their standard errors (*SEs*) may be unreliable or biased, and provided guidelines for what should be considered a minimum number of level-2 units when conducting multilevel analysis in multi-country studies. Table 6.1 presents a summary of their findings for both linear and logit models. In short, when analyzing continuous outcomes,

**Table 6.1** Overview of multilevel estimator performance for continuous and binary outcomes (based on Bryan and Jenkins 2016)

Models	Multilevel models	Estimate	Variability in estimates	SE
<b>Linear</b> (continuous outcomes)	<i>Individual-level fixed effects</i>	Reliable	No	Reliable
	<i>Individual-level variance</i>	Reliable	No	Reliable
	<i>Country-level fixed effects</i>	Over- or underestimated; high uncertainty if $N_c < 25$	Yes	Underestimated if $N_c < 20$
	<i>Country-level variance</i>	Underestimated if $N_c < 20$	Yes	Underestimated if $N_c < 10$
<b>Logistic</b> (binary outcomes)	<i>Individual-level fixed effects</i>	Sometimes underestimated if $N_c < 20$	Sometimes	Reliable
	<i>Country-level fixed effects</i>	Relatively reliable	Sometimes	Substantially underestimated if $N_c < 25$
	<i>Country-level variance</i>	Substantially underestimated if $N_c < 30$	Yes	Substantially underestimated if $N_c < 20$

individual-level estimates (fixed effects or variance components) are reliable regardless of the number of level-2 units. However, a minimum of 25 level-2 units should be available when analyzing country-level effects. Fitting multilevel logit models with a low number of countries brings up even more problems than the linear models, and biased estimates can be found also for fixed effects. The general recommendation is to have at least 30 level-2 units when fitting logit models.

### 6.3 Common Solutions for Modeling Nested Data with Few Level-2 Units

When concluding that a level-2 sample is too small to apply standard multilevel models, the next step is to identify viable alternative methods to answer the same multilevel-like research questions. Several authors have discussed alternative modeling approaches which include common frequentist techniques (e.g. regression models), correction estimators (e.g. Huber/White sandwich estimators or non-linear transformations of the dependent variable) and more versatile resampling procedures for statistical inference such as Bootstrapping and Bayesian approaches (Bryan and Jenkins 2016; Cheah 2009; Goldstein 2011; Hamaker and Klugkist 2010; McNeish and Stapleton 2016; Seco et al. 2013). However, drawbacks of many of these approaches are that they may not be suited for testing more complex

cross-level hypotheses, that they are not easily available in commonly used software packages, or that they require advanced statistical skills and/or computational power which most applied researchers do not possess. As a result, empirical research has continued to use multilevel models, even when level-2 sample sizes were questionable. Below, we briefly discuss various suggested methods to analyze multi-country datasets with few level-2 units. We will focus on frequentist methods and sampling techniques and do not discuss correction estimators as they have been proven to perform unsatisfactory with small sample sizes (Diggle et al. 2002). For the sake of parsimony, in this discussion we restrict ourselves to solutions for models with continuous outcome variables. However, most solutions would also apply to models with other types of dependent outcomes, such as binary ones.

### **Regression with (Country-Specific) Clustered Standard Errors on Pooled Data**

If we would analyze nested data with the most commonly used regression method – OLS – we may end up making inaccurate statistical inferences. Individual-level model errors within the same country may be correlated and if we fail to control for the within-country error correlation we may obtain downwardly biased *SEs*, shrunken confidence intervals, large *t*-statistics and small *p*-values (Cameron and Miller 2015; Hox 1998). In addition, if OLS regression models would use a country-level predictor (continuous or dichotomous), the country *SEs* may be biased as well (Cameron and Miller 2015). Given this situation, regression with clustered *SEs* may be used instead as it accounts for the dependence between individual observations. This method is now widely used and incorporated in most common statistical software packages (e.g. STATA). However, this method only controls for within-country correlation, but it does not specifically model it (Bryan and Jenkins 2016). Moreover, estimation of *SEs* may be inaccurate with less than 20 level-2 units for balanced designs and less than 50 level-2 units for unbalanced designs (Cameron and Miller 2015). Additionally, because we are often specifically interested in cross-national variation of effects, a multitude of interaction terms between variables of substantive interest and country dummies are required to test specific hypotheses. The overload of interactions and high incidence of multicollinearity in the resulting variables makes many analyses of interest unfeasible when using this method.

### **Regression with Country-Specific Fixed-Effects on Pooled Data**

Whereas the previous method controls for intra-country correlations, the effects estimated are not country-specific, but assumed to be equal across countries (i.e. level-2 units). This is problematic as many analyses aim to specifically model country effects. An alternative is to use the pooled data and fit distinct country intercepts (as fixed parameters). With this technique, the unobserved factors of each country are not separately modeled but are integrated in the intercepts of each country (Bryan and Jenkins 2016). However, given that we model fixed parameters for each country, country-level factors cannot be included as additional predictors. Similar to the previous method, cross-national variation in certain effects can be analyzed only through interactions between country indicators and individual factors and again we are confronted with the issue of estimating a large number of parameters and an



overload of interactions difficult to interpret. Moreover, (Cameron and Miller 2015) warn that by introducing country-specific fixed effects, our estimations lose precision and estimation bias may still occur when the number of countries is small.

### **Two-Step Approach**

Bryan and Jenkins (2016) proposed a more exploratory approach in which regressions are fitted in two steps. The first step is performed at the individual level using country-specific fixed effects. Thus, regular regression models are fitted separately for each country. The second step is conducted at the country level, and country effects are analyzed by regressing the country intercepts on the country-level predictors. Although this technique is advantageous as it reveals the sources of variation, the small number of countries continues to be a problem in implementing a regular regression model in the second step (Combs 2010; Green 1991; Nunnally 1978).

### **Multilevel Bootstrapping**

The three methods described above represent variations on the classical regression models as alternatives for multilevel modeling. However, to obtain unbiased estimates and correct *SEs* in complex research designs in which distributional assumptions are not met, many authors recommend the use of resampling techniques and one such technique is multilevel bootstrapping (Goldstein 2011; Goldstein et al. 2002; Seco et al. 2013). Three different bootstrap strategies have been used to correct for estimates bias and inaccurate *SEs* (Carpenter et al. 2003; Seco et al. 2013; Thai et al. 2013; Van der Leeden et al. 2008):

- (a) *parametric residual bootstrapping* – new data is generated by keeping the predictors fixed and resampling with replacement of the residuals at the two levels from a normal distribution;
- (b) *non-parametric residual bootstrapping* – new data is generated by keeping the predictors fixed and resampling with replacement residuals at both levels from the observed basic residuals;
- (c) *case bootstrap* – new data is generated from the original sample before any modeling is performed (for an overview of different options for cases bootstrap see Roberts and Fan 2004; Van der Leeden et al. 2008).

Among these three bootstrapping procedures, residual bootstrapping has been established as providing the most accurate estimations (Carpenter et al. 2003). Still, Seco and colleagues (2013) showed that residual bootstrapping does not perform very well for small group sizes. In other words, bootstrapping remains incapable to solve the problems of regular multilevel modeling with few level-2 units. In addition, bootstrapping is also procedurally quite difficult for most social researchers as it is not typically integrated as an automated option in the commonly used software packages and often requires advanced programming skills.

### **Bayesian Multilevel Models**

Bayesian estimation for multilevel data is considered to be one of the best analytical approaches when dealing with small samples (Hamaker and Klugkist 2010). In

essence, the Bayesian approach builds on the regular multilevel approach in specifying the models at each level, but it deviates by introducing an additional step in which prior distributions are defined for the model parameters (Hamaker and Klugkist 2010; Stegmüller 2013). In other words, the Bayesian estimation approach focuses on obtaining a posterior distribution for model parameters starting from a prior distribution and the observed data. Compared to classical frequentist methods, the Bayesian approach has the advantage that it is not based on the normality assumption or asymptotic results, which is important when dealing with small sample sizes (Hamaker and Klugkist 2010). However, with this approach, the specification of priors is crucial for obtaining unbiased estimates, especially with a small number of level-2 units (Austin 2010), and arriving at proper specifications of these priors remains challenging for any user.

In conclusion, the first two methods are good alternatives to multilevel modeling if modeling level-2 information is not explicitly the focus of the research. If the latter is the case, resampling multilevel techniques (bootstrapping and Bayesian) are recommended. Still, these methods are not widely implemented in research software packages, their use requires advanced statistical and programming skills, specialist software and computational performance (to reduce long computational time in exploratory analysis) – elements which are often not available to most social researchers.

#### **6.4 An Alternative Stepwise Approach for Testing Individual, Country and Cross-Level Effects**

A general issue in cross-national research is that it has been centered primarily on individual or country-level effects, whereas cross-level effects have received rather little attention. This is unfortunate, as these types of effects are often very interesting from a substantive point of view. In many comparative projects, the main interest is in examining whether individual-level effects vary across countries and whether we can explain this type of variation with cross-level effects in which individual-level variables are interacted with country-level variables of interest. Multilevel models may answer such questions very well. However, as our overview in the previous section has made clear, they cannot be implemented when the number of countries is low (often below 30). In addition, we listed several reasons which make the alternative methods recommended by literature unfeasible for research. In this section, we present an alternative (*the 2-step meta-analytical approach*), a stepwise approach which includes the use of meta-analysis and meta-regression to analyze variations across different effects as well as moderating country-level factors. Such a stepwise approach can replicate effects estimated in multilevel analysis, is reliable with few level-2 units and is easy and straightforward to apply without requiring very advanced analytical and programming skills. This method is described and illustrated below.

### 6.4.1 *The 2-Step Meta-Analytical Approach*

Meta-analysis and meta-regression are often applied in medical research to summarize or combine results on specific relationships that have been tested in multiple separate studies (Borenstein et al. 2009). In these instances, studies constitute the second level of analysis. In such approaches the aims are (1) to generate an overall estimate for the strength of the relationship under consideration, (2) to assess whether significant cross-study variation in the overall effect estimate exists, and (3) to determine which study-level factors could explain the variation (if cross-study heterogeneity is encountered). Cross-studies meta-analytical research in the medical field in the majority of cases includes few studies (often 10 or fewer) and much attention has been paid to develop methods providing reliable and unbiased estimates and correct confidence intervals for estimations (Friede et al. 2017; Rover et al. 2015; Wiksten et al. 2016). However, results of the meta-analytical approach should be interpreted with caution with very few studies, which in the medical research is considered to be less than 5, or even 3 studies (for specific information see Seide et al. 2019; Rover et al. 2015).

If one would replace studies as the level-2 units by countries, it is relatively straightforward to see how this procedure could be used in analyzing cross-national differences in the strength of particular individual-level relationships. It basically entails two steps.

#### **Step 1. Separate Regression Models for Each Country**

In the first step, separate regression models are fitted for each country. Suppose one has information on 15 countries, this would lead to 15 country-specific estimates of the relationship of interest. Compared to the common use in the medical field, the advantage in this particular case is that the study design and methodology are very similar across countries, thus reducing the extent to which variation (or heterogeneity as it is usually called in the meta-analytical literature) in the estimates could be due to differences in initial approach (Friede et al. 2017).

#### **Step 2. Meta-Analysis and Meta-Regression**

In the second step, a *meta-analysis* is performed on the set of country-specific estimates of the relationship of interest. Two different types of meta-analyses have been developed: fixed-effects and random-effects. Fixed-effects meta-analysis assumes a common effect of a risk factor for a certain outcome and provides an average estimate (Borenstein et al. 2009; Friede et al. 2017; Palmer and Sterne 2016). Random-effects meta-analysis assumes that the ‘true’ effect of interest may vary across level-2 units (Harbord and Higgins 2008; Palmer and Sterne 2016), and this seems a much more reasonable assumption in most studies on country-effects. Random-effects meta-analysis separates real differences in the effect of the predictor on the outcome from sampling variability/chance. In the meta-analysis community, much attention has been paid to developing and testing methods that estimate confidence intervals that are reliable and unbiased, even with very small numbers of level-2 units (Rover et al. 2015; Seide et al. 2019; Wiksten et al. 2016). Simulation studies

showed that certain estimation methods such as Knapp-Hartung – although more conservative – may be implemented with few level-2 units (Friede et al. 2017). The random-effects meta-analysis approach also offers a test of whether the estimate of interest shows significant variation across countries. If the level of variation is low (and not statistically significant), the conclusion is that the relationship of interest is country-invariant. If the level of variation is substantial, one could proceed and use meta-regression to try to explain this variation. In addition to providing reliable estimates of the overall strength of an effect of interest and its cross-country variability, this method provides powerful opportunities for visualization of the variation in the strength of effects across countries (information that is much more difficult to attain if using multilevel analysis or other methods).

As mentioned above, if the results of the meta-analysis suggest variability in country-effects, *meta-regression* can be used to identify factors that may explain this heterogeneity. Meta-regression (Harbord and Higgins 2008; Thompson and Higgins 2002; Thompson and Sharp 1999) can be used to analyze the moderating role of a factor by regressing the country-effects on country-level predictors. The advantage of using meta-regression instead of OLS regression is twofold (Palmer and Sterne 2016). First, when using multi-country data, we need to ensure that the data are properly weighted. By assigning weights to studies, we ensure that large studies are less likely to dominate the analysis and small studies are not seen as unimportant. Second, in situations including few units of analysis/countries, meta-regression applications offer solutions to accurately establish the statistical significance of an effect such as the Knapp-Hartung modification (Knapp and Hartung 2003) or the permutation-based resampling (Harbord and Higgins 2008; Gagnier et al. 2012). These characteristics make the method eminently suited for studying which country-level variables could explain cross-national differences in relationships of interest.

In the next section, we will illustrate this method with an empirical example and compare the results with those from a ‘classic’ multilevel analysis.

#### **6.4.2 Example: The Relationship Between Parental Education and Teenage Parenthood Across 15 European Countries**

To illustrate the 2-step meta-analytical approach, we examine the relationship between parental education and teenage parenthood across 15 European countries. It is well-known that children from a lower social-class background run a higher risk of teenage pregnancy and thus of teenage parenthood than children from a higher social-class background (Pirog et al. 2018). What is less known, is whether this risk varies across countries. We expect that it does, and more specifically, that the risk is weaker in countries that offer better opportunities for individual agency and development. In such countries, institutional, cultural and economic factors are thought to buffer the potentially negative consequences of family disadvantage.

As continuous dependent variables are most common in social science applications, we will first use OLS regression to derive parameter estimates of the country-specific effects of social-class background on the risk of teenage pregnancy. In this way, we will illustrate both the ‘traditional’ multi-level approach and the 2-step meta-analytic approach. However, this method can also be applied if logistic regression is used for the within-country regressions (although the specifics of the method are a bit more complicated). In a second example we will briefly illustrate how our method can be used in the latter case.

### Data

We use data on 15 countries from the Gender and Generations Project (see Fokkema et al., 2016 for details). These data were collected between 2004 and 2009. To make results as comparable as possible across countries, we select men and women born between 1966 and 1975, leaving us with between 1000 and 2000 respondents per country. The following countries are included: Austria, Australia, Bulgaria, Belgium, Czech Republic, France, Georgia, Germany, Lithuania, the Netherlands, Norway, Poland, Romania, Russia, and Sweden. Our final sample consists of 29,022 individuals.

### Variables

The key dependent variable of interest (*Teenage parenthood*) is whether the respondent had a first birth before the age of 20 (0 = no, 1 = yes). The key individual-level independent variable is the level of education of the parents. Information on the educational attainment of both parents was available, scored according to ISCED. To facilitate comparison across countries, these were converted into the newly developed continuous ISLED-scaling (Schröder & Ganzeboom, 2014; Brons and Mooyaart 2018). The mean of the ISLED scores of both parents was used as the indicator of *Parental education*. If information on only one parent was available, the ISLED score of that parent was used. ISLED scores vary between 0 and 100. To facilitate interpretation, we divided scores by ten. A number of additional individual-level variables were included in the analyses (*Gender*, *Age*, *Number of siblings*, *Without BIOparents < 15* – whether respondents grew up most of their youth before age 15 with both parents or not, and *Unknown parental status* – unknown whether they grew up with both biological parents).

The country-level variable of interest is the Human Development Index (HDI), developed by the UN. This is a composite measure based on life expectancy (indicating people’s ability to live a long and healthy life), educational attainment (indicating people’s ability to acquire knowledge) and living standards (indicating people’s ability to acquire a decent standard of living). We use the HDI score of the 15 countries in the year 2000 as this is the earliest date for which HDI scores are available for all countries included (ideally, we would have wanted scores for the period 1990–1995 as this comes closer to the period in which our respondents made fertility decisions). Fig. 6.1 shows the HDI scores of the countries in our sample.

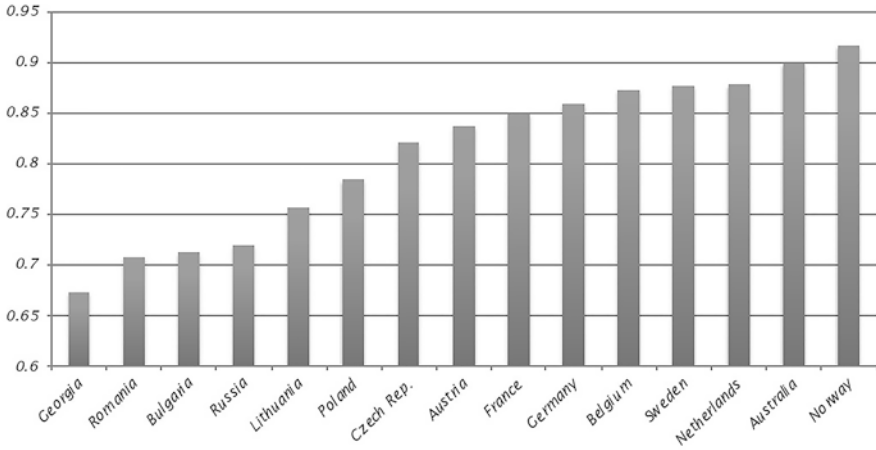


Fig. 6.1 HDI scores for GGP countries in the year 2000

### 6.4.2.1 Example for Continuous Outcomes

#### The ‘Classic’ Multilevel Approach

In the first example we analyze data by estimating linear probability models, effectively treating our binary outcome variable as a continuous one. We do so to facilitate the comparison of model estimates across models and across countries. The more complicated logit model estimations and comparisons (see also Mood 2010) will be presented in Sect. 3.2.2. A further advantage of the linear probability model is that we can interpret the effect estimate of our parental education variable as the shift in the percentage of respondents experiencing a teenage birth resulting from a ten-point difference in the ISLED score of a respondent’s parents. We ran two multilevel models. The first is a random-slope model, in which both the intercept and the slope of ISLED are allowed to vary across countries. The second is another random-slope model in which HDI is added as a country-level indicator and the interaction between parental education and HDI as a cross-level indicator. The results from both models are presented below as Stata output.

Output 1 shows that, across all 15 countries, there is a negative effect of parental education on the risk of experiencing teenage parenthood. A ten-point increase in ISLED is associated with a 1.6% decrease in the risk of teenage parenthood. In addition, Output 1 shows that there exists considerable cross-country variation in the effect of parental education. The random slope for parental education is .0001896, with an estimated standard error of .0000747, so the estimate is more than 2.5 times its standard error. In Output 2, HDI and the interaction between parental education and HDI are added. HDI has a statistically significant negative effect, suggesting that teenage parenthood is less common the higher the HDI score of countries is. In addition, the interaction between parental education and HDI also is statistically significant. The negative parental education gradient becomes weaker the higher the HDI score of countries is. This is in line with our expectations.

**Output 1** Random-slope multilevel model of the relationship between parental educational attainment and teenage parenthood

<i>Teenage parenthood</i>	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
Gender	.1131694	.0032397	34.93	0.000	.1068197	.1195191
Age	-.0002281	.0000472	-4.83	0.000	-.0003205	-.0001356
Parental education	-.0165465	.0037315	-4.43	0.000	-.0238602	-.0092329
Without BIOparents < 15	.0298401	.0052786	5.65	0.000	.0194943	.040186
Unknown parental status	-.016978	.0264223	-0.64	0.521	-.0687648	.0348087
Number of siblings	.0113589	.0010416	10.91	0.000	.0093174	.0134005
_cons	-.0114718	.0262477	-0.44	0.662	-.0629164	.0399728

Random-effects Parameters	Estimate	Std. Err.	[95% Conf. Interval]	
Country: Independent				
var(Parental education)	.0001896	.0000747	.0000876	.0004103
var(_cons)	.0036049	.0013345	.001745	.0074473
var(Residual)	.0747446	.0006208	.0735377	.0759713

**Output 2** Random-slope multilevel model of the relationship between parental educational attainment and teenage parenthood including the macro-level indicator and a cross-level interaction

<i>Teenage parenthood</i>	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
Gender	.1131956	.0032394	34.94	0.000	.1068464	.1195447
Age	-.0002243	.0000467	-4.80	0.000	-.0003159	-.0001327
Parental education	-.1130147	.0302013	-3.74	0.000	-.1722082	-.0538212
Without BIOparents < 15	.030191	.0052776	5.72	0.000	.019847	.040535
Unknown parental status	-.0166365	.0264173	-0.63	0.529	-.0684134	.0351405
Number of siblings	.0113262	.0010409	10.88	0.000	.0092861	.0133663
HDI	-.6833836	.1054858	-6.48	0.000	-.8901321	-.4766352
HDI x Parental education	.1192182	.037084	3.21	0.001	.0465348	.1919016
_cons	.540955	.0873755	6.19	0.000	.3697022	.7122078

Random-effects Parameters	Estimate	Std. Err.	[95% Conf. Interval]	
Country: Independent				
var(Parental education)	.0001037	.0000436	.0000455	.0002366
var(_cons)	.0009233	.0003549	.0004346	.0019614
var(Residual)	.0747455	.0006208	.0735386	.0759722

Furthermore, Output 2 shows that the estimate for the random slope of parental education has dropped by almost half (from .0001896 to .0001037), suggesting that HDI can explain almost half of the country-level variation in the effect of parental education.

### The 2-Step Meta-Analytical Approach

The alternative meta-analysis approach we propose starts with estimating a separate linear probability model per country, leading to 15 identically specified models overall. Output 3 shows the example for the Czech Republic. For the chosen country, the estimate of the association between parental education and the risk of teenage pregnancy is  $-.030$ , suggesting that a 10% increase in parental education leads to a 3.0% decrease in teenage parenthood. Estimates for all countries can be found in Table 6.2.

**Output 3** Example of a country-specific model (the Czech Republic)

Source	SS	df	MS	Number of obs	=	1,735
Model	13.2519081	6	2.20865135	F(6, 1728)	=	24.60
Residual	155.159619	1,728	.089791446	Prob > F	=	0.0000
				R-squared	=	0.0787
				Adj R-squared	=	0.0755
				Root MSE	=	.29965
Total	168.411527	1,734	.097123142			

Teenage parenthood	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
Gender	.1277083	.0144406	8.84	0.000	.0993854	.1560313
Age	-.0002308	.000207	1.12	0.265	-.0001751	.0006367
Parental education	-.0295338	.0060878	-4.85	0.000	-.0414741	-.0175935
Without BIoparents < 15	.0879683	.0221639	3.97	0.000	.0444974	.1314392
Unknown parental status	.0094585	.0658958	0.14	0.886	-.1197854	.1387025
Number of siblings	.0182289	.0064057	2.85	0.004	.0056651	.0307926
_cons	-.1883895	.0893359	-2.11	0.035	-.3636074	-.0131716

**Table 6.2** Country-level datafile to be used as input in meta-analysis and meta-regression procedures

Country	Association between Parental education and Teenage parenthood				HDI
	<i>OLS regression</i>		<i>Logistic regression</i>		
	B	SE_B	AME	SE_AME	
Russia	-0.01615	0.00563	-0.0175204	0.0058051	0.720
Bulgaria	-0.04893	0.00505	-0.0548612	0.0054996	0.713
Georgia	-0.02332	0.00596	-0.0265545	0.0062133	0.673
Romania	-0.03954	0.0051	-0.0560977	0.007007	0.708
Lithuania	-0.01393	0.00447	-0.0168735	0.0051631	0.757
Poland	-0.01039	0.00428	-0.0119415	0.004599	0.784
Czech Republic	-0.02953	0.00609	-0.0343537	0.0067771	0.821
Germany	-0.01313	0.00504	-0.0130292	0.0054126	0.86
France	-0.00538	0.00243	-0.0084212	0.0036588	0.849
Belgium	-0.00723	0.00221	-0.0105502	0.0037816	0.873
Norway	-0.01112	0.00208	-0.0155903	0.0031694	0.917
Austria	-0.01392	0.00383	-0.0140908	0.0039492	0.837
Sweden	0.0011	0.00267	0.0021482	0.0026105	0.877
Australia	-0.01147	0.0046	-0.0123621	0.0051695	0.899
Netherlands	-0.00223	0.00144	-0.0022191	0.0016706	0.878

In the second step, the country-specific estimates of interest (in this particular case, the estimates of the relationship between parental education and the risk of teenage parenthood) are collected into one dataset that is used as input for the meta-analysis. Table 6.2 shows an example of such a dataset, that includes additional parameters of potential interest as well as HDI as a country-level indicator. Using this dataset, we performed a meta-analysis (using the metan command in STATA 16). The results of this analysis are presented in Output 4 and graphically in Fig. 6.2.

Output 4 shows the estimates of the association for all countries, as well as their confidence intervals. The largest (negative) association is found in Bulgaria (-.049), whereas the smallest in found in Sweden (.001). At the bottom of Output 4,

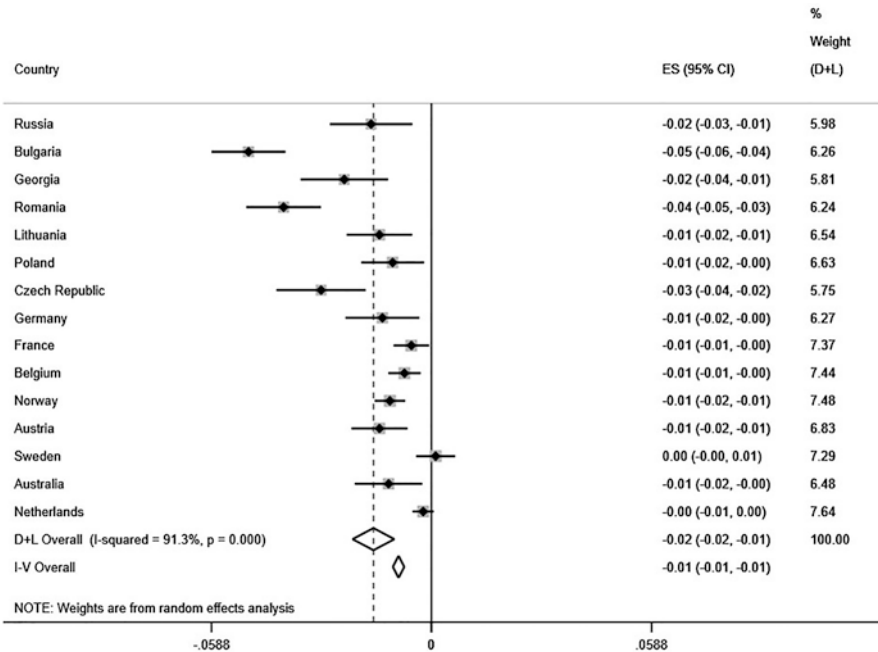


**Output 4** Meta-analysis of the country-variation in the association between parental education and the risk of teenage parenthood

metan B SE\_B, lcols(Country) random second(fixed)

Country	ES	[95% Conf. Interval]		% Weight
Russia	-0.016	-0.027	-0.005	5.98
Bulgaria	-0.049	-0.059	-0.039	6.26
Georgia	-0.023	-0.035	-0.012	5.81
Romania	-0.040	-0.050	-0.030	6.24
Lithuania	-0.014	-0.023	-0.005	6.54
Poland	-0.010	-0.019	-0.002	6.63
Czech Republic	-0.030	-0.041	-0.018	5.75
Germany	-0.013	-0.023	-0.003	6.27
France	-0.005	-0.010	-0.001	7.37
Belgium	-0.007	-0.012	-0.003	7.44
Norway	-0.011	-0.015	-0.007	7.48
Austria	-0.014	-0.021	-0.006	6.83
Sweden	0.001	-0.004	0.006	7.29
Australia	-0.011	-0.020	-0.002	6.48
Netherlands	-0.002	-0.005	0.001	7.64
D+L pooled ES	-0.016	-0.021	-0.010	100.00
I-V pooled ES	-0.009	-0.010	-0.007	100.00

Heterogeneity chi-squared = 161.32 (d.f. = 14) p = 0.000  
 I-squared (variation in ES attributable to heterogeneity) = 91.3%  
 Estimate of between-study variance Tau-squared = 0.0001  
 Test of ES=0 : z= 5.44 p = 0.000



**Fig. 6.2** Graphical presentation of the results of a meta-analysis on cross-national variation in the association between parental education and the risk of teenage parenthood

information on the heterogeneity of the country-specific estimates is provided. Higgins and colleagues (2003) suggest that values for indicator of heterogeneity ( $I^2$ ) is low if  $I^2$  is between .25 and .50, moderate if it is between .50 and .75 and high if it above .75. In our example,  $I^2$  is high (91.3%) and the tests of heterogeneity are statistically significant, suggesting that a high level of variation in the association between parental education and teenage parenthood exists across countries. Above the information on heterogeneity, two estimates of the pooled overall association are presented. The I-V (Inverse-Variance) estimate assumes a fixed-effect model, whereas the D-L (DerSimonian-Laird) estimate assumes a random-effect model (DerSimonian and Kacker 2007). Theoretically, we assumed heterogeneity in the association between parental education and teenage parenthood, and this assumption was confirmed by the heterogeneity analysis. Thus, the D-L estimate of the pooled effect is our preferred estimate of the association in the pooled sample. Overall, a ten-point increase in parental education leads to a 1.6% decrease in teenage parenthood. Two things should be noted. First, the random-effect estimate is larger and has a larger confidence interval than the fixed-effect estimate. Second, the random-effect estimate of the association between parental education and teenage parenthood is exactly the same as the estimate that we derived from the ‘classic’ multilevel model (see Output 1). Figure 6.2 shows a graphical representation of these same findings. One nice aspect of such a graphical representation is that it is very easy to evaluate the position of individual countries. In addition, it allows the researcher to get a first, intuitive grasp of the type of countries with high and low scores and thus whether a pattern is visible at first sight.

Given that our meta-analysis has shown significant variation in the association between parental education and teenage parenthood across countries, we perform a meta-regression to examine which country-level factor(s) are related to this association (Harbord and Higgins 2008). In our particular example, we performed a meta-regression in which the country-level estimates of the association between parental education and teenage parenthood are regressed on the country-specific HDI scores. Results are presented in Output 5 and Fig. 6.3.

Output 5 shows that the association between parental education and teenage parenthood significantly varies by HDI-level in a country. The effect estimate for HDI is statistically significant (.1211, with a SE of .0346). Note that this effect estimate

**Output 5** Meta-regression of the association between parental education and the risk of teenage parenthood on HDI-scores

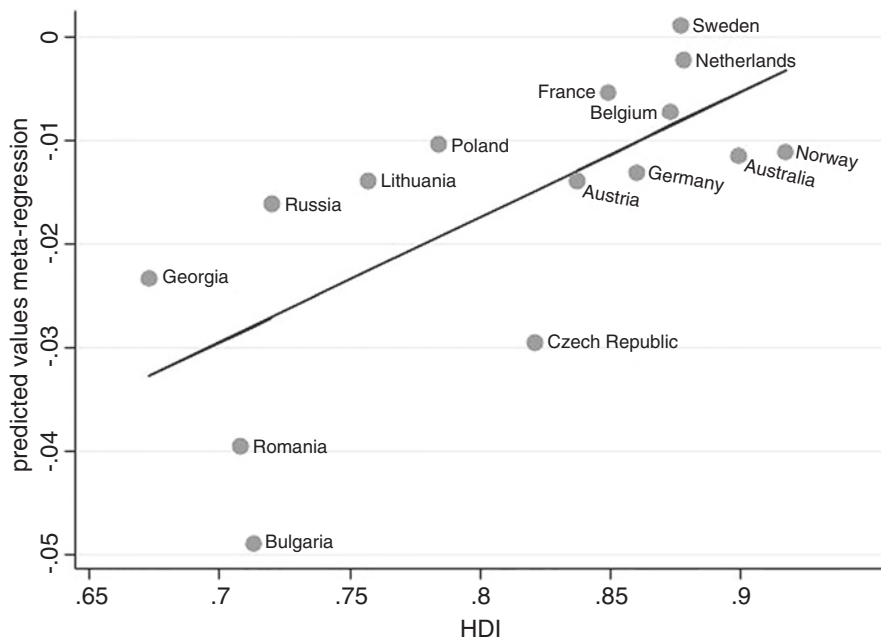
```
metareg B HDI, wsse(SE_B)
```

Meta-regression	Number of obs =	15
REML estimate of between-study variance	tau2 =	.000079
% residual variation due to heterogeneity	I-squared_res =	85.17%
Proportion of between-study variance explained	Adj R-squared =	52.23%
With Knapp-Hartung modification		

---

B	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
HDI	.1211384	.0346964	3.49	0.004	.0461814 .1960954
_cons	-.1143176	.0284792	-4.01	0.001	-.1758431 -.0527921

---



**Fig. 6.3** The association between parental education and the risk of teenage parenthood (Y-axis) and HDI scores (X-axis), based on Output 5

is very similar to the cross-level effect estimated in our ‘classic’ multilevel model (.1192, with a *SE* of .0370). The effect estimate suggests that the association between parental education and teenage parenthood is weaker in countries with a higher HDI score. To allow a better assessment of this finding, the regression line linking the association between parental education and teenage parenthood and HDI are plotted in Fig. 6.3. To facilitate interpretation, we limited the HDI scores (X-axis) to a range that is observed in our dataset. In addition to the regression line, also the 15 separate country data points are depicted in Fig. 6.3. This figure shows that in countries with low HDI scores (around .70), the association between parental education and teenage parenthood is quite strong (effect of around  $-.03$ ), suggesting that a 10% point increase in ISLED scores leads to a decrease in the percentage of people experiencing teenage parenthood by about 3%. In countries with high HDI scores (around .90), the association between parental education and teenage parenthood is negligible. Thus, these findings are in line with our expectations.

#### 6.4.2.2 Example for Binary Outcomes

Our example treated the dependent variable as continuous, thus allowing to use OLS regression. Clearly, this meta-analytic 2-step procedure can also be used with logistic regression as the first step in the analysis. In fact, the vast majority of the applications of meta-analysis in epidemiology use binary outcomes, and thus

perform meta-analysis and meta-regression with odds ratios from multiple clinical trials (e.g. Sattar et al. 2010) or observational studies (e.g. Jones et al. 2015) as the dependent variable of interest.

Although it is common in epidemiology to use odds ratios as the dependent variables in meta-analysis, in modern social sciences such applications are regarded as problematic. Mood (2010) has shown that odds ratios resulting from logistic regressions of different samples (e.g. different population subgroups or different countries) cannot be compared to each other, as the unobserved heterogeneity in the model can vary across samples. However, the author suggests that average marginal effects (AME), that can be derived from the logistic regression results, can be meaningfully compared across samples. AME gives the average effect of an independent variable on the probability that the dichotomous dependent variable equals 1. As this quantity does not depend on the unobserved heterogeneity in the model, it can be used to compare effects across countries and the AMEs (and their standard errors) for different countries can be input in a meta-analysis and meta-regression, just as the B coefficients in an OLS regression can.

To illustrate this approach, we repeated the analysis presented above, but now used logistic regression rather than OLS regression, and calculated average marginal effects based on the logistic regression models. Next, we performed meta-analysis and meta-regression on these estimates. The results are presented in Output 6 and 7. The average effect of a ten-point increase in parental ISLED score is  $-.010$ ,

**Output 6** Results of a meta-analysis of the country-variation in the association between parental education and the risk of teenage parenthood, using AMEs from a logistic regression model as the dependent variable

```
metan AME SE_AME, lcols(Country) random second(fixed)
```

Study	ES	[95% Conf. Interval]		% Weight
Russia	-0.018	-0.029	-0.006	6.35
Bulgaria	-0.055	-0.066	-0.044	6.45
Georgia	-0.027	-0.039	-0.014	6.20
Romania	-0.056	-0.070	-0.042	5.92
Lithuania	-0.017	-0.027	-0.007	6.56
Poland	-0.012	-0.021	-0.003	6.74
Czech Republic	-0.034	-0.048	-0.021	6.00
Germany	-0.013	-0.024	-0.002	6.48
France	-0.008	-0.016	-0.001	7.01
Belgium	-0.011	-0.018	-0.003	6.98
Norway	-0.016	-0.022	-0.009	7.14
Austria	-0.014	-0.022	-0.006	6.93
Sweden	0.002	-0.003	0.007	7.26
Australia	-0.012	-0.022	-0.002	6.56
Netherlands	-0.002	-0.005	0.001	7.42
D+L pooled ES	-0.019	-0.026	-0.011	100.00
I-V pooled ES	-0.010	-0.012	-0.008	100.00

Heterogeneity chi-squared = 181.63 (d.f. = 14) p = 0.000  
 I-squared (variation in ES attributable to heterogeneity) = 92.3%  
 Estimate of between-study variance Tau-squared = 0.0002  
 Test of ES=0 : z= 5.07 p = 0.000

**Output 7** Results of a meta-regression of the association between parental education and the risk of teenage parenthood on HDI-scores, using AMEs from a logistic regression model as the dependent variable

```
metareg AME HDI, wsse(SE_AME)
```

Meta-regression	Number of obs	=	15
REML estimate of between-study variance	tau2	=	.000131
% residual variation due to heterogeneity	I-squared_res	=	86.57%
Proportion of between-study variance explained	Adj R-squared	=	47.54%
With Knapp-Hartung modification			

AME	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
HDI	.1431291	.0436092	3.28	0.006	.0489173 .237341
_cons	-.1351645	.0357209	-3.78	0.002	-.2123349 -.0579941

suggesting that on average, a ten-point increase in ISLED decreases the probability of a teenage birth by 1%. This effect hardly differs from the average effect (−.009) in the linear probability model. In addition, the pattern of country-variation in scores also very strongly resembles the one in Output 4. The results of the meta-regression also correspond quite closely with the ones resulting from the linear probability model (.143 versus .121).

## 6.5 Conclusion

The use of multilevel analysis in comparative research has recently been criticized as the number of countries involved in cross-national analysis is often viewed as too limited to allow reliable inferences and unbiased estimation of parameters of interest. This chapter proposes the *2-step meta-analytic approach* as an alternative to ‘classic’ multilevel analysis if one is interested in understanding cross-national variation in the link between individual-level variables as well as cross-level interactions. After a brief discussion of the main criticisms on the multilevel approach when using few level-2 units and an overview of existing modeling alternatives, the 2-step meta-analytical approach is outlined and illustrated using examples for both continuous and dichotomous outcomes. Still, although this method is discussed in the context of analyzing data for a small number of countries, it may be applicable to any type of research including a small number of level-2 units (e.g. schools, municipalities, hospitals).

The method we propose in this chapter as an alternative for multilevel analysis has several strengths. *First*, when using it, one can obtain reliable estimates and accurate *SEs* even when the number of countries is small (smaller than the 25–30 suggested as lower limit for multilevel analyses). Moreover, as a very small number of countries may lead to spurious findings even with meta-analytical techniques, with such techniques one may still be able to provide accurate inferences by an appropriate choice of estimation methods (e.g. Knapp-Hartung modification) and

permutation-based resampling. For example, Zoutewelle-Terovan and Liefbroer (2018) included 12 countries in their analyses and used a permutation test with adjustment for multiplicity – suited for a small number of countries and multiple covariates (Harbord and Higgins 2008). *Second*, when one is interested in specifically modeling individual effects, country-level effects and cross-level interactions, the 2-step meta-analytic approach provides great opportunities for such modeling. This method is superior to multilevel modeling as its graphic display allows a much more intuitive feel of what the findings mean in terms of the positioning of individual countries than is usually true for multilevel analysis. Also, whereas many of the alternative techniques to multilevel modeling presented in Sect. 6.2 encounter difficulties in explicitly modeling country-level effects and cross-level interactions, our method is capable to comprehensively do so. Additional examples of this approach can be found in other publications within the Context of Opportunities (CONOPP) project (see Brons and Harkonen 2018; Brons et al. 2017; Koops 2020; Zoutewelle-Terovan and Liefbroer 2018). *Third*, whereas our discussion and examples focus on modeling one random slope, multiple random slopes (e.g. how teenage parenthood is linked to parental education, parental separation and number of siblings) can be modeled as well with this method by repeating the 2-step meta-analytical approach for multiple associations. *Fourth*, in this chapter we center on a two-level nested design. However, the 2-step meta-analytical approach could also be extended to situations where individuals are nested within more than one level (e.g. cohorts or regions within countries). Methods to analyze 3-level data have been developed within epidemiology and psychometry, e.g. when multiple instruments are used within studies to measure the same underlying concept. In this approach, the instruments are viewed as a second level within ‘trials’. A country-design with an additional level consisting of regions (or cohorts) within countries can be viewed as a variation on this theme (Cheung 2014; Jackson et al. 2011; Van den Noortgate et al. 2015). *Finally*, our method is not only accessible to the average-skilled researcher (as it is easy to conduct and interpret and does not require any advanced simulation skills), but also only requires brief computational time and little computational power to run models, and can be performed with the most common software programs used in social sciences (e.g. STATA, R, SAS).

At the same time, the meta-analytic method proposed is not a panacea. *First*, it remains difficult to establish a quantitative minimum for the level-2 sample size when conducting meta-analyses – such limits are rarely recommended. To date no consistent guidelines for minimum sample sizes exist. Some authors argue for a minimum of 3 level-2 units (Rover et al. 2015), others discuss a minimum of 8 units (Jenkins and Quintana-Ascencio 2020). However, such minima depend on aspects such as the amount of variance observed (a very small sample may be problematic with substantial statistical heterogeneity), the size of studies or the number of predictors used (Gagnier et al. 2012; Jenkins and Quintana-Ascencio 2020). *Second*, to deal with the small number of level-2 units, it has been recommended to use certain estimation techniques (e.g. Knapp-Hartung) or resampling options to establish significance (e.g. permutation test). However, such methods are recognized for being quite conservative and one may run the risk of obtaining false negatives. It is

difficult for us to establish the circumstances in which such situations occur (it was also not the goal of this chapter), but this is clearly one aspect that future research needs to clarify (Gagnier et al. 2012). Still, whereas in our research we may have marginally missed the reporting of some significant effects, the conservativeness of methods used increases our confidence in effects that reach the threshold for statistical significance. *Third*, the implementation of the method may become more difficult (although it remains feasible) if one of the individual-level variables has multiple categories. An important aspect of this approach is that the effects of additional variables are allowed to vary across countries (as separate analyses are performed for each country). On the one hand, this can be viewed as an advantage, as other variables might also have quite different effects across countries. On the other hand, this leads to the estimation of many parameters and one could view the multilevel model, with its assumption of fixed effects across countries, as a more parsimonious approach.

The 2-step meta-analytic approach is proposed as an alternative to multilevel modeling when the number of level-2 units is small and one is interested in modeling individual, country and cross-level effects. However, it is not our intention to claim that the method is superior to multilevel modeling. In fact, in our example we observed that multilevel analysis would still have led to accurate inferences. This suggests that in some situations of few level-2 units multilevel modeling still performs well and it was beyond the purpose of this chapter to demonstrate under which conditions it no longer does. Our main goal is to present a viable alternative when multilevel inferences are questionable. Our method may also be used as a sensitivity analysis to support results obtained from multilevel modeling. Furthermore, the 2-step meta-analytic approach may be preferable when one is interested in graphically displaying heterogeneity and making inferences based on the positions and characteristics of individual countries.

**Acknowledgements** The research leading to these results has received funding from the European Research Council under the European Union's Seventh Framework Programme (FP/2007-2013)/ERC Grant Agreement n. 324178.

## References

- Arend, M.G., and T. Schafer. 2019. Statistical power in two-level models: A tutorial based on Monte Carlo simulation. *Psychological Methods* 24 (1): 1–19.
- Austin, P.C. 2010. Estimating multilevel logistic regression models when the number of clusters is low: A comparison of different statistical software procedures. *The International Journal of Biostatistics* 6 (1): 1–18.
- Bell, B.A., G.B. Morgan, J.D. Kromrey, and J.M. Ferron. 2010. The impact of small cluster size on multilevel models: A Monte Carlo examination of two-level models with binary and continuous predictors. *JSM Proceedings, Survey Research Methods Section 1* (1): 4057–4067.
- Borenstein, M., L.V. Hedges, J.P. Higgins, and H.R. Rothstein. 2009. *Introduction to meta-analysis*. UK: Wiley.

- Brons, M.D., and J. Harkonen. 2018. Parental education and family dissolution: A cross-national and cohort comparison. *Journal of Marriage and Family* 80 (2): 426–443.
- Brons, M.A., and J.E. Mooyaart. 2018. The Generations & Gender Programme: Constructing harmonized, continuous socio-economic variables for the GGS Wave. *Technical Paper GGS Methodology*: 1–22.
- Brons, M.D., A.C. Liefbroer, and H.B.G. Ganzeboom. 2017. Parental socio-economic status and first union formation: Can European variation be explained by the Second Demographic Transition theory? *European Sociological Review* 33 (6): 809–822.
- Bryan, M.L., and S.P. Jenkins. 2016. Multilevel modelling of country effects: A cautionary tale. *European Sociological Review* 32 (1): 3–22.
- Cameron, A.C., and D.L. Miller. 2015. A practitioner’s guide to cluster-robust inference. *Journal of Human Resources* 50 (2): 317–372.
- Carpenter, J.R., H. Goldstein, and J. Rasbash. 2003. A novel bootstrap procedure for assessing the relationship between class size and achievement. *Journal of the Royal Statistical Society: Series C (Applied Statistics)* 52 (4): 431–443.
- Cheah, B.C. 2009. *Clustering standard errors or modeling multilevel data*, 2–4. New York: Research Note University of Columbia.
- Cheung, M.W.L. 2014. Modeling dependent effect sizes with three-level meta-analyses: A structural equation modeling approach. *Psychological Methods* 19 (2): 211–229.
- Combs, J.G. 2010. Big samples and small effects: Let’s not trade relevance and rigor for power. *Academy of Management Journal* 53 (1): 9–13.
- DerSimonian, R., and R. Kacker. 2007. Random-effects model for meta-analysis of clinical trials: An update. *Contemporary Clinical Trials* 28 (2): 105–114.
- Diggle, P.J., P. Heagerty, K. Liang, and S.L. Zeger. 2002. *Analysis of longitudinal data*. Oxford University Press.
- Fokkema, T., A. Kveder, N. Hiekel, T. Emery, and A.C. Liefbroer. 2016. Generations and Gender Programme Wave 1 data collection: An overview and assessment of sampling and field-work methods, weighting procedures, and cross-sectional representativeness. *Demographic Research* 34: 499–524.
- Friede, T., C. Rover, S. Wandel, and B. Neuenschwander. 2017. Meta-analysis of few small studies in orphan diseases. *Research Synthesis Methods* 8 (1): 79–91.
- Gagnier, J.J., D. Moher, H. Boon, C. Bombardier, and J. Beyene. 2012. An empirical study using permutation-based resampling in meta-regression. *Systematic Reviews* 1 (1): 1–9.
- Goldstein, H. 2011. Bootstrapping in multilevel models. In *Handbook of advanced multilevel analysis*, ed. J.J. Hox and J.K. Roberts, 163–172. New York: Routledge.
- Goldstein, H., W. Browne, and J. Rasbash. 2002. Multilevel modelling of medical data. *Statistics in Medicine* 21 (21): 3291–3315.
- Green, S.B. 1991. How many subjects does it take to do a regression analysis. *Multivariate Behavioral Research* 26 (3): 499–510.
- Hamaker, E.L., and I. Klugkist. 2010. Bayesian estimation of multilevel models. In *Handbook of advanced multilevel analysis*, ed. J.J. Hox and J.K. Roberts, 137–161. New York: Routledge.
- Harbord, R.M., and J.P. Higgins. 2008. Meta-regression in stata. In *Meta-analysis in Stata: An updated collection from the Stata Journal*, ed. T.M. Palmer, J.A.C. Sterne, H.J. Newton, and N.J. Cox, vol. 8(4), 2nd ed., 493–519. College Station: Stata Press.
- Higgins, J.P.T., S.G. Thompson, J.J. Deeks, and D.G. Altman. 2003. Measuring inconsistency in meta-analyses. *BMJ* 327 (7414): 557–560.
- Hox, J. 1998. Multilevel modeling: When and why. In *Classification, data analysis, and data highways*, ed. I. Balderjahn, R. Mathar, and M. Schader, 147–154. New York: Springer.
- Hox, J.J., M. Moerbeek, and R. van de Schoot. 2010. *Multilevel analysis: Techniques and applications*. Routledge.
- Jackson, D., R. Riley, and I.R. White. 2011. Multivariate meta-analysis: Potential and promise. *Statistics in Medicine* 30 (20): 2481–2498.



- Jenkins, D.G., and P.F. Quintana-Ascencio. 2020. A solution to minimum sample size for regressions. *PLoS One* 15 (2): 1–15.
- Jones, L., G. Bates, E. McCoy, and M.A. Bellis. 2015. Relationship between alcohol-attributable disease and socioeconomic status, and the role of alcohol consumption in this relationship: A systematic review and meta-analysis. *BMC Public Health* 15 (400): 1–14.
- Knapp, G., and J. Hartung. 2003. Improved tests for a random effects meta-regression with a single covariate. *Statistics in Medicine* 22 (17): 2693–2710.
- Koops, J.C. 2020. *Understanding nonmarital childbearing in Europe and North-America. The role of socio-economic background and ethnicity in different societal contexts.* (PhD thesis). University of Groningen, Groningen.
- Kreft, I., and J. de Leeuw. 1998. *Introducing multilevel modeling.* Sage.
- Maas, C.J., and J.J. Hox. 2004. Robustness issues in multilevel regression analysis. *Statistica Neerlandica* 58 (2): 127–137.
- . 2005. Sufficient sample sizes for multilevel modeling. *Methodology* 1 (3): 86–92.
- McNeish, D., and L.M. Stapleton. 2016. Modeling clustered data with very few clusters. *Multivariate Behavioral Research* 51 (4): 495–518.
- Mood, C. 2010. Logistic regression: Why we cannot do what we think we can do, and what we can do about it. *European Sociological Review* 26 (1): 67–82.
- Nunnally, J.C. 1978. *Psychometric theory.* 2nd ed. New York: McGraw-Hill.
- Palmer, T.M., and J.A.C. Sterne. 2016. *Meta-analysis in Stata: An updated collection from the Stata Journal.* 2nd ed. College Station: Stata Press.
- Pirog, M.A., H. Jung, and D. Lee. 2018. The changing face of teenage parenthood in the United States: Evidence from NLSY79 and NLSY97. *Child & Youth Care Forum* 47 (3): 317–342.
- Rabe-Hesketh, S., and A. Skrondal. 2008. *Multilevel and longitudinal modeling using Stata.* STATA Press.
- Roberts, J.K., and X. Fan. 2004. Bootstrapping within the multilevel/hierarchical linear modeling framework: A primer for use with SAS and SPLUS. *Multiple Linear Regression Viewpoints* 30 (1): 23–34.
- Rover, C., G. Knapp, and T. Friede. 2015. Hartung-Knapp-Sidik-Jonkman approach and its modification for random-effects meta-analysis with few studies. *BMC Medical Research Methodology* 15 (1): 1–7.
- Sattar, N., D. Preiss, H.M. Murray, P. Welsh, B.M. Buckley, A.J. de Craen, S.R.K. Seshasai, J.J. McMurray, D.J. Freeman, J.W. Jukema, and P.W. Macfarlane. 2010. Statins and risk of incident diabetes: A collaborative meta-analysis of randomised statin trials. *The Lancet* 375 (9716): 735–742.
- Schmidt-Catran, A.W., and M. Fairbrother. 2015. The random effects in multilevel models: Getting them wrong and getting them right. *European Sociological Review* 32 (1): 23–38.
- Schröder, H., and H.B. Ganzeboom. 2014. Measuring and modelling level of education in European societies. *European Sociological Review* 30(1): 119–136.
- Seco, G.V., M.A. Garcia, M.P.F. Garcia, and P.E.L. Rojas. 2013. Multilevel bootstrap analysis with assumptions violated. *Psicothema* 25 (4): 520–528.
- Seide, S.E., C. Rover, and T. Friede. 2019. Likelihood-based random-effects meta-analysis with few studies: empirical and simulation studies. *BMC Medical Research Methodology* 19 (1): 16.
- Snijders, T.A.B., and R.J. Bosker. 1999. *Multilevel analysis: An introduction to basic and advanced multilevel modeling.* Sage.
- Stegmueller, D. 2013. How many countries for multilevel modeling? A comparison of frequentist and Bayesian approaches. *American Journal of Political Science* 57 (3): 748–761.
- Thai, H.T., F. Mentre, N.H. Holford, C. Veyrat-Follet, and E. Comets. 2013. A comparison of bootstrap approaches for estimating uncertainty of parameters in linear mixed-effects models. *Pharmaceutical Statistics* 12 (3): 129–140.
- Thompson, S.G., and J.P. Higgins. 2002. How should meta-regression analyses be undertaken and interpreted? *Statistics in Medicine* 21 (11): 1559–1573.

- Thompson, S.G., and S.J. Sharp. 1999. Explaining heterogeneity in meta-analysis: A comparison of methods. *Statistics in Medicine* 18 (20): 2693–2708.
- Van den Noortgate, W., J.A. Lopez-Lopez, F. Marin-Martinez, and J. Sanchez-Meca. 2015. Meta-analysis of multiple outcomes: A multilevel approach. *Behavior Research Methods* 47 (4): 1274–1294.
- Van der Leeden, R., E. Meijer, and F.M. Busing. 2008. Resampling multilevel models. In *Handbook of multilevel analysis*, ed. R. Van der Leeden and E. Meijer, 401–433. Springer.
- Wiksten, A., G. Rucker, and G. Schwarzer. 2016. Hartung–Knapp method is not always conservative compared with fixed-effect meta-analysis. *Statistics in Medicine* 35 (15): 2503–2515.
- Zoutewelle-Terovan, M., and A.C. Liefbroer. 2018. Swimming against the stream: Non-normative family transitions and loneliness in later life across 12 nations. *The Gerontologist* 58 (6): 1096–1108.

**Open Access** This chapter is licensed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter’s Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter’s Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.



# Chapter 7

## Modeling the Genesis of Life Courses



Sapphire Yu Han and Cees H. Elzinga

### 7.1 Introduction

#### Life Course Models

Life course research as a paradigm started in the early seventies with the stepping stone work of Glen Elder and his collaborators. Since then, the methods and models used have been descriptive. Descriptive in the usual sense of describing life courses of particular social groups in particular epochs (e.g. Elder 1974) or describing frequent patterns seen in particular social strata (e.g. McVicar and Anyadike-Danes 2002) or age-groups (e.g. Brzinsky-Fay 2007). Descriptive in the wider sense also: by statistically inventorying the effects of certain variables on the occurrence and timing of particular events and outcomes (e.g. Eerola and Helske 2016). Descriptive research is fine, is necessary and often is very difficult. Descriptive research is where everything starts. If we agree on the descriptions, we can start modelling what we described. However, we should not confuse a list of variables that play a role in the genesis of data with a model of the genesis of those data. For example, when we model the risk of first parenthood, we might use covariates like education, religion, etc. and summarize their effects in a regression model that describes the rate changes of first parenthood as produced by these covariates; a hazard model (e.g. Kalbfleisch and Prentice 1980; Allison 1982; Vermunt 1997). It will then appear that some of the variables included do affect the odds and others do not. After some decades of research in many countries and using different scales for educational attainment, we will generally agree that education is relevant and some other variables are not. However, the fact that we include education in the inventory,

---

S. Y. Han (✉)

Directorate for Employment, Labour and Social Affairs, Organisation for Economic Co-operation and Development, Paris, France

C. H. Elzinga

Netherlands Interdisciplinary Demographic Institute (NIDI), The Hague, The Netherlands

© The Author(s) 2021

A. C. Liefbroer, M. Zoutewelle-Terovan (eds.), *Social Background and the Demographic Life Course: Cross-National Comparisons*,  
[https://doi.org/10.1007/978-3-030-67345-1\\_7](https://doi.org/10.1007/978-3-030-67345-1_7)

125

perhaps even with an indicator of the relative strength of the effect of changes in the variable “education”, does not prove that we understand, that we modelled the mechanism - the process of becoming a parent - that uses “education” and produces the rate function. That we eventually include interaction of education and religion only means that we acknowledge that these variables cannot act in an additive (or multiplicative) way to generate the rate function – it does not specify the guise of this non-additivity. If we have an idea about the generating mechanism at all, such an idea is exogenous to the hazard function; at best, the (testing of the) hazard model is a consequence of the hypothesized, informally stated mechanism.

Today, we generally agree about the effects that many variables have on the shaping and outcomes of our life courses. So, it is time to start modelling the process of this shaping, the process that generates life courses. And this is quite a formidable task since it involves many correlated micro- and macro-variables that are expensive to measure and expensive to process in the calculations with such models. This paper is an attempt to use a versatile class of models as one of the central building blocks of a general life course model; the class of Hidden Markov Models (HMM’s for short).

### Life-Course Data

Life courses are very complex narratives that live in our minds in a form that is hard to capture or communicate, even to those who are dear us. Here, we confine to the first, seemingly unavoidable simplification of such narratives; their encoding as multivariate time series. Multivariate, since the life course, understood as a series of events (e.g. marriage), spells (e.g. education) or states (e.g. parenthood), consists of “careers” in many aspects of life: family/household formation, education, housing/migration, employment, health/care, school-to-work, labor-to-pension, etc. And even these channels may be further factored or refined, for example in the guise of a fertility history or a series of incomes.

Seen in this way, the life course consists of a time series of the form

$$\mathbf{x} = \mathbf{x}_1 \mathbf{x}_2 \dots \mathbf{x}_t \dots \quad (7.1)$$

wherein each array  $\mathbf{x}_t$  is of the guise

$$\mathbf{x}_t = \begin{pmatrix} v_{t1} \\ v_{t2} \\ \vdots \end{pmatrix} \quad (7.2)$$

and the  $v_{ti}$  denote observations expressed as numerical or categorical variables. For example, such an array could look like

$$\begin{pmatrix} M \\ P \\ 3 \\ R \end{pmatrix}$$

meaning that the person was, at that time  $t$ , Married, in Part-time employment, had 3 kids and was living in a Rural area.

We will say that a model is a general life course model, a GLCM for short, precisely when it generates time series of the form as specified above. We should however not forget that this scientific simplification is not totally congruent with our private experience of what we feel is our own life course.

### Model Requirements

If one tries to think about building a GLCM, one has to make sure that it generates life courses in accordance with what 45 years of life course research has unveiled since the stepping stone work of Glen Elder (1974). This implies that GLCM's must at least satisfy a number of seemingly simple properties:

- (a) Individual agency is the capacity of individuals to independently make free choices (e.g. Hewson 2010). Any GLCM should explicitly recognize agency as one of the main driving forces of the mechanism that generates the life course. Free decisions require a decision-making process and such cognitive-emotional processes are essentially unobservable – only the results can be observed. Therefore, a GLCM should contain a latent process that represents individual decision making.
- (b) Structure is the complex of arrangements that affect or limit agency (e.g. Bourdieu 1977). Structure operates on the macro-level (Giddens 1984) as well as on the micro-level. Therefore, a GLCM should be able to recognize these structure effects as covariates that act on the decisions that the individuals take and on the effects that these decisions have on later outcomes.
- (c) Many choices we make and events we experience early in life have severe consequences in later life and this is true in most facets of the life course, be it a job career (e.g. Arulampalam 2001), family formation (e.g. Dronkers and Härkönen 2008) or the healthcare history (e.g. Walker et al. 1999). Therefore, a GLCM should have some sort of memory to account for time-lagged effects.
- (d) We know that, even within very specialized strata and narrow time windows, life courses show an enormous variability in the occurrence, timing and duration of many kinds of states and events. On the other hand, we also know that life courses come in a few, dominant types or classes (e.g. Ritschard and Oris 2005). A GLCM should be able to reproduce the variation observed and the most frequent patterns therein.
- (e) We know that the probability of the most important transitions taking place during the life course, is age-dependent. For example, elderly have different rates of partnering than young adults (e.g. Sassler 2010). Such age-dependencies should be recognized by a GLCM.

- (f) We know that various aspects of the life course are correlated (e.g. Liefbroer and Corijn 1999; Rindfuss et al. 1996) and such correlations between the variables  $v_i$  appearing in eq. (7.2) should be reproduced by a GLCM.
- (g) We also know that life courses of different people are linked, within families (e.g. King and Elder Jr. 1995; Liefbroer and Elzinga 2012) and in broader social structures. A GLCM should be able to accommodate such linkages.

Taken together, these simple requirements imply GLCM's of tremendous complexity, logically and computationally, even if we confine to modelling just one aspect of the life course and observe it through just one kind of measurement. Even such restricted models will have to satisfy the first five of the above requirements a-g.

### Outline

In the next section, we begin our exposition by concisely discussing well-known methods of analyzing life course data against the background of the requirements put up above. Then we informally introduce the concept of an HMM and some issues related to parameter estimation and interpretation of its structural components. In the third section we discuss an application of HMMs to family formation data (Han et al. 2020) and illustrate some of the issues discussed in Sect. 7.2. In Sect. 7.4, we discuss using the potential of HMMs as building blocks in a GLCM: HMMs can be used to model correlation between trajectories in different life-course domains like family formation and labor market careers and to model the interaction between life courses within different social strata, i.e. to model linked lives.

## 7.2 Methods for Life-Course Analysis

Over the past decades, life course analysis has been dominated by two paradigms: Event History Analysis (EHA) and Sequence Analysis (SA). An interesting application of both EHA and SA to the same research question can be found in Eerola and Helske (2016).

EHA (e.g. Blossfeld et al. 2007) amounts to predicting the (non-)occurrence and timing of life course events or very short sequences of such events through logistic regression models and such models can be adapted to accommodate for auto-correlation (Feijten and Mulder 2002). However, EH multistate models are not suitable to predict complete, extended life courses of the form of (7.1)–(7.2) and do not have a component that represents a cognitive process.

SA (e.g. Cornwell 2015) is not a model at all; it is a toolbox to describe life courses and identify frequent patterns among these. Distances used to construct such frequent patterns or clusters can be used to test hypotheses about the effect of covariates on cluster-membership (Studer et al. 2011) but there is no mechanism that generates or accounts for the sequences or the variability within clusters.

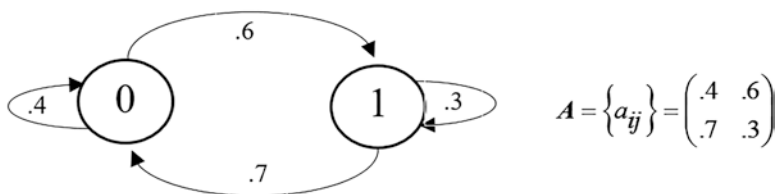
Recently, we have seen other models employed in life course research. Barban and Billari (2012) proposed Latent Class Analysis (LCA) and e.g. Pakpahan et al. (2017) proposed to use Structural Equation Models (SEM's). LCA is the

probabilistic variant of SA's distance-based clustering (Han et al. 2017) and generates variation of life courses within classes but it does not have a component that could represent a decision-making process and it has no memory. Even the sophisticated models proposed by Pakpahan and his collaborators do not satisfy all of the requirements stated in a.-e. above.

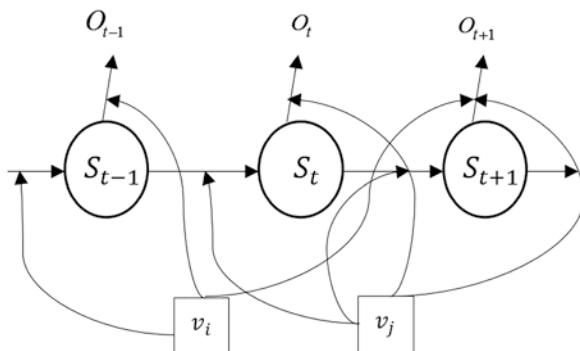
Therefore, we here discuss a broad class of models that satisfies all of the requirements as stated in the Introduction: the class of Hidden Markov Models (HMM's) (Fig. 7.1).

HMM's consist of two main components: a Markov chain over a set of unobservable, latent states and a set of probability distributions over a set of multivariate observables (e.g. marital status, residence, labor market status, health condition, income, etc.), one such distribution for each latent state. When the system is in a latent state, it will generate or emit precisely one observable according to the associated probability distribution. The latent states are thought to represent the unobservable, individual decision-making processes, pertaining to the decisions (agency) to be taken and the observables (multivariate or univariate) result from these decisions. Covariates (structure) may affect the decisions and the state-switching. The state-switching process, i.e. the Markov chain, has a memory: the probability of a switch to a particular state depends on the state-history of the process – even if only the last state occupied is relevant (a first-order chain), such dependency may create long-term auto-correlation in the state-switching. If necessary, generalizations of Markov-models (e.g. Pegram 1980; Berchtold and Raftery 2002) can be used to explicitly model longer time-lags (Fig. 7.2).

Because of the probabilistic nature of the process, it will generate a great variety of sequences of observables, even for one and the same path along the latent states. If the Markov chain is well parameterized, it will generate a few paths that are more frequent than others, thus generating distinct classes of observable sequences that are, within classes, quite similar but not identical. In the simplest version of an HMM, the state transition probabilities are not age-dependent. However, as long as particular states, i.e. life course decisions are taken roughly at the same age for subjects that belong to the same cohort, using a single, time-homogeneous latent Markov chain to model the life courses of that cohort will not suffer from this feature. If necessary, time-inhomogeneous models can be formulated or even models wherein the waiting time distributions for state transitions can be made



**Fig. 7.1** A state-switching circuit, representing a first-order, 2-state Markov chain and its transition probability matrix. The states are labeled as “0” and “1” and the arrows represent the transition probabilities



**Fig. 7.2** A graph showing the time-window  $(t-I, t+I)$  of a Hidden Markov Model. At each time  $t$ , the system is at some latent state  $S_t = q_j$  and emits an observable  $O_t$ . Note that the hidden state  $S_t$  is not necessarily different from  $S_{t+j}$ . The observable is a random sample from the set of observables, according to a probability distribution that is specific for each state  $q_i, i = 1, \dots, k$ . Covariates  $v_i$  and  $v_j$  may affect both the state switching and/or the sampling of observables

age-dependent (e.g. Dewar et al. 2012). Multi-channel life course data can be modelled by correlated latent chains and linked life courses of related people could be modelled by linked HMM's like the ones proposed in Elzinga et al. (2007).

The statistical theory of estimating HMM's originates from the work of Leonard Baum and his collaborators (e.g. Baum et al. 1970) and the classical paper by Lawrence Rabiner (1989) popularized and stimulated the use and further development of the statistical theory. Today, there is an abundance of literature on the theory and estimation of even very complex models and variants. Good introductory texts are Bartolucci et al. (2012) and Zucchini et al. (2016).

### 7.3 The Nomological Net as a Testing Environment

Estimating an HMM is problematic because of the irregular shape of the surface of the likelihood function in the parameter space. Judging the fit of the model is problematic because of the large number of parameters. Therefore, as we will argue in this section, we have to study the adequacy of a particular HMM in a nomological net (e.g. Preckel and Brunner 2017) to decide on the credibility of this particular model as a valid explanation or rendering of life course genesis. First, we discuss some problems in judging model-fit and then we discuss the nomological net and the role of HMM's therein.

#### Problems in Fitting HMMs

Although today, the theory and estimation technique of HMM's is well developed and fast computers are generally available, even in the social sciences, estimating HMM's is still quite a challenge.



First, the number of free parameters of an HMM is big: with  $k$  latent states and  $n$  observables, this number amounts to  $k^2 + kn - k - 1$  and often these parameters will be quite different in size. Thus, the surface of the likelihood function involved in the associated maximization problem will be quite irregular and so, we may expect that this optimization will often be trapped on a local maximum. Therefore, it is advisable to repeat the calculations for many different sets of initial guesses and hope that one finds a configuration that is close to the maximum sought for.

Second, because of this big number of parameters, there is, even for small, restricted models, always a parameter configuration that generates predicted distributions that closely approximate the observed distributions (e.g. Eggar 2002).

Finally, an important structural parameter of an HMM is the number  $k$  of latent states: all estimates of the initial-, transition- and emission-probabilities are performed, given the fixed, user-defined number  $k$ .

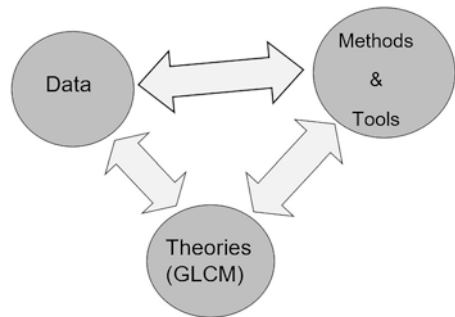
Therefore, the absolute fit of an HMM cannot be tested statistically and so one has to rely on comparisons of models with different numbers of latent states and/or differently restricted probabilities and these comparisons have to use some likelihood-related criterion like BIC or AIC (e.g. Burnham and Anderson 2002). However, such likelihood-based model-selection is possible only when the plot of such criteria against the number of model parameters shows a clear knee. Unfortunately, such pronounced knees are often hardly distinguishable.

Hence, the problem arises of how to deal with HMM's as life course models. Not using them because of the above-mentioned problems, seems a waste of descriptive and explanatory power: there are, as far as we know, no modelling tools that satisfy all of the requirements to be imposed upon GLCM's. On the other hand, we have to face the fact that often HMM's cannot be used to statistically test causal structures.

**Nomological Nets and Theory Testing**

A nomological net (Fig. 7.3) is a representation of at least two concepts, operationalisations in the form of data, and the theories and methods that formulate and unveil the relations between all these entities (e.g. Cronbach and Meehl 1955; Preckel and Brunner 2017). If generally accepted, we call such a network “a body of facts”. Here the relevant network is comprised of concepts like “life course”, “linked lives”, “agency”, “adulthood”, etc., data like produced within the Generations and Gender Program or as available from the National Longitudinal Survey of Youth

**Fig. 7.3** Rendering of a general nomological net with theories (concepts and their relations), data (measured operationalizations of concepts) and methods (analytical procedures to test theories) & tools (data-rendering techniques). For explanation, see text



(NLSY97; Moore et al. 2000) or narratives from homeless in a big city, methods like SA (implicitly relying on theories of similarity between separate life course events and the similarity between time series) and EHA (using a variants of local independence), demographic theory (Second Demographic Transition theory), sociological theories (Blau & Duncan's theory on status attainment, Bourdieu's field theory, models and methods of educational attainment, etc.). All these concepts, data, theories and methods are linked in various ways.

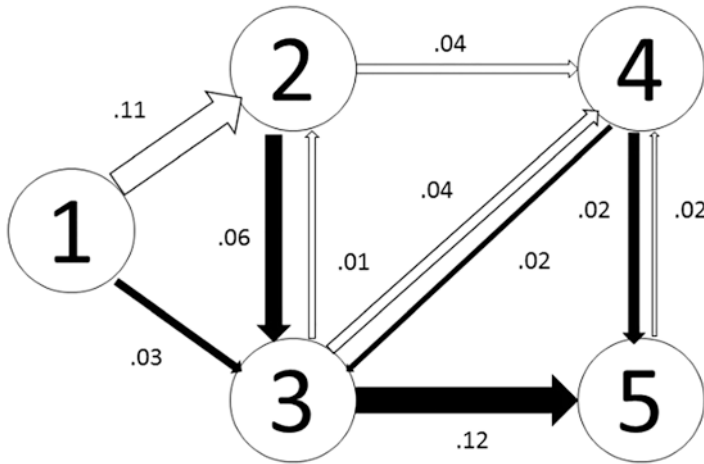
Of course, the relations between data, theories and methods must be consistent: different methods applied to the same data should not lead to incompatible results, different theories should not lead to predictions that are inconsistent, etc. Attempts to construct GLCM's probably cannot rely on statistical testing or model selection techniques but instead will be validated through a confrontation with the "body of known facts" as emerges from the social-demographic nomological net.

So, if we know from several datasets and survival analysis that fertility histories are affected by gender and education, then estimated HMMs with gender and education as covariates, should produce the same effects. If this would not be the case, these HMMs would be incompatible with the nomological net of social demography and thus cannot be valid renderings of family formation. Therefore, we can use the social-demographic nomological net to look for covariates and test the HMMs to see whether or not these models reproduce known effects. This exactly what we will demonstrate in the next section with an application of HMMs to family formation trajectories. We will use modern Second Demographic Transition theory to decide between competing models and re-estimate the model with education and gender as covariates.

## 7.4 Modelling Family Formation and HMM: An Application

For this application (for details, see Han et al. 2020) we used data from the Generations and Gender Programme (Fokkema et al. 2016), a longitudinal survey among 18–79 year olds in nineteen countries. We selected 1900 French subjects (56% female, 19% higher educated), born between 1956 and 1965 and constructed fertility histories (0, 1, 2 or more children), partnership histories (living single, in cohabitation or married) and a binary trajectory for having or not having left the parental home.

Second Demographic Transition Theory (SDT, see e.g. Lesthaeghe 1995) predicts that, after or upon leaving the parental home, people consider family formation trajectories that either do or do not involve cohabiting. Hence, family formation would involve at least three and at most five decisions, as tabulated in Table 7.2; modelling this decision process by an HMM would thus require 5 latent states. Therefore, we estimated (using LMest, see Bartolucci et al. 2017) a 5-state HMM. In Fig. 7.4, we show the state switching circuit (the probabilities of "self-transitions" omitted) of the estimated model, in Fig. 7.6 we show the state occupancy plot and



**Fig. 7.4** Circuit switching diagram of the estimated 5-state HMM. The thickness of the arrows reflects the probabilities (shown in small print) of transition to another state (based on Han et al. 2020)

**Table 7.1** Estimated emission probability distributions of a 5-state HMM (based on Han et al. 2020)

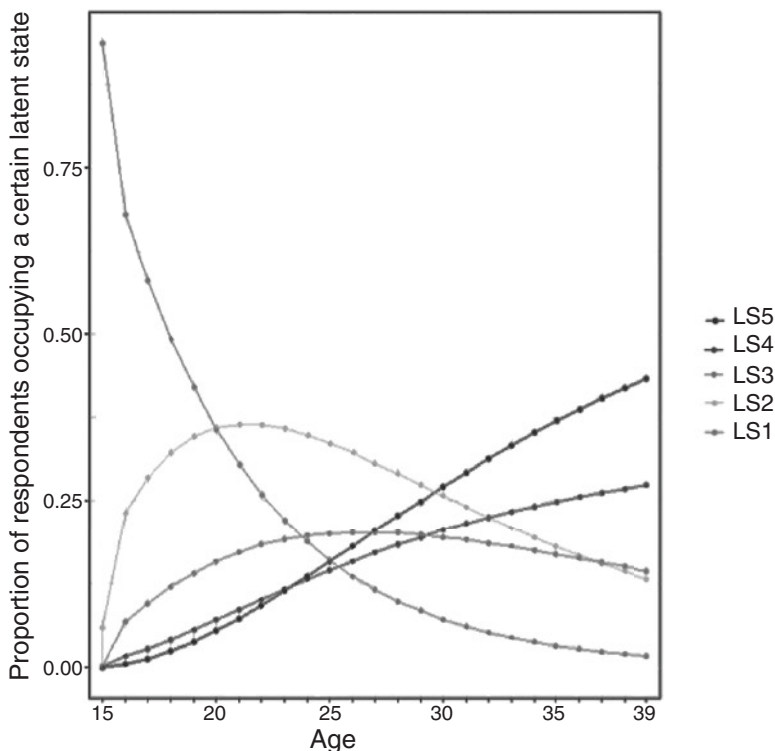
<b>Nr. of children/State</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
0	1	1	.40	0	0
1	0	0	.60	.53	0
2	0	0	0	.32	.67
3+	0	0	0	.15	.33
<b>Partnership/state</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Single	.98	.67	0	.42	0
Cohabiting	.02	.33	0	.58	0
Married	0	0	1	0	1
<b>Left home/state</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Yes	1	0	.02	.01	.01
No	0	1	.98	.97	.99

in Table 7.1, we show the estimated probabilities of emitting observables, conditional upon state occupancy.

From Table 7.1, we observe that in latent state 1 (LS1), none of the subjects has left the parental home while in LS2 and LS3, almost all have. Furthermore, we observe that in LS2, none have married while in LS3, all have. From Fig. 7.4, we see that the only transitions from LS1 are to either LS2 or to LS3. So, we conclude that the decision taken in LS1 is the decision on how and when to leave the parental home. Similar reasoning, using the emission probabilities and the state-switching circuit, leads to the interpretations of the decision processes of the other latent states, shown in Table 7.2. Apparently, a 5-state HMM fits in well with modern

**Table 7.2** Interpretation of latent states in a 5-state HMM in terms of observed demographic events and mental decision processes (adapted from Han et al. 2020)

State	Observation	Decision process
LS1	Living in parental home	When/how to leave parental home
LS2	Childless, not married, Residential-independent	Mode of partnership
LS3	Married with 0 or 1 child	Family extension
LS4	Non-marital family	Marriage
LS5	Multi-child family	Staying together



**Fig. 7.5** State occupancy plot of the estimated 5-state HMM (based on Han et al. 2020)

demographic notions about the decline of traditional family values. In Fig. 7.5, we show the state-occupancy plot of the estimated 5-state HMM.

The validity of the model is further corroborated by the results of including gender, education and the interaction of these effects as covariates. We know that men experience marriage and parenthood later than women (Aassve et al. 2002; Andersson and Philipov 2002). We also know that the higher educated generally delay marriage and parenthood (Kravdal and Rindfuss 2008; Liefbroer and Corijn 1999) but also that in many countries, the higher educated are very reluctant to enter

**Table 7.3** Estimated odds of transitions in a 5-state HMM with gender, education and their interaction in the form of weights of a logistic regression equation. The odds that are significantly ( $p < 0.1$ ) different from 1 are shown in bold (adapted from Han et al. 2020)

Transition	Male	High education	Interaction
LS1→LS2	1.06	<b>1.41</b>	0.82
LS1→LS3	<b>0.40</b>	<b>0.40</b>	1.25
LS2→LS3	<b>0.78</b>	<b>0.74</b>	<b>1.56</b>
LS2→LS4	<b>0.72</b>	<b>0.50</b>	1.16
LS3→LS5	0.88	<b>1.26</b>	0.91
LS4→LS3	<b>1.46</b>	0.53	2.00
LS5→LS4	<b>0.64</b>	0.73	1.50

unmarried cohabitation (Perelli-Harris et al. 2010). We estimated the effects of these covariates on the state transition rates through logistic regression and obtained results as summarized in Table 7.3.

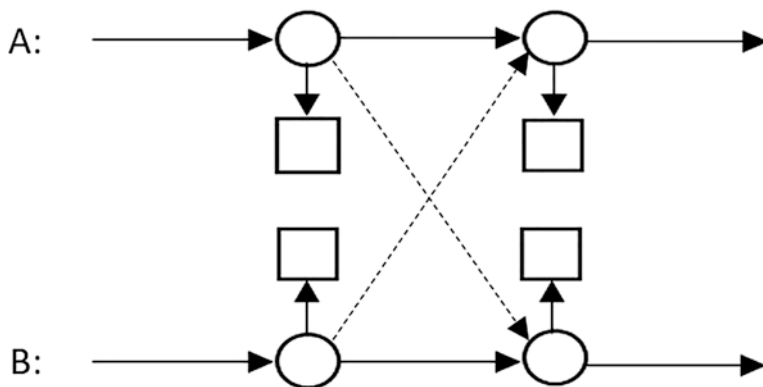
Clearly, the covariates affect the transition probabilities in a way that is in accordance with what we know about their effects from other studies, therewith validating the application and interpretation of the 5-state HMM.

## 7.5 Linked Trajectories – Linked HMMs

Often, life course trajectories are linked in the sense that the trajectories affect each other. Such linkages can be intra-personal as for example in the case of labor market careers and family formation trajectories where choices in the one area affect the choices in the other area and vice versa. Life course linkages can also be interpersonal as for example in the case of “linked-lives” where e.g. parent’s family formation patterns seem to affect children’s family formation patterns (e.g. Liefbroer and Elzinga 2012). At the same time, such linkages may be mutual or non-mutual. From these two dichotomies – inter- vs. intra-personal and mutual vs. nonmutual – arises a simple classification of types of linkages and, as will appear in the sequel, these types require different modelling. Intra-personal linkages will probably always be mutual: it is hard to imagine that, within the same person, the course of trajectory A will affect trajectory B while the course of trajectory B will not affect trajectory A. However, if the trajectories belong to different persons, the trajectories may mutually affect each other as for example in behavioral sequences of therapists and patients or of negotiating parties. On the other hand, parents’ patterns of family formation may affect children’s patterns while it is hard to see how children’s family formation patterns would influence the parent’s trajectories. We summarize these considerations in Table 7.4 and discuss some consequences for modeling with HMMs below.

**Table 7.4** Classification scheme for linked life course trajectories

	Intra-personal	Inter-personal
Mutual	Type I	Type II
	e.g. family formation and labor market careers	e.g. family formation in peer groups
Non-mutual	Type IV	Type III
	?	e.g. family formation in parents and children



**Fig. 7.6** Intra-personal linkage of HMMs A and B. Circles represent latent states, squares represent observables. Hatched arrows mean “is affected by”

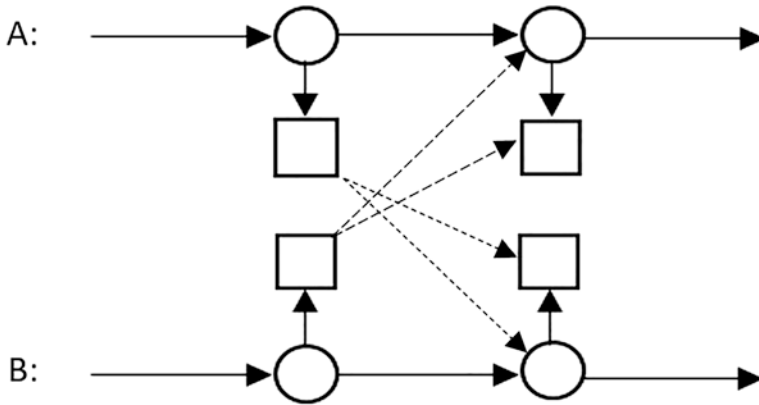
**Intra-Personal Linkage**

If life course genesis can be represented by HMMs of which the latent states represent unobservable decision processes, it is only natural that decisions in one domain affect decisions in the other domain and that it is the interacting state switching processes that produce the correlation between the trajectories observed. Perhaps sometimes it could be argued that there is interaction between the emission processes too but this is not a very parsimonious assumption, neither conceptually, nor from the perspective estimating all the parameters involved and the precision of that estimation given the number of observed sequences. Therefore, the most promising and parsimonious hypothesis is that intra-personal linkage is caused only by interacting state switching, i.e. a model structured as depicted in Fig. 7.6.

**Inter-Personal Linkage**

Possible HMM-based models for interpersonal linkage must be structurally different from models for intra-personal linkage; different persons have no access to each other’s mental processes – different persons only have access to the observables emitted from the other’s decision processes.

Thus, the only way that the one HMM may affect the other HMM is via it’s emitted observables. But these observables may affect both the other HMM’s state switching and/or the other HMM’s emittance process. We summarize this structure



**Fig. 7.7** Mutual inter-personal linkage (Type II) of HMMs A and B. Circles represent latent states, squares represent observables. Hatched Arrows mean “is affected by”

in Fig. 7.7. The reader notes that in Fig. 7.7, depending on the substantive process modeled, HMMs A and B need not be symmetric and need not to contain both of the outgoing hatched arrows.

A schematic representation, analogous to Fig. 7.7, of non-mutual inter-personal linkage arises by erasing either of the two bundles of hatched arrows.

Discussing the logistic-regression equations to estimate the models implied by Figs. 7.6 and 7.7, is beyond the scope of this chapter; the interested reader is referred to Zucchini et al. (2016).

## 7.6 Summary and Conclusions

We set out to model the production, the genesis of life course sequences. This is different from modelling the variance of life course related events. This genesis modelling is different since its primary purpose is to test or to validate a mechanism that produces sequences that are close to sequences as observed, that are realistically affected by covariates and are correlated between life course domains. If such modelling is successful, one of its results is a good approximation of the variance of life courses themselves and their constituting events, timings and orderings, i.e. of the results of regression-based methods that produce decompositions of observed variances. In that sense, the modelling of the generative mechanism is more encompassing than designing an (additive) decomposition of variances and covariances. On the other hand, regression-based models will continue to be relevant to unequivocally establish the (relative) contribution of the components, the independents, a property that is indispensable to explore, to inventory a research area or to motivate policy-decisions.

Thus, we started listing the requirements that models of the mechanism of life course generation should satisfy and arguing that none of the methods presently used in life course research can satisfy all of these requirements. We then informally introduced HMM's as a class of models that could be used to fulfill these requirements, i.e. generate realistic, data-like sequences.

To demonstrate the power of these models, we applied them to study family formation in relation to SDT-theory and validated the model using gender and education as covariates. We feel that this demonstration is convincing, despite the fact that we hardly discussed problems of estimation and model selection and did not explore more sophisticated models that would allow for, e.g. age-graded transition rates or variable time-lags. We also tried to guide the reader in modeling correlation of trajectories by presenting a typology of linkages and the consequences thereof for modeling such linkages

We hope to compensate these shortcomings in future research and that others will help exploring the power and potential of HMM's in related areas of life course research.

**Acknowledgements** The research leading to these results has received funding from the European Research Council under the European Union's Seventh Framework Programme (FP/2007-2013)/ERC Grant Agreement n. 324178.

## References

- Aassve, A., F.C. Billari, S. Mazucco, and F. Ongaro. 2002. Leaving home: A comparative analysis of ECHP data. *Journal of European Social Policy* 12 (4): 259–275.
- Allison, P.D. 1982. Discrete-time methods for the analysis of event histories. *Sociological Methodology* 13: 61–98.
- Andersson, G., and D. Philipov. 2002. Life-table representations of family dynamics in Sweden, Hungary and 14 other FFS countries: A project of descriptions of demographic behavior. *Demographic Research* 7: 67–144.
- Arulampalam, W. 2001. Is unemployment really scarring? Effects of unemployment experiences on wages. *The Economic Journal* 111 (475): 585–606.
- Barban, N., and F.C. Billari. 2012. Classifying life course trajectories: A comparison of latent class and sequence analysis. *Journal of the Royal Statistical Society: Series C (Applied Statistics)* 61 (5): 765–784.
- Bartolucci, F., A. Farcomeni, and F. Pennoni. 2012. *Latent Markov models for longitudinal data. Statistics in the social and behavioral sciences*. Boca Raton, FL: CRC Press.
- Bartolucci, F., S. Pandolfi, and F. Pennoni. 2017. LMest: An R package for latent Markov models for categorical longitudinal data. *Journal of Statistical Software* 81: 2–38.
- Baum, L.E., T. Petrie, G. Soules, and N. Weiss. 1970. A maximization technique occurring in the statistical analysis of probabilistic functions of Markov chains. *Annals of Mathematical Statistics* 41 (1): 164–171.
- Berchtold, A., and A.E. Raftery. 2002. The mixture transition distribution model for high-order Markov chains and non-Gaussian time series. *Statistical Science* 17 (3): 328–356.
- Blossfeld, H.-P., K. Golsch, and G. Rohwer. 2007. *Event history analysis with STATA*. Mahwah: Lawrence Erlbaum.
- Bourdieu, P. 1977. *Outline of a theory of practice*. Cambridge: Cambridge University Press.



- Brzinsky-Fay, C. 2007. Lost in transition? Labour market entry sequences of school leavers in Europe. *European Sociological Review* 23 (4): 409–422.
- Burnham, K.P., and D.R. Anderson. 2002. *Model selection and multi-model inference. A practical information-theoretic approach*. 2nd ed. Heidelberg: Springer.
- Cornwell, B. 2015. *Social sequence analysis: Methods and applications*. Cambridge: Cambridge University Press.
- Cronbach, L.J., and P.E. Meehl. 1955. Construct validity in psychological tests. *Psychological Bulletin* 52 (4): 281–302.
- Dewar, M., C. Wiggins, and F. Wood. 2012. Inference in hidden Markov models with explicit state duration distributions. *IEEE Signal Processing Letters* 19 (4): 235–238.
- Dronkers, J., and J. Härkönen. 2008. The intergenerational transmission of divorce in cross-national perspective: Results from the fertility and family surveys. *Population Studies* 62 (3): 273–288.
- Eerola, M., and S. Helske. 2016. Statistical analysis of life history calendar data. *Statistical Methods in Medical Research* 25 (2): 571–597.
- Eggar, M.H. 2002. Validity of fitting a first-order Markov chain model to data. *Journal of the Royal Statistical Society, Series D* 51 (2): 259–265.
- Elder, G.H. 1974. *Children of the great depression: Social change in life experience*. Chicago: University of Chicago Press.
- Elzinga, C.H., A.W. Hoogendoorn, and W. Dijkstra. 2007. Linked Markov sources: Modeling outcome-dependent social processes. *Sociological Methods & Research* 36 (1): 26–47.
- Feijten, P., and C.H. Mulder. 2002. The timing of household events and housing events in The Netherlands: A longitudinal perspective. *Housing Studies* 17 (5): 773–792.
- Fokkema, T., A. Kveder, N. Hiekel, T. Emery, and A.C. Liefbroer. 2016. Generations and Gender Programme wave 1 data collection: An overview and assessment of sampling and fieldwork methods, weighting procedures, and cross-sectional representativeness. *Demographic Research* 34: 499–524.
- Giddens, A. 1984. *The constitution of society: Outline of the theory of structuration*. Berkeley: University of California Press.
- Han, S.Y., A.C. Liefbroer, and C.H. Elzinga. 2017. Comparing methods of classifying life courses: Sequence analysis and latent class analysis. *Longitudinal and Life Course Studies* 8 (4): 319–341.
- . 2020. Mechanisms of family formation: An application of Hidden Markov Models to a life course process. *Advances in Life Course Research* 43: 100265.
- Hewson, M. 2010. Agency. In *Encyclopedia of case study research*, ed. A. Mills, G. Durepos, and E. Wiebe, 13–17. Thousand Oaks: Sage.
- Kalbfleisch, J.D., and R.L. Prentice. 1980. *The statistical analysis of failure time data*. Hoboken: Wiley.
- King, V., and G.H. Elder Jr. 1995. American children view their grandparents: Linked lives across three rural generations. *Journal of Marriage and the Family* 57 (1): 165–178.
- Kravdal, Ø., and R.R. Rindfuss. 2008. Changing relationships between education and fertility: A study of women and men born 1940 to 1964. *American Sociological Review* 73 (5): 854–873.
- Lesthaeghe, R. 1995. The second demographic transition in Western countries: An interpretation. In *Gender and family change in industrial countries*, ed. K. Oppenheim Mason and A.-M. Jensen, 17–62. Wotton-under-Edge: Clarendon Press.
- Liefbroer, A.C., and M. Corijn. 1999. Who, what, where, and when? Specifying the impact of educational attainment and labour force participation on family formation. *European Journal of Population* 15 (1): 45–75.
- Liefbroer, A.C., and C.H. Elzinga. 2012. Intergenerational transmission of behavioral patterns: How similar are parents' and children's demographic trajectories? *Advances in Life Course Research* 17 (1): 1–10.

- McVicar, D., and M. Anyadike-Danes. 2002. Predicting successful and unsuccessful transitions from school to work by using sequence methods. *Journal of the Royal Statistical Society, Series A* 165 (2): 317–334.
- Moore, W., S. Pedlov, P. Krishnamurti, and K. Wolter. 2000. *National Longitudinal Survey of Youth (NLSY97)*, Technical sampling report. Chicago: National Opinion Research Center.
- Pakpahan, E., R. Hoffmann, and H. Kröger. 2017. Statistical methods for causal analysis in life course research: An illustration of a cross-lagged structural equation model, a latent growth model, and an autoregressive latent trajectories model. *International Journal of Social Research Methodology* 20 (1): 1–19.
- Pegram, G.G.S. 1980. An autoregressive model for multi-lag Markov chains. *Journal of Applied Probability* 17 (2): 350–362.
- Perelli-Harris, B., W. Sigle-Rushton, M. Krayenfeld, T. Låppegard, R. Keizer, and C. Berghammer. 2010. The educational gradient of childbearing with cohabitation in Europe. *Population and Development Review* 36 (4): 775–801.
- Preckel, F., and M. Brunner. 2017. Nomological nets. In *Encyclopedia of personality and individual differences*, ed. V. Zeigler-Hill and T. Shackelford. Cham: Springer.
- Rabiner, L.R. 1989. A tutorial on hidden Markov models and selected applications in speech recognition. *Proceedings of the IEEE* 77 (2): 257–286.
- Rindfuss, R.R., S.P. Morgan, and K. Offutt. 1996. Education and the changing age pattern of American fertility: 1963–1989. *Demography* 33 (3): 277–290.
- Ritschard, G., and M. Oris. 2005. Life course data in demography and social sciences: Statistical and data-mining approaches. *Advances in Life Course Research* 10: 283–314.
- Sassler, S. 2010. Partnering across the life course: Sex, relationships, and mate selection. *Journal of Marriage and the Family* 72 (3): 557–575.
- Studer, M., G. Ritschard, A. Gabadinho, and N.S. Müller. 2011. Discrepancy analysis of state sequences. *Sociological Methods & Research* 40 (3): 471–510.
- US Department of Labor, Bureau of Labor Statistics. The NLSY97. <http://www.bls.gov/nls/nlsy97.htm>.
- Vermunt, J.K. 1997. *Log-linear models for event histories*. Thousand Oaks: Sage.
- Walker, E.A., A. Gelfand, Wayne J. Katon, Mary P. Koss, M. Von Korff, D. Bernstein, and J. Russo. 1999. Adult health status of women with histories of childhood abuse and neglect. *The American Journal of Medicine* 107 (4): 332–339.
- Zucchini, W., I. MacDonald, and R. Langrock. 2016. *Hidden Markov models for time series: An introduction using R*. 2nd ed. Boca Raton: CRC Press.

**Open Access** This chapter is licensed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.



# Chapter 8

## Understanding the Mechanisms of Intergenerational Social Inequality in Demographic Behavior



Nicole Hiekel

### 8.1 Introduction

The way in which family background contributes to social inequality is a key social science question. A central goal of the CONOPP project is to advance our understanding of the role of demographic events and trajectories in producing and reproducing social inequality across generations. It is empirically evident that young adults from advantaged family backgrounds make committal and irreversible life transitions in the family and partnership sphere later and in more stable relationship contexts than the disadvantaged (Billari et al. 2019). At the theoretical core of this research strand are economic and cultural transmission models of social inequality. These models are based on assumptions about various social mechanisms that explain why and how parents and the family context during childhood shape their children's life courses through adulthood.

### 8.2 Economic and Cultural Perspectives on Intergenerational Transmission Processes of Social Inequality

Intergenerational transmission processes from parents to their children are grasped from an economic perspective on the one hand, and from a cultural perspective on the other. Both start from the assumption that parents with high socio-economic status (SES) differ systematically from low-SES parents both in preferences and

---

N. Hiekel (✉)  
University of Cologne, Cologne, Germany  
e-mail: [hiekel@wiso.uni-koeln.de](mailto:hiekel@wiso.uni-koeln.de)

behavioral investments that guide their efforts to positively influence their children's opportunities in life. Central is thus the assumption that parents of high and low SES differ in their parental resources that determine their parenting behavior and ultimately impact their children's young adult demographic behaviors. This would result in socially stratified patterns of demographic outcomes and intergenerational similarities (e.g. McLanahan and Percheski 2008).

### 8.2.1 *The Economic Perspective*

The economic perspective focuses on poverty as a dynamic process constraining people's quality of life (Atkinson 1998) resulting from a combination of lack of capabilities required to participate in social life (e.g., poor skills, labor market exclusion, poor housing), various forms of exclusion from social, political and cultural life, and the insufficiency of different attributes of wellbeing (e.g., health, income).

Economic approaches, such as the *neoclassical human capital approach* (Becker 1964; Mincer 1974), focus on the *transmission of socio-economic status* in predicting young adults' educational investments and achievements that, in turn, are linked to their demographic choices in young adulthood and, jointly, to socio-economic outcomes later in life. In the economic view, parents invest in human capital of their children that affect their earning potential, income, and also, their success on the marriage market. According to the *family resource model*, the economic status of parents is transmitted to children via other pathways than the (lack of) economic resources, namely characteristics of the parents that correlate with SES, such as diligence, determination, good health, and willingness to co-operate that, if transmitted from parents to children increases their life chances more than money can (Mayer 1997). As a result, young adults from different socio-economic backgrounds are expected to differ in investments into higher education, that in turn are linked to the *timing* of committal and irreversible life transitions in the family and partnership sphere. The influence of family background extends beyond the simple intergenerational transmission of human capital. Rather, the *cumulative advantage perspective* (Crystal and Shea 1990) suggests that advantages (and disadvantages) during childhood and early adulthood continue to accumulate. This implies that initial differences between children from high and low SES backgrounds grow larger over time. The greater human capital that children from advantaged family backgrounds possess and supports them in attaining higher educational degrees also helps them in attaining higher-status occupations. Moreover, their affluent parental background both in terms of money and social influence, serves as a safety net to overcome obstacles in acquiring and maintaining a high socio-economic status later in life.

### 8.2.2 *The Cultural Perspective*

The cultural perspective focuses on learning processes and other forms of social interaction across and within generations. From this perspective, the socio-economic stratification of young adults' demographic behavior is explained by the *transmission of values* from parents to children *and their link to demographic choices* in young adulthood. As part of their socialization efforts, parents transmit values to their children that refer to specific desirable (life) goals and serve as standards or criteria in guiding young adults (demographic) behavior (Barber 2000). Both purposeful and indirect socialization modes of transmission processes are distinguished (Cavalli-Sforza and Feldman 1981). Purposeful socialization refers to conscious efforts to influence the child guided by so-called paternalistic empathy. Religious parents, for instance, may transmit their beliefs via rituals to their children, for instance by integrating religious practices in their family life, such as praying and visiting religious services. In a partially conscious and partially unconscious learning process, termed enculturation, children adopt or imitate their parents' ways of thinking and believing. Parental convictions about what is best for their child also guide their parenting styles as well as the extent to which they provide or constrain opportunities to their children to engage in behavior that is (not) congruent with their beliefs. Parents, however, also influence their children in less purposeful ways, referred to as social learning (Bandura 1977). Parents who divorce may illustrate to their child an available course of action to end an unhappy relationship.

Parents of high and low SES may differ in the socialization goals they have which in turn will contribute to a social stratification of plans and expectations that their children will develop as regards the timing and context of demographic events in the partnership and family sphere (Keijer et al. 2016). Billari et al. (2019) showed that an advantaged family background on the one hand supports adult children in realizing planned events in the partnership and family trajectory, such as union formation, marriage and parenthood and on the other hand provides greater opportunities to postpone demographic events that – if experienced too early – may hamper upward social mobility.

## 8.3 Childhood (Dis)Advantage and Young Adult Demographic Behavior

CONOPP studies the intergenerational reproduction of social inequality via the timing and context of demographic choices that are known to have potential adverse social and economic consequences. In the following, I will provide a compilation of economically and culturally framed social mechanisms that are scattered across the inequality literature and predict intergenerational linkages between socio-economic status of the family of origin and partnership and family behavior of adult children.

I will discuss empirical evidence of these mechanisms based on the CONOPP studies.

The educational level of successive generations within a family is remarkably similar. The *intergenerational transmission of education* has been identified as an important social mechanism explaining the social stratification of demographic behavior. Educational (status) attainment is often viewed as a prerequisite of experiencing demographic markers of the transition to adulthood. Young adults who are enrolled in education are not considered “at risk” of making committal life decisions, such as marriage and parenthood because of the often implied economic dependence on their parents on the one hand and normative views on role (in)compatibility on the other (Blossfeld and Huinink 1991). Indeed, CONOPP studies provide empirical evidence for a greater postponement of such demographic life course markers (i.e. union formation, marriage, childbearing) among more advantaged children (Billari et al. 2019). An economic explanation would thus be that their parents possess greater opportunities to afford their children’s investment in education for longer periods of their life. As a result, they are enabled to attain higher economic status. Children from low-SES family background by contrast may be pushed towards economic independence earlier in their life at the cost of attaining lower economic status.

Education is also – if not predominantly – conceptualized as a form of cultural capital, hence a non-monetary social asset. As a central indicator of life chances, education is transmitted from parents to children in the form of educational aspirations on the one hand, and via educational abilities on the other. The socialization of educational aspirations and abilities in the family is to a large extent purposeful, that means, parents devote various forms of resources to influence their children’s educational preferences as well as the cultural and cognitive traits to reach their educational goals. For instance, parents of high and low SES differ in the amount of time they read to their children (Cano 2019; Guryan et al. 2008; Ramey and Ramey 2009; Hofferth and Sandberg 2001), the type and amount of extra-curricular activities their children attend (Weininger et al. 2015) and the schools they send their children to and where certain norms of behaviors and attitudes are cultivated (Khan 2011; Lareau 2003). Access to books, computers and other study material like newspapers and a quiet working space as part of the parental home’s equipment create greater opportunities to engage in educational activities outside compulsory schooling for the more advantaged. Higher-SES parents tend to engage their children in *concerted cultivation* (Lareau 2003) marked by parents’ conscious efforts to promote their children’s talents, language use and social interaction in structured environments, thus promoting their children’s cultural habitus. Lower-SES parents tend to engage their children in the “accomplishment of natural growth” in which children fill unstructured time with activities to occupy themselves, and receive less support in preparing for highly structured social environments, such as schools and universities.

But it is not only aspirations and abilities that explain the social gradient in the access to higher education that in turn is associated with demographic choices in young adulthood. Parents of high socio-economic status exert social closure

behavior in order to monopolize their offspring's access to the scarce resource of (high) education. Such *opportunity hoarding* (Tilly 1998) can take various forms. Higher-SES parents use their greater power in society by facilitating their children's access to formal and informal networks and other modes of cooperation opening gateways to higher education. Their descendants in turn profit from an educational system that is attuned to the cultural codes that are dominant among high-SES social groups (Bourdieu 1977). In his seminal work, French sociologist Pierre Bourdieu proposed that the cultural capital transmission runs via social mechanisms of *distinction*, hence social class-immanent cultural and linguistic codes, with the consequence that class-based social groups are reproduced across generations (Bourdieu 2010). Children would internalize the preferences and behaviors established in their social class of origin early in their lives and behave accordingly. This line of thinking may be transferred to the behavioral attitudes in partnership and family formation and their observed social stratification.

Two CONOPP studies (Billari et al. 2019; Keijer et al. 2016) specifically looked into the mechanisms of intergenerational transmission of preferences regarding family life transitions. Keijer et al. (2016) found that parents' cultural status (measured by their educational level) and to some extent their economic status (measured by income) influenced their children's preferences regarding the timing of first marriage and entry into parenthood. Children of parents with high socio-economic status preferred to experience these events later than their peers from low-SES background. Billari et al. (2019) combined parents' educational and occupational status in a SES background measure and investigated the intentions of young adults aged 18–35 to experience different demographic milestones in the next 3 years. They also found that high-SES young adults intend to postpone to start living with a partner, marrying and entering parenthood.

These studies did not test the underlying social mechanisms directly. However, by including the adult child's own socio-economic status (often measured by highest level of educational attainment) in a model that links parental background to demographic behavior in young adulthood, nearly every CONOPP study provided evidence in favor of the education transmission process (Brons et al. 2017; Koops et al. 2017; Mooyaart and Liefbroer 2016). Though the importance of this social mechanism seems to vary by outcome variable studied (or data or method used to analyze the link), the effects of parental SES were significantly reduced and sometimes disappeared when own education was accounted for. This suggests that young adult's own education is an important mediating factor in the reproduction of social inequality in the demographic domain.

It is a prominent belief but rarely explicitly examined that norms, attitudes and values impact demographic behavior (Liefbroer and Billari 2010) but if so, attitudes have been shown to differ across social groups (Surkyn and Lesthaeghe 2004). Obviously, the *transmission of norms and values and their links to demographic behavior* may thus constitute a complementary pathway explaining that more educated young adults make different choices in the timing and context of committal and irreversible life transitions.

The internalization of parental norms by their children is at the core of cultural transmission models that make a number of assumptions about conformity, resistance and authority in parent-child social interactions that are discussed in detail in a review by Grusec and Kuczynski (1997). The basic notion is that children's demographic choices in young adulthood are the result of compliance with parental socialization efforts that consist of explicit reward and punishment on the one hand, and subtle indications of approval or disapproval on the other (Patterson et al. 1992).

Social norms as “the grammar to frame the writing of our lives and interactions” (Gavac et al. 2017, p. 333) differ across social groups. Kohn (1969) found greater appraisal of self-direction among high-SES groups and of conformity among low-SES groups. SES differences also exist in the opportunities of parents to enforce their norms upon their children. Low-SES parents are limited in their capacities to outsource household and care tasks which in turn limits their opportunities to spend quality time with their children as well as to monitor their children's actions. In addition, unfavorable housing conditions may push their children to spend more time outside the immediate surveillance of their parents (Baizán et al. 2014). These considerations may explain why parental styles are socially stratified with authoritarian and uninvolved parenting styles being more prevalent in low-SES groups and authoritative and permissive parenting styles being more prevalent in high-SES families (Baumrind 1967).

Social norms are strong predictors of behavior (Kallgren et al. 2000). Regarding their children's demographic choices in young adulthood, parents who value personal autonomy to a greater extent make efforts to influence their children in such ways that they (prefer to) become independent by leaving the parental home earlier and make commitments to partnership and family formation later in their life. Indeed, the finding that children from high-SES family backgrounds do not only prefer but actually also succeed in making partnership and family transitions later in life is one of the most consistent findings in CONOPP that cannot be explained by transmission of education alone (Brons et al. 2017; Koops et al. 2017; Keijer et al. 2016; Mooyaart and Liefbroer 2016). One could also expect that high-SES parents are more open towards their children choosing alternative living arrangements to the institution of marriage for making these transitions, since unmarried cohabitation as part of secularization and individualization processes that modern societies are undergoing, emerged among the higher, rather than the lower educated. Indeed, Brons et al. (2017) found evidence that cultural transmission processes may explain that young adults from high-SES backgrounds tend to favor premarital cohabitation over direct marriage. However, high-SES families clearly tend to disfavor cohabitation as a childbearing context – with the exception of a small number of countries where cohabitation is widely diffused and enjoys social and legal acceptance (Koops et al. 2020).

Cultural models of transmission also incorporate the notion of stratified resources that were central to economic transmission models discussed earlier. Parents of different socio-economic status differ in their capabilities to exert *life course agency* (Hitlin and Elder 2006), implying the competence to pursue life plans effectively and with perseverance (Clausen 1991). This mechanism was explicitly tested in one



CONOPP study by Billari et al. (2019). They showed that children with high-SES family background were more likely to realize their intentions regarding important demographic milestones in young adulthood, compared to their peers with low SES. With the exception of first birth, this study shows that young adults from different socio-economic background are not equally able to act in accordance with their intentions and thus, exert life course agency.

Social mechanisms of parental empathy and parent's abilities to transmit values that they consider best for their child reach their explanatory limits when we try to make sense of the observation that children from low socioeconomic background are more likely to engage in "risky" demographic behavior, that is likely neither reflecting their own nor their parents' preferences, such as unprotected sexual intercourse, teenage childbearing or poor assortative matching. The closest we may come to explaining such intergenerational regularities in life events and trajectories is to apply social learning theory (Bandura 1977): It implies cognitive mechanisms that refer to unintended transmission processes, namely children consciously or unconsciously imitating their parents' (lack of) capabilities as well as behavior. Social (or observational) learning processes are viewed as cognitive processes taking place in social contexts in which individuals observe and finally imitate existing norms and behaviors in the absence of direct reinforcement.

## 8.4 The Long Arm of Childhood (Dis)Advantage

Empirical research has confirmed that partnership and family behavior run through generations of families. Social scientists have postulated that intergenerational transmission processes of demographic behavior contribute to the reinforcement of socio-economic (dis)advantage (McLanahan 2004; McLanahan and Percheski 2008). The life course perspective of the CONOPP project permits the identification of later life consequences of childhood disadvantage via demographic behaviors in young adulthood.

In line with the life course analytical concept of *path dependency*, childhood family structure and opportunities can trigger a self-perpetuating process by which childhood disadvantage amplifies over the adult life course. As regards partnership and family formation choices, processes of path dependency refer to the constraints that some of these demographic events imply for (further) educational and occupational investments. It is noteworthy that these relationships are highly gendered due to women's traditional greater obligations in foregoing career for unpaid care labor within the family. Gender thus adds another layer of social inequality here.

In particular one CONOPP study illustrates the implications of union formation and dissolution for the stratified opportunities (and constraints) of women with and without children to profit from economics of scale and attachment to the labor market until later in life (Muller et al. 2020). They investigated the earnings gradient of women with different family and partnership trajectories in 22 European countries. Findings showed that the absence of a partner implies a greater need to commit to

labor market activities that generate – above all – sufficient income and are compatible with potential care duties for existing children. Beyond their childrearing years, women aged 50 and over who had followed traditional family trajectories (i.e. the traditional housewife-breadwinner model) had the lowest earnings of all women which implies a persistent personal disadvantage in terms of economic independence from their partner. Women who neither committed to a partner nor a family had the highest earnings at advanced stages of their work career. Women who did not profit from economies of scale due to an absent partner or who had a care burden during mid-age occupied earnings positions in between these extremes.

As regards the socio-psychological consequences of socially stratified demographic behavior, the literature distinguishes two types of life course script deviations with potential disadvantageous consequences in the spheres of well-being and social support. Life course script deviations contribute to the intergenerational reproduction of social inequality if low-SES young adults disproportionately often experience them. Demographic life course markers may, on the one hand, be forgone altogether, and, on the other hand be experienced *off-time*. The latter implies experiencing events such as union formation, marriage and parenthood much earlier or much later than social norms convey. Life course script deviations often provoke social stigmatization and a lack of social support and in turn, may decrease wellbeing, both economically and socially.

These psychosocial mechanisms were addressed by Zoutewelle-Terovan and Liefbroer (2018) who focused on the relationships between family trajectories and later life loneliness. They found that lifelong singlehood and childlessness were associated with greater feelings of loneliness later in life. While they found no evidence for effects of early transitions, experiencing demographic milestone events later than socially expected increased risk of loneliness as well.

Another health-related outcome of family trajectories was investigated by Mooyaart and Liefbroer (2018) who showed that parenthood had health consequences via dietary changes and changes in physical activity, that jointly affect the risk of obesity. In their study, traditional family trajectories (male breadwinner, female housewife) most strongly punished men and women in terms of BMI. The explanation may be that a gender-specific specialization in paid and unpaid work and little outsourcing of care and household tasks increases stress and limits opportunities to self-care. Part of the explanation may also be that a traditional division of tasks no longer is the socially expected way of contemporary family organization.

## 8.5 Cross-National Variation in the Transmission of Social Inequality

A key question addressed in the CONOPP project is the extent to which the relationships between childhood (dis)advantage, young adult demographic choices and later life outcomes vary by national contexts of opportunity. Two aspects of the

national context were investigated as potential moderators of these relationships: (1) *economic aspects*, such as income inequality, intergenerational social mobility (Mooyaart and Liefbroer 2016; Studer et al. 2018), and female labor force participation and earnings (Muller et al. 2020) and (2) *cultural aspects*, such as family related norms and behaviors (Brons and Härkönen 2018; Brons et al. 2017; Koops et al. 2017; Mooyaart and Liefbroer 2016; Zoutewelle-Terovan and Liefbroer 2018).

The importance of parental monetary resources for children's status attainment can be expected to be greater the more an institutional framework, such as the educational system, is distorted in favor of the powerful. High admission fees for college, extracurricular (paid) activities to pass prep classes, unpaid internships, access to networks and other modes of cooperation are usually more accessible (feasible) for children from more affluent social strata. Keijer and co-authors (2016) found strong evidence for the educational transmission of educational opportunity in the Netherlands, a country with a highly stratified educational system. Studying the United States, a country that likes to think of itself as the very embodiment of meritocracy, Mooyaart et al. (2019) found that career (and family building) decisions during young adulthood only partially explained income trajectories during later adulthood. Family background continues to play a significant role in explaining income differentials in adult life courses and operates beyond the mere transmission of SES. Rather, these findings suggest cumulative advantage to be at play that is particularly pronounced in societies with little institutional effort in equalizing socio-economic inequality by birth.

The transmission of values via socialization and social learning processes is expected to be weaker in countries where individualization and related societal change is more advanced. First, this is because parents in more individualized societies may stronger encourage personal autonomy of their children and thus aim at imposing less of their personal values and attitudes about family life as part of their socialization efforts and their children may be more resilient to take over ready-made life scripts from their parents. Second, non-traditional living arrangements are more strongly diffused through society, and thus less concentrated among either the high- or low-SES social groups and thus more accepted by both high- and low-SES parents.

The CONOPP project could not test these mechanisms directly, not least because data on young adult family-life courses in the surveys used were collected retrospectively and parental preferences (during early years of childrearing) were not measured. However, they consistently find that the strength of the association between family background and demographic choices during adulthood and, eventually, related outcomes are weaker in countries where divorce rates are higher (Brons and Härkönen 2018), and where demographic behavior associated with the Second Demographic Transition is more diffused (Brons et al. 2017; Koops et al. 2017; Zoutewelle-Terovan and Liefbroer 2018).

Finally, parental transmission processes are expected to be less important in societies where institutions buffer the negative consequences of childhood disadvantage. Educational systems that permit upward mobility may weaken the transmission of education particularly in disadvantaged families. Societies that are

more defamilialized, thus allowing parents (and particularly women) to combine career opportunities and family responsibilities in favor of higher integration in the labor market are expected to make later-life economic status less contingent on demographic choices in the family sphere. Indeed, Muller and co-authors (2020) found that the earnings gradient between women with different care burden during the childrearing years was smaller in societies where female labor force participation was higher.

## 8.6 Some Suggestions for Future Research

The CONOPP project was successful in realizing one of its key aims, namely to study the relationships between childhood family circumstances and demographic outcomes in as many countries as possible. However, this was only feasible when compromising between a larger number of national data sets for comparison and a stronger limitation in the childhood indicators of parental SES and family context that could be harmonized from these databases. As a consequence, CONOPP was constrained in modeling social inequality transmission processes from one generation to the next in their entire complexity. In addition, the available data for cross-national comparison comprises data on childhood family structure and circumstances collected retrospectively. To test some of the social mechanisms that I discussed (e.g. value transmission) one needs to have data that is measured prospectively. Both limitations – the relatively narrow set of childhood indicators and their retrospective measurement – may be addressed by future research that may use single country data containing a wider set of prospective measures of childhood circumstances to further advance our understanding of the social mechanisms underlying the reproduction of social inequality.

The CONOPP project convincingly showed that young adults demographic behavior and related outcomes are strongly influenced by parental SES as well as by the experience of a parental divorce. The mechanisms leading to poorer outcomes, however, could also include mediators, such as characteristics associated with parental SES (i.e. personality) or other circumstances of the family home (i.e. family conflict as a moderator).

Finally, the timing of experiencing crucial life events during childhood with potentially detrimental long-term consequences may matter. Including age at parental divorce would be a first step towards better grasping how timing and changes in the family situation, and eventually, economic situation may affect children's future life courses. CONOPP focused on parental divorce as the only measure of growing up in a non-standard family, due to data constraints. However, knowledge on eventual cohabitation experience of parents, the values that parents hold regarding alternative living arrangements and the role of stepfamily members in transmitting preferences and behaviors could shed more light on the role of complex family structures during socialization.

For sociologists, who genuinely are concerned about social inequality, the story of intergenerational transmission of disadvantage is a pessimistic one. Therefore, one may more closely want to look beyond the general pessimism and study under which circumstances children from adverse childhood contexts fare better. Including personality and other dispositional features like locus of control and optimism in life course models will address the issue of resilience as one complementary mechanism of escaping the trap of low SES origin. In addition, a focus on family characteristics that are beneficial for child development, such as shared values, constructive conflict resolution strategies, and finally the availability of external support systems may also help drawing a more detailed and potentially more optimistic picture on how families of origin shape children's adult life courses.

## References

- Atkinson, A.B. 1998. *Poverty in Europe*. Oxford: Wiley-Blackwell.
- Baizán, P., M. Domínguez, and M.J. González. 2014. Couple bargaining or socio-economic status? *European Societies* 16 (1): 3–27.
- Bandura, A. 1977. *Social learning theory*. Englewood Cliffs: Prentice Hall.
- Barber, J.S. 2000. Intergenerational influences on the entry into parenthood: Mothers' preferences for family and nonfamily behavior. *Social Forces* 79 (1): 319–348.
- Baumrind, D. 1967. Child care practices anteceding three patterns of preschool behavior. *Genetic Psychology Monographs* 75 (1): 42–88.
- Becker, G.S. 1964. *Human capital: A theoretical and empirical analysis, with special reference to education*. Chicago: The University of Chicago Press.
- Billari, F.C., N. Hiekel, and A.C. Liefbroer. 2019. The social stratification of choice in the transition to adulthood. *European Sociological Review* 35 (5): 599–615.
- Blossfeld, H., and J. Huinink. 1991. Human capital investments or norms of role transition? How women's schooling and career affect the process of family-formation. *American Journal of Sociology* 97 (1): 143–168.
- Bourdieu, P. 1977. Cultural reproduction and social reproduction. In *Power and ideology in education*, ed. J. Karabel and A.H. Halsey. Oxford: Oxford University Press.
- . 2010. *Distinction. A social critique of the judgement of taste*. London: Routledge.
- Brons, M.D., and J. Härkönen. 2018. Parental education and family dissolution: A cross-national and cohort comparison. *Journal of Marriage and Family* 80 (2): 426–443.
- Brons, M.D., A.C. Liefbroer, and H.B.G. Ganzeboom. 2017. Parental socio-economic status and first union formation: Can European variation be explained by the Second Demographic Transition theory? *European Sociological Review* 33 (6): 809–822.
- Cano, T. 2019. Changes in fathers' and mothers' time with children: Spain, 2002–2010. *European Sociological Review* 35 (5): 616–636.
- Cavalli-Sforza, L.L., and M.W. Feldman. 1981. *Cultural transmission and evolution: A quantitative approach*. Princeton: Princeton University Press.
- Clausen, J.S. 1991. Adolescent competence and the shaping of the life course. *American Journal of Sociology* 96 (4): 805–842.
- Crystal, S., and D. Shea. 1990. Cumulative advantage, cumulative disadvantage, and inequality among elderly people. *The Gerontologist* 30 (4): 437–443.
- Gavac, S., S. Murrar, and M. Brauer. 2017. Group perception and social norms. In *Social psychology: How other people influence our thoughts and actions*, ed. R.W. Summers, 333–359. Santa Barbara: ABC-CLIO.

- Grusec, J.E., and L. Kuczynski. 1997. *Parenting and children's internalization of values: A handbook of contemporary theory*. New York: Wiley.
- Guryan, J., E. Hurst, and M. Kearney. 2008. Parental education and parental time with children. *Journal of Economic Perspectives* 22 (3): 23–46.
- Hitlin, S., and G.H. Elder. 2006. Agency: An empirical model of an abstract concept. *Advances in Life Course Research* 11: 33–67.
- Hofferth, S.L., and J.F. Sandberg. 2001. How American children spend their time. *Journal of Marriage and Family* 63 (2): 295–308.
- Kallgren, C.A., R.R. Reno, and R.B. Cialdini. 2000. A focus theory of normative conduct: When norms do and do not affect behavior. *Personality and Social Psychology Bulletin* 26 (8): 1002–1012.
- Keijer, M.G., I. Nagel, and A.C. Liefbroer. 2016. Effects of parental cultural and economic status on adolescents' life course preferences. *European Sociological Review* 32 (5): 607–618.
- Khan, S. 2011. *Privilege. The making of an adolescent elite at St. Paul's school*. Princeton: Princeton University Press.
- Kohn, M.L. 1969. *Class and conformity: A study in values*. Homewood: Dorsey Press.
- Koops, J.C., A.C. Liefbroer, and A.H. Gauthier. 2017. The influence of parental educational attainment on the partnership context at first birth in 16 western societies. *European Journal of Population* 33 (4): 533–557.
- . 2020. Explaining cross-national variation of parental educational differences in having a first birth while cohabiting. In *Understanding nonmarital childbearing: the role of socioeconomic background and ethnicity in Europe and North-America*, ed. J.C. Koops, 75–103. Groningen: University of Groningen.
- Lareau, A. 2003. *Unequal childhoods: Class, race, and family life*. Berkeley: University of California Press.
- Liefbroer, A.C., and F.C. Billari. 2010. Bringing norms back in: A theoretical and empirical discussion of their importance for understanding demographic behaviour. *Population, Space and Place* 16 (4): 287–305.
- Mayer, S.E. 1997. *What money can't buy. Family income and children's life chances*. Cambridge, MA: Harvard University Press.
- McLanahan, S. 2004. Diverging destinies: How children are faring under the second demographic transition. *Demography* 41 (4): 607–627.
- McLanahan, S., and C. Percheski. 2008. Family structure and the reproduction of inequalities. *Annual Review of Sociology* 34: 257–276.
- Mincer, J. 1974. *Schooling, experience and earnings*. New York: Columbia University Press.
- Mooyaart, J.E., and A.C. Liefbroer. 2016. The influence of parental education on timing and type of union formation: Changes over the life course and over time in the Netherlands. *Demography* 53 (4): 885–919.
- . 2018. Becoming obese in young adulthood: The role of career-family pathways in the transition to adulthood for men and women. *BMC Public Health* 19 (1511): 1–12.
- Mooyaart, J.E., F.C. Billari, and A.C. Liefbroer. 2019. Born to be rich? The influence of family background and life course pathways on the income trajectories of young adults. In *Linkages between family background, family formation and disadvantage in young adulthood*, ed. J.E. Mooyaart, 139–2016. Groningen: University of Groningen.
- Muller, J.S., N. Hiekel, and A.C. Liefbroer. 2020. The long-term costs of family trajectories: Women's later life earnings across Europe. *Demography* 57: 1007–1034.
- Patterson, G.R., J.B. Reid, and T.J. Dishion. 1992. *A social learning approach*. Eugene, OR: Castalia.
- Ramey, G., and V.A. Ramey. 2009. *The rug rat race*. Working Paper No. 15284. National Bureau of Economic Research.
- Studer, M., A.C. Liefbroer, and J.E. Mooyaart. 2018. Understanding trends in family formation trajectories: An application of Competing Trajectories Analysis (CTA). *Advances in Life Course Research* 36: 1–12.

- Surkyn, J.J., and R. Lesthaeghe. 2004. Value orientation and the second demographic transition (SDT) in Northern, Western and Southern Europe: An update. *Demographic Research* 3: 45–86.
- Tilly, C. 1998. *Durable inequality*. Berkeley: University of California Press.
- Weininger, E.B., A. Lareau, and D. Conley. 2015. What money doesn't buy: Class resources and children's participation in organized extracurricular activities. *Social Forces* 94 (2): 479–503.
- Zoutewelle-Terovan, M., and A.C. Liefbroer. 2018. Swimming against the stream: Non-normative family transitions and loneliness in later life across 12 nations. *The Gerontologist* 58 (6): 1096–1108.

**Open Access** This chapter is licensed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.



# Chapter 9

## Explaining Cross-National Differences in Social Background Effects: What Have We Learned?



Aart C. Liefbroer

### 9.1 Introduction

Demographic choices in young adulthood are socially stratified (Billari et al. 2019). These choices vary significantly by one's family of origin. As studies in numerous different countries have shown, young adults from poor socio-economic backgrounds (usually called 'low SES' from now on) start their family formation process earlier than young adults from better socio-economic backgrounds (Amato et al. 2008; Hobcraft and Kiernan 2001). But other aspects of one's family of origin have also been found to be associated with family formation processes. Young adults who were raised in households without one or both of their biological parents have been found to be more likely to start family formation earlier than young adults who were raised by both biological parents (Feldhaus and Heintz-Martin 2015). In addition, they are more likely to dissolve partner relationships they have entered (Wolfinger 2000). Thus, aspects of childhood disadvantage are clearly related to demographic outcomes.

Little is known, though, about whether the consequences of childhood disadvantage for demographic choices vary across countries. Although the number of cross-national studies examining family formation processes has increased dramatically in the last decades (Kalmijn 2007; Sobotka 2008; Van Bavel 2010), the vast majority of these studies has examined cross-national differences in the occurrence or the timing of specific family formation events (Billari and Liefbroer

---

A. C. Liefbroer (✉)

Netherlands Interdisciplinary Demographic Institute (NIDI), The Hague, The Netherlands

Department of Epidemiology, University Medical Centre Groningen, University of Groningen, Groningen, The Netherlands

Department of Sociology, Vrije Universiteit, Amsterdam, The Netherlands  
e-mail: [liefbroer@nidi.nl](mailto:liefbroer@nidi.nl)

© The Author(s) 2021

A. C. Liefbroer, M. Zoutewelle-Terovan (eds.), *Social Background and the Demographic Life Course: Cross-National Comparisons*,  
[https://doi.org/10.1007/978-3-030-67345-1\\_9](https://doi.org/10.1007/978-3-030-67345-1_9)

155



2010). However, the number of studies that have examined cross-national differences in the correlates of the family formation process is much less extensive. Interesting examples of such studies are studies by Perelli-Harris and her collaborators on differences in the educational gradient of family formation processes across Europe (Perelli-Harris et al. 2010; Perelli-Harris and Lyons-Amos 2016), and studies on cross-national differences in the determinants of parental divorce (Härkönen and Dronkers 2006; Wagner and Weiß 2006). These studies have shown that considerable variation in the strength of the association between social characteristics and family formation processes often exist. As countries vary considerably in their economic, cultural and institutional conditions, it is likely that cross-national variation exists as well in the consequences of childhood disadvantage for demographic outcomes in young adulthood and for socio-economic and emotional well-being later on in the life course. However, this cross-national variation has hardly been studied till date.

In this Chapter, I will discuss some of the key issues involved in studying cross-national differences in social background effects on family formation. First, I will discuss some of the central theoretical ideas that can be used to derive hypotheses about the strength of these cross-national differences. Next, I will discuss the practical challenges facing scholars who want to study these cross-national differences. Subsequently, I present the main findings from the Contexts of Opportunity (CONOPP) project on which this book is based. I close by drawing some main conclusions and providing suggestions for future research.

## 9.2 Theoretical Explanations for Cross-National Differences in Family Background Effects

In a seminal article, Van de Kaa (1996) introduced the notion of ‘anchored’ narratives to synthesize the main storylines in research on the determinants of fertility. An anchored narrative is a good story that knits together a body of evidence. In that sense, there seem to be three types of narratives that could be used to explain (or predict) cross-national differences in the relationship between family background and family formation processes. These narratives are grounded either in cultural, economic or institutional understandings of the drivers of cross-national differences.

Fittingly, the *cultural narrative* most conducive to discussing cross-national differences in the relationship between family background and family formation processes, is Van de Kaa’s and Lesthaeghe’s Second Demographic Transition (SDT) narrative (Lesthaeghe and Van de Kaa 1986; Van de Kaa 1987; Lesthaeghe 2014). The SDT asserts that cultural changes in the Western world since the second World War, in particular trends towards increasing secularization and individualization, have made young adults more autonomous in their life choices, leading them to opt for demographic choices that allow for more autonomy (such as living independently or in a cohabiting union rather than a marriage) and to postpone demographic

choices that ask for much commitment (Studer et al. 2018). The SDT theory clearly focuses on historical change, leading to changing behaviors within societies, but as these changes start at different time-points in different societies and also diffuse across societies at different speeds, it will also lead to large differences across societies in the family formation processes that are observed. Still, the SDT is more concerned in explaining differences between societies in family formation patterns itself than in cross-societal differences in the relationship between family background and family formation patterns. However, it is rather straightforward to derive implications for the strength of family background effects from the SDT. Processes of secularization and individualization will lead to young people being less susceptible to the normative instructions of key socializing agents like the Church, but also parents (Dobbelaere 1981; Gorski and Altinordu 2008). In addition, in an individualized society, parents themselves may be less willing to pressure their children into conforming to traditional ideas about family formation. As a result, it can be expected that family background will matter less to the family formation choices of young adults in societies in which the SDT has been diffused broadly than in societies that are more traditional.

*Economic narratives* constitute a second class of ‘good stories’ about cross-national differences in the association between family background and family formation patterns. In general, such narratives argue that societies with better economic prospects for young adults offer them better conditions to make their own decisions than societies where young adults face worse economic prospects. In these latter societies, young adults will presumably have to rely on the financial resources provided by their parents to a much larger degree. As a result, the family formation choices of young adults may mirror the often more traditional preferences of their parents to a larger extent than in economically better developed societies. Examples of such narratives are Perelli-Harris’ idea of the Pattern of Disadvantage, that suggests that in less affluent Western countries decisions to cohabit unmarried and to have children outside marriage are less based on individualized preferences but on the lack of financial means to marry (Perelli-Harris and Gerber 2011) and Blossfeld’s globalization theory that suggests that young adults postpone family formation and opt for less committal family types as a result of economic insecurity (Blossfeld et al. 2005).

*Institutional narratives* are a third class of ‘good stories’ that can be used to derive hypotheses about cross-national differences in the relationship between family background and family formation patterns (Thévenon and Gauthier 2011). The best-known institutional narrative is Esping-Andersen’s theory about multiple worlds of welfare (Esping-Andersen 1990, 1999). Here the key idea is that countries differ in the kind of welfare arrangements that they have in place. Some of these arrangements are more supportive to disadvantaged families than others, and countries may also differ in the generosity of their support to young adults. Both of these factors can potentially influence differences in the strength of the association between family background and adult outcomes as welfare states can act as a buffer to the potentially detrimental consequences of childhood disadvantage.

The introductory chapter of this book (Chap. 1) discusses that the basic premise of the CONOPP project is that demographic choice in young adulthood is not so much about individual choice as about unequal choice. In other words, demographic choices – and their consequences – are stratified. At the same time, the guiding hypothesis on Contexts of Opportunity is that the extent of inequality depends on the opportunities that societies offer to buffer the negative consequences of childhood disadvantage. In line with the three narratives outlined above, these opportunities can be cultural, economic or institutional in nature.

### 9.3 Methodological Challenges in Testing the Contexts of Opportunity Hypothesis

The theoretical approaches discussed in the previous section suggest that the strength of the relationship between social background, young-adult demographic behaviors and later-life outcomes depends on country-specific economic, cultural and institutional conditions. In testing these kinds of hypotheses, researchers are faced with *four* types of challenges.

A *first* challenge is to find cross-national micro-datasets that can be used to test hypotheses about differences in the consequences of childhood disadvantage. Basically, researchers have two options. They can either use national datasets that are not collected for comparative purposes, such as national socio-economic household panel surveys, or datasets from programmes that specifically have been developed to generate comparative data (Wolf et al. 2016). The first approach has the large drawback that questions that are used to measure the central concepts to be used in testing hypotheses have not been harmonized before the data are collected. As a result, post-harmonization of these measures is necessary to assure that data are comparable. This often is either impossible because questions are too incomparable to find any common denominator, or leads to a large reduction in the quality of measuring instruments. This problem is already present if data from two different countries are post-harmonized, but is even further exacerbated if data from more countries are needed. The only programmes having any level of success with this approach are programmes to harmonize socio-economic panel surveys (Frick et al. 2007) or to use register data from countries with high-quality register information (Ruggles 2014). However, more than a relatively small number of countries cannot be successfully compared using this approach. The second approach holds much more promise for comparative research. The key element is that questionnaires are a priori harmonized, strongly strengthening the international comparability of measurement instruments. The most important programmes of this kind with data on European countries are the European Social Survey (ESS) (Schnaudt et al. 2014), the European Values Study – EVS (Gelissen and Halman 2018), the Survey of Health and Retirement in Europe (SHARE) (Börsch-Supan et al. 2013) and the Generations and Gender Programme (GGP) (Gauthier et al. 2018). The ESS and

EVS are repeated cross-sectional surveys. The ESS is conducted every 2 years, the EVS every decade. SHARE and GGP are panel surveys, conducted with an interval of two (SHARE) or three (GGP) years. The bulk of European comparative research is being conducted with data from one of these four surveys.

A *second* challenge to test comparative hypotheses about the role of childhood disadvantage is to find good indicators for both dependent and independent variables. Childhood disadvantage is a multidimensional concept. As a consequence, one would like to use multiple indicators, like for parents' socio-economic status – e.g. parental education, parental occupation, parental income – and for family structure – e.g. the timing and type of changes in family structures across childhood. It turns out that no survey programmes have good indicators for all relevant aspects of childhood disadvantage, and that different survey programmes include different types of childhood indicators. The ESS, for instance has information on both parents' educational attainment and their occupational class, but not on childhood family structure. The GGP has information on parental education and on family structure at age 15, but not on parental occupations. SHARE has the most complete set of information, albeit only in its SHARELIFE module, but has the drawback that it focusses on people aged 55 and over and thus excludes relatively young cohorts. Selecting dependent variables of interest also pose a challenge. The best types of indicators for demographic decision-making during young adulthood are based on data about the month and year in which important life events, such as leaving home, union formation and childbirth, occurred. EVS, ESS and SHARE do not routinely include that kind of information. Only the GGP routinely includes rich information on the demographic life course. Fortunately, the LIFETIMING module included in the ESS rounds 3 and 9 and the SHARELIFE module incorporated in SHARE do have information on the year in which important demographic events occurred as well, resulting in a somewhat broader set of options to test key hypotheses on the relationship between childhood disadvantage and adult outcomes.

A *third* challenge is to find good indicators for national-level indicators to explain cross-national differences in the strength of the relationship between childhood disadvantage and adult outcomes. Here problems arise both with respect to the set of countries for which indicators have to be available and with respect to the time frame to which these indicators refer. International comparative economic indicators are easiest to obtain, as these are often regularly published by national governments and collected – and if necessary harmonized – by international institutions like the EU, the OECD and the UN. This is particularly true for very general indicators like GDP and level of unemployment. More specific indicators focusing on young adults – like the level of youth unemployment – are often already harder to obtain. The same situation exists for institutional indicators, with general information on expenditures on social benefits being relatively easy to obtain, but with more specific information on institutional arrangements – like on eligibility of young adults for social benefits – being very hard, or even impossible to obtain. The fact that this type of institutional data is so hard to obtain often leads researchers to use rather crude categorical welfare state categorizations in their comparative research. The biggest challenge in this regard is to obtain internationally comparative cultural

indicators. Such indicators – like the level of individualization or the level of secularization – generally are not available from national government sources. One solution is to use more objective indicators as proxies for more subjectively-based cultural factors. For instance, one can use the divorce rate or the proportion of single-person households as indicators for the level of individualization of country-contexts. Another solution is to use information from internationally comparative surveys like the ones discussed above and aggregate data to the country level. For instance, one could use information from the ESS on how much individuals value autonomy to calculate the overall level of individualization in a country, by aggregating the individual-level scores to the country level, and rank order the countries.

Unfortunately, there is another issue in finding good indicators for national-level indicators that is even more daunting. If one wants to examine whether a cross-national indicator moderates the individual-level relationship between childhood disadvantage and adult outcomes, one has to decide on the proper period to which this country-level indicator should refer. For instance, if one wants to examine whether the relationship between experiencing a parental divorce during childhood and the timing of marriage is moderated by societal norms about divorce, one probably would want these societal norms to be measured during the respondent's adolescence. In particular for older cohorts – basically all cohorts born before 1965 – such information is hard to come by. The EVS is the cross-national survey with information on values that goes back in time the farthest, with its first round of data being collected in 1981. However, Eastern European countries only started to participate in the EVS from 1990 onwards. As a result, in practice one often has to settle either for proxies – e.g. the crude divorce rate during respondents' adolescence – assuming that this proxy still sufficiently captures the concept one is interested in, or for measures obtained at a much later point in time – e.g. aggregated responses to questions on the societal acceptance of divorce obtained from the ESS in 2006 – assuming that the rank-ordering of countries in 2006 still sufficiently mirrors their rank-ordering at the time that respondents were adolescents. It is clear that both approaches have major limitations, but unless one is studying very young cohorts that have experienced adolescence after 2000, the choice boils down to either not using any cross-national indicator at all or using an imperfect one.

A *fourth* and final challenge is which type of analytical approach to use to test cross-national hypotheses. Even if data from international survey programmes are used, the total number of countries involved is often still relatively limited. Although multi-level analysis with individuals being nested within countries is usually viewed as the most appropriate approach (Van de Vijver et al. 2008), this approach has recently been criticized as being problematic when the number of countries being involved is smaller than 25 (Bryan and Jenkins 2016). As an alternative, meta-analysis and meta-regression could be used. The rationale for this alternative approach and an application of it to country-level analysis is presented in Chap. 6 of this book.

The CONOPP project has dealt with these four challenges in multiple ways. First, most of our studies test the Contexts of Opportunity hypothesis using data collected in the GGP, as this dataset includes a large number of countries, has large

sample sizes, has rich information on young adults' demographic decisions, and includes information on parental education and on family structure during childhood. Some studies on young-adult demographic outcomes used data from ESS as it allowed to include a larger number of countries. However, both the number of respondents per country and the extent of information on demographic events are smaller than in the GGP. In addition, one of the studies on later-life outcomes combined information from GGP with data from SHARELIFE and the British Household Panel Study (BHPS). Second, given that parental education was the most widely available indicator in the GGP and was also included in other comparative datasets, parental education was generally used as the main indicator for childhood disadvantage. Another key indicator was whether parents had experienced a divorce before age 15. In addition, some studies used information from the ESS on parental occupation in addition to information on parental education. Third, our approach to including country-level indicators was highly pragmatic. As many of the CONOPP studies examined behaviors that occurred in the quite distant past (1970s–1990s), high-quality country-level indicators were generally not available for this time period or were available for only a subset of countries. For instance, economic and institutional indicators might be available for Western European countries, but not – or constructed in incomparable ways – for Eastern European countries. The general rule used was to opt for indicators that came at least pretty close in their timing to the period in which most of the respondents experienced the relevant processes under consideration. Sometimes only specific cohorts for which country-level data was available for the relevant time period were included in studies. Finally, most of the analyses reported in CONOPP studies focused on less than 25 countries, and therefore used meta-analysis and meta-regression to test the Contexts of Opportunity hypothesis. However, if the number of countries allowed it, some studies used multi-level analysis instead. Finally, a few studies used a country fixed-effects model in which no country-level variables were included, but in which it was only examined whether the direction of country differences was in line with expectations based on our hypothesis.

## 9.4 A Summary of Key Results of the CONOPP Project

Fifteen different studies within the CONOPP project have examined cross-national differences in the relationships between childhood disadvantage, young-adult demographic decisions and later-life outcomes. Their results and their relationship to the Contexts of Opportunity hypothesis will be discussed. I will focus on two aspects. First, I discuss whether we find evidence for cross-national differences in the strength of the substantive relationships at stake. Second, I examine whether the variation in the strength of these relationships is related to differences between countries in the opportunities they offer to escape social disadvantage. Table 9.1 offers an overview of these 15 studies and provides information on their central independent and dependent variables, the number of countries involved, and their

**Table 9.1** An overview of key characteristics and results of cross-national studies conducted within the CONOPP project

Study	Topic	# Countries	Key findings
Brons et al. (2017)	Parental SES & first union timing	25	Significant country variation. Weaker effect if cohabitation is more common, weaker effect if age norms on leaving home are stronger
Brons et al. (2017)	Parental SES & choice between marriage and cohabitation	25	Delaying effect of parental SES stronger for marriage. Weaker effects if own educational level is included. Country differences result from differences in educational attainment between countries
Brons (2020) – Chap. 3	Parental education & first marriage timing	20	Significant country variation. No clear country pattern
Härkönen et al. (2020)	Parental separation & choice between marriage and cohabitation	15	Significant country variation. Weaker effect on the risk of cohabitation, the more common non-marital births are
Härkönen et al. (2020)	Parental separation & first marriage timing	15	Significant country variation. Weaker effect if non-marital births are more common
Koops (2020) – Chap. 4	Parental education & starting a union while pregnant	18	Significant country variation. Stronger effect if less conservative family norms
Brons and Härkönen (2018)	Parental education, parental separation & union dissolution	17	Significant country variation for parental education. Weaker effect if divorce rate is higher.
Koops et al. (2017)	Parental education & births in cohabitation	16	Significant country variation. Stronger effects in North America and Eastern Europe
Koops (2020) – Chap. 3	Parental education & births in cohabitation	19	Significant country variation. Weaker effect if countries more advanced in SDT. Small effect of GINI
Koops et al. (2017)	Parental education & births while single	16	Significant country variation. Stronger effects in North America
Koops (2020) – Chap. 4	Parental education & births while single	18	Significant country variation. Stronger effects if contraceptive use in countries is higher
Mooyaart (2019) – Chap. 3	Parental education & family formation pathways	4	SDT-like trajectories more common among high SES, single parenthood among low SES. Differences increase over cohorts.
Han (2020) – Chap. 4	Parental divorce & family formation pathways	6	Parental divorce increases risk of non-traditional patterns in all countries, but specifics depend on SDT advancement of countries.

(continued)

**Table 9.1** (continued)

Study	Topic	# Countries	Key findings
Zoutewelle-Terovan and Liefbroer (2018)	Off-time life events & later-life loneliness	12	Non-events and delayed events lead to more loneliness. Significant country variation. Stronger effects in more traditional countries.
Muller et al. (2020)	Family trajectories & later-life employment and earnings	22	Significant country variation. Smaller differences in labour market outcomes by family trajectories if FLFP is more common

key results, ordered by dependent variable. An additional table (Table 9.2) provides an overview of studies conducted within the CONOPP project that focus on the mechanisms linking childhood disadvantage and young-adult demographic outcomes (six studies) or on methodological contributions in studying these processes (four studies).

A *first* finding of the studies is that childhood disadvantage mattered for all adult outcomes studied. Compared to their peers from higher SES backgrounds, young adults from lower SES backgrounds start partner relationships (both unmarried cohabitation and marriage) earlier, are more likely to opt for cohabitation as their first type of union, are more likely to have their first child within a cohabiting union or while being single, and are less likely to enter a union if they have conceived a child while being single. Young adults from lower SES backgrounds are also more likely to follow family trajectories in young adulthood that include long spells of single parenthood than their counterparts from higher SES backgrounds. At the same time, young adults from lower SES backgrounds are less likely to dissolve unions than young adults from higher SES backgrounds. But the long arm of childhood disadvantage even reaches into older adulthood, with higher levels of loneliness, lower levels of employment and lower incomes among adults from lower SES backgrounds than children from higher SES backgrounds. Whether adults had experienced parental separation during their childhood also mattered. Compared to young adults who grew up with both biological parents, young adults who had experienced a parental separation were more likely to opt for cohabitation, were more likely to postpone or forego marriage, were more likely to experience divorce themselves, and more likely to opt for family trajectories that entail less family commitment.

Do these differences matter? Not necessarily. However, early union formation, unmarried cohabitation, births outside a stable union, births in cohabitation, divorce, and family trajectories with long spells of single parenthood are factors that – in many societies – put people at increased risks of experiencing socio-economic and socio-emotional deprivation (Hobcraft and Kiernan 2001). In that respect, these studies suggest that adults from disadvantaged families are at a much higher risk of experiencing these negative life outcomes than adults from more advantaged



**Table 9.2** An overview of key characteristics and results of additional studies conducted within the CONOPP project

Study	Topic	Key findings
Billari et al. (2019)	Mechanisms linking parental SES and demographic events in three countries	Parental SES influences timing via socialization, opportunity and agency. Mechanisms generally are the same across countries
Mooyaart and Liefbroer (2016)	Cohort change in the link between parental SES and first union timing in the Netherlands	Effect changes little over cohorts. Stronger effect on first marriage than on first union. Effect wanes with age.
Mooyaart et al. (2019)	Childhood disadvantage, young adult trajectories and obesity in the USA	Traditional family trajectories increase risk of obesity. Effect parental SES partially mediated by family trajectories
Mooyaart (2019) – Chap. 4	Childhood disadvantage, young adult trajectories and earnings in the USA	Family and employment trajectories in early adulthood partially mediate effect of parental background factors on earning in early 30s
Keijer et al. (2016)	Links between parental economic and cultural status and adolescents' life-course preferences in the Netherlands	Stronger effects of cultural status than of economic status. Effects mediated by parents' preferences and children's level of education
Keijer et al. (2018)	Role of value transmission and modelling in explaining adolescents' timing of life plans in the Netherlands	Both value transmission and modelling are important predictors of the timing expectations of adolescents. No differences by gender of parent or gender of child.
Studer et al. (2018)	Development and illustration of Competing Trajectories Analysis (CTA)	CTA facilitates comparison of life trajectories whose structure is strongly influenced by differences in the timing of events.
Han et al. (2017)	Comparing sequence analysis and latent class analyse to analyse life-course trajectories	Best practices for both methods are discussed and results compared. Differences between both methods seem to be limited
Han et al. (2020)	Applying Hidden Markov models to model life-course processes	Hidden Markov models can be used to examine how social background factors influence different phases of the transition to adulthood
Han (2020) – Chap. 5	Applying Hidden Markov models to model interrelationship between life-course domains	Hidden Markov models can be used to model the interrelationship between family and work trajectories and how these vary by social background

families, and that part of these differences may result from differences in their demographic choices in young adulthood.

A second finding of these studies is that the strength of the relationship between childhood disadvantage and young-adult demographic outcomes shows cross-national variation for almost all indicators that were examined. This is strong evidence that context matters. In some instances, childhood disadvantage mattered in all countries, but only the extent to which it mattered differed across countries. In other instance, childhood disadvantage mattered in some countries, but did not

influence demographic decisions in other countries. The relationship between family trajectories and later-life outcomes also turned out to vary considerably across countries. Taken together, this strong cross-national variation in effect sizes suggests that we should be cautious in generalizing results on the consequences of childhood disadvantage found in one country context to other country contexts. Additionally, a number of studies also examined changes in the strength of the relationship between childhood disadvantage and adult outcomes more dynamically, by looking at changes within countries over time. Generally, these studies did not find evidence for change in the consequences of childhood disadvantage. Rather, within-country differences by social background were surprisingly stable over time.

A *third* finding of these studies is that some evidence was obtained that the cross-national variation observed could be related to country-level economic, cultural or institutional factors. The clearest evidence, in this respect, was found for cultural factors. The relationship between parental SES and the timing of first union was weaker in countries where cohabitation is more common and where age norms concerning leaving home are weaker. The relationship between parental separation and the risk of cohabitation and between parental separation and the timing of marriage are weaker the more common non-marital births are. The relationship between parental separation and young adults' own divorce is weaker in countries where divorce is more common. The relationship between parental education and having a birth in cohabitation is weaker in countries with less conservative marriage norms. The same is true for the relationship between parental education and starting to live with a partner among those who have become pregnant while living single. The relationship between non-normative family-life events and later-life loneliness was weaker in countries with less traditional value-patterns. All of these findings seem to suggest that childhood disadvantage seems to matter less in societies that are more advanced in terms of individualisation and in terms of spread of the SDT. The evidence for economic and institutional factors is much more limited. The relationship between parental SES and the choice between marriage and cohabitation is weaker once young adults' own educational level is taken into consideration, suggesting that the educational system may sometimes buffer the relationship between childhood disadvantage and adult outcomes. The relationship between women's family trajectories and later-life economic outcomes is weaker in countries where the female labour-force participation rate is higher, suggesting that institutional contexts where female labour force participation is more accepted – and potentially also better supported – reduce inequalities based on different family-life trajectories.

## 9.5 Contexts of Opportunity? An Assessment of Results and Future Outlook

The findings from the CONOPP project show that childhood background is strongly related to a large variety of adult outcomes, and this is true in almost all country contexts and within countries over time. This is observed both for indicators of parental socio-economic status and for indicators of household structure during childhood. Demographic choices in young adulthood are thus clearly stratified, suggesting that individual choice in young adulthood very often is unequal choice. Although many CONOPP studies focussed on examining the extent of stratification of demographic choices across countries rather than on explaining this stratification, several of our studies did offer clues to why choice is unequal. An important avenue of stratification is the intergenerational transmission of educational opportunities. Children from disadvantaged parents are less likely to achieve high levels of education, and this low level of own achieved education increases the risk of disadvantage in adult life. But intergenerational transmission of educational opportunities is far from the full story. Children from disadvantaged and advantaged backgrounds also differ in their values, attitudes and life-course preferences as a result of socialization processes. Parents were found to transmit their own behaviors and preferences both deliberately and unintendedly. Furthermore, children from advantaged backgrounds were found to be better able to realize their preferences than children from disadvantaged background, suggesting that life-course agency is unequally distributed. Thus, several mechanisms lead to unequal choice in demographic behaviors and later-life outcomes. Given that these unequal choices and unequal outcomes can be traced back to inequality in childhood circumstances, they show that childhood disadvantage has pervasive consequences for adult life, even in societies that view themselves as being meritocratic and achievement-oriented.

In almost all instances, our studies found that the strength of the relationships varied by country context. This is a clear reminder that contexts matter for understanding demographic processes. This is something that researchers are keenly aware when studying levels of demographic indicators, but our studies show that the same is true for the strength of the relationship between demographic indicators and potential determinants. This is an area of demographic research where a lot of progress still can be achieved.

The variation in the strength of the relationship between childhood disadvantage and young-adult demographic outcomes often seemed to be related to country differences in cultural factors, like the level of individualisation of countries or the extent to which behaviors like unmarried cohabitation and divorce had diffused across countries. Probably, the importance of culture is the result of several, potentially interrelated processes. On the one hand, children who have experienced events that are often stigmatized, like a parental divorce or having been born outside of wedlock, may experience less stigma in individualized societies, and this may increase the likelihood that their behaviors as young adults may align with those of young adults who have not experienced these stigmatizing events. On the other hand, in individualized contexts, young adults from advantaged backgrounds – who

are more likely to be raised to make autonomous life choices – may be more inclined to opt for behaviors that used to be viewed as non-normative, such as unmarried cohabitation and having children outside marriage, as long as these behaviors are viewed as fitting a more individualized, less committal, lifestyle. As a result, the behaviors of those from disadvantaged and those of advantaged backgrounds may differ less from each other, the more individualized the country context is. These kinds of explanations are largely in line with what one would expect based on ideas from Second Demographic Transition theory.

We found only limited indications that cross-national differences in the relationship between childhood disadvantage and young-adult demographic choices were related to country-level economic and institutional factors. I am not convinced, though, that this implies that these kinds of factors are unimportant. A number of arguments to underscore this point of view could be put forward. First, the fact that it was hard to construct high-quality comparative indicators for relevant economic and institutional factors may have played a role. As mentioned earlier, it is particularly hard to find indicators that refer to the relevant periods in people's lives. Given that we used retrospective data, country-level indicators should often have been targeted to periods in the second half of the previous century to get a good fit, and for many countries these indicators were not available for these time-periods. In a number of studies, we restricted our analyses to relatively recent cohorts, but even in these instances, it was hard to find high-quality country-level indicators. A second reason is that economic, cultural and institutional country-level indicators are often highly correlated, making it hard to disentangle their effects. This problem is exacerbated by the fact that the number of countries included in the analyses is relatively small, making it empirically difficult to simultaneously estimate moderating effects of multiple country-level factors. However, this is not just an empirical problem. It is not by coincidence that – at the country level – economic prosperity, individualized value systems and relatively strong welfare state arrangement often are interlinked, whereas the same is true for the combination of economic waywardness, value systems emphasizing traditional family values and relatively weak welfare state arrangements. Although better measurements of these aspects certainly are needed, they will not be sufficient to convincingly disentangle these factors, and it could always be argued that a slightly different – but unfortunately not available – indicator would perform better. I am convinced that data and methods alone will not suffice, but that it is theoretical arguments about why a particular country-level aspect – or combination of country-level aspects – is important, in combination with empirical results underscoring these arguments, that decide on whether our explanations are more or less convincing. Thus, in the end, it is a critical debate about the most plausible explanations – backed up by data and models – that matters to advance our understanding of cross-national variation in the relationships between childhood disadvantage and adult outcomes. In my assessment, this implies that the verdict on the Contexts of Opportunity hypothesis is still open. Adults from disadvantaged backgrounds fare better in countries with better opportunities to counteract the potential negative consequences of childhood disadvantage. Our results suggest quite strongly that this is true for cultural opportunities to make

non-normative choices, but more evidence is still needed to underscore the claim that the same is true for economic and welfare state opportunities.

It was not possible to delve into all aspects of the relationship between childhood disadvantage and adult outcomes as deeply as I would have wanted. A number of issues definitely need more attention in future research. First, the role of gender could be examined more thoroughly. Are men and women equally impacted by childhood disadvantage? Several of our studies suggest that this is quite true for young-adult demographic choices, but we did not systematically examine this for all aspects. Second, more attention could be given to mediating factors in cross-national research. For instance, how much of the total effect of childhood disadvantage on adult outcomes is mediated by young adults' own educational attainment and how strongly does this mediation vary across countries? The role of parents' socialization practices may also be relevant in this regard. Part of the effect may be mediated by the extent to which parents emphasize control and autonomy in their socialization practices and the strength of this link may also differ across countries. Anyway, a better grasp on the extent to which the processes linking childhood disadvantage and adult outcomes vary across countries would be welcome. Third, more attention could be given to cohort changes within countries in the relationship between childhood disadvantage and adult outcomes. Most of our studies did not address this issue, but the few that did, did not show strong shifts across cohorts. One could argue that this underscores the thesis that childhood disadvantage remains an important dimension of inequality in modern societies. However, it does not sit easily with our arguments about cross-national differences. These arguments are often based on the assertion that countries are at different stages of developmental processes, like being in different stages of the Second Demographic Transition. If this is a viable explanation for these cross-national differences, it also implies that countries over time will move from one stage to another and that the same kind of patterns that are observed cross-nationally should be observed within countries over time. The fact that we – as yet – found little evidence to underscore this explanation at least sheds doubts on the generalizability of the arguments across time and place. Empirically, it would be interesting to analyse the role of the macro-context both across countries and across cohorts in one statistical model. Although this is possible in principle, it is quite daunting in practice. Estimation of such a cross-classified model is not easy, and it might be very hard to find macro-level indicators that both vary across countries and within countries at the same time. Still, it would be an important avenue for future research.

The CONOPP project clearly shows the long arm of childhood disadvantage. Children from low SES backgrounds and those who grew up experiencing parental separation on average are more likely to make demographic choices during young adulthood with potentially negative consequences for their economic or socio-emotional well-being and these effects can persist into later life. This does not imply that this is true for everyone. Many children who are classified as 'disadvantaged' do very well as adults and many who are classified as 'advantaged' do not. But on average, there is clear difference between both groups. Given that children cannot help the situation they encounter during childhood, this should be a concern to

politicians and policy makers. It would be important to shape the opportunity structures facing children and young adults who have grown up in disadvantaged situations in such a way that their life chances become more equal. Clearly, this project does not provide a recipe how this should be done. However, the Contexts of Opportunity hypothesis suggests that it is about making resources available to equalize life chances. Education is a powerful tool in this regard, but if success in the educational system itself is highly stratified this will only have limited impact. Therefore, it is important to weaken the reproduction of inequality that still is going on, often unconsciously, in the educational system. Furthermore, it is important to strengthen the resources available to families of disadvantage, in order to reduce the consequences of their own limited access to resources. Improving the economic situation of those who are disadvantaged is one clear example. However, strengthening resources is not just about strengthening economic resources available to children of disadvantage, but also about strengthening their cultural and psychological resources. It is about making adolescents and young adults resilient in dealing with misfortune and negative life events. Such a multifaceted approach may – over time – succeed in decreasing these inequalities and weaken the links between childhood disadvantage and poor adult outcomes.

**Acknowledgements** The research leading to these results has received funding from the European Research Council under the European Union’s Seventh Framework Programme (FP/2007-2013)/ERC Grant Agreement n. 324178.

## References

- Amato, P.R., N.S. Landale, T.C. Havasevich-Brooks, A. Booth, D.J. Eggebeen, R. Schoen, and S.M. McHale. 2008. Precursors of young women’s family formation pathways. *Journal of Marriage and Family* 70 (5): 1271–1286.
- Billari, F.C., and A.C. Liefbroer. 2010. Towards a new pattern of transition to adulthood? *Advances in Life Course Research* 15 (2–3): 59–75.
- Billari, F.C., N. Hiekel, and A.C. Liefbroer. 2019. The social stratification of choice in the transition to adulthood. *European Sociological Review* 35 (5): 599–615.
- Blossfeld, H.-P., E. Klijzing, M. Mills, and K. Kurz, eds. 2005. *Globalization, uncertainty and youth in society*. London: Routledge.
- Börsch-Supan, A., M. Brandt, C. Hunkler, T. Kneip, J. Korbmacher, F. Malter, B. Schaan, S. Stuck, and S. Zuber. 2013. Data resource profile: The Survey of Health, Ageing and Retirement in Europe (SHARE). *International Journal of Epidemiology* 42 (4): 992–1001.
- Brons, M.D. 2020. *Family background and union formation and dissolution processes. A cross-national perspective* (PhD thesis). Amsterdam: Vrije Universiteit.
- Brons, M.D., and J. Härkönen. 2018. Parental education and family dissolution: A cross-national and cohort comparison. *Journal of Marriage and Family* 80 (2): 426–443.
- Brons, M.D., A.C. Liefbroer, and H.B.G. Ganzeboom. 2017. Parental socio-economic status and first union formation: Can European variation be explained by the Second Demographic Transition theory? *European Sociological Review* 33 (6): 809–822.
- Bryan, M.L., and S.P. Jenkins. 2016. Multilevel modelling of country effects: A cautionary tale. *European Sociological Review* 32 (1): 3–22.

- Dobbelaere, K. 1981. Trend Report. Secularization: A multi-dimensional concept. *Current Sociology* 29 (2): 3–153.
- Esping-Andersen, G. 1990. *The three worlds of welfare capitalism*. Oxford: Polity Press.
- . 1999. *Social foundations of postindustrial economies*. Oxford: Oxford University Press.
- Feldhaus, M., and V. Heintz-Martin. 2015. Long-term effects of parental separation: Impacts of parental separation during childhood on the timing and the risk of cohabitation, marriage, and divorce in adulthood. *Advances in Life Course Research* 26: 22–31.
- Frick, J.R., S.P. Jenkins, D.R. Lillard, O. Lipps, and M. Wooden. 2007. The Cross-National Equivalent File (CNEF) and its member country Household Panel Studies. *Schmollers Jahrbuch: Zeitschrift für Wirtschafts- und Sozialwissenschaften* 127 (4): 627–654.
- Gauthier, A.H., S.L.F. Cabaço, and T. Emery. 2018. Generations and Gender Survey study profile. *Longitudinal and Life Course Studies* 9 (4): 456–465.
- Gelissen, J., and L. Halman. 2018. European values survey. In *The Blackwell Encyclopedia of Sociology*, 1–4. Malden: Wiley.
- Gorski, P.S., and A. Altinordu. 2008. After secularization? *Annual Review of Sociology* 34: 55–85.
- Han, S.Y. 2020. *Latent state models for classifying and explaining processes in young adults' life courses* (PhD thesis). Amsterdam: Vrije Universiteit.
- Han, S.Y., A.C. Liefbroer, and C.H. Elzinga. 2017. Comparing methods of classifying life courses: Sequence analysis and latent class analysis. *Longitudinal and Life Course Studies* 8 (4): 319–341.
- . 2020. Mechanisms of family formation: An application of hidden Markov models to a life course process. *Advances in Life Course Research* 43: 100265.
- Härkönen, J., and J. Dronkers. 2006. Stability and change in the educational gradient of divorce. A comparison of seventeen countries. *European Sociological Review* 22 (5): 501–517.
- Härkönen, J., M.D. Brons, and J. Dronkers. 2020. Family forerunners? Parental separation and partnership formation in 16 countries. *Journal of Marriage and Family*.
- Hobcraft, J., and K. Kiernan. 2001. Childhood poverty, early motherhood and adult social exclusion. *British Journal of Sociology* 52: 495–517.
- Kalmijn, M. 2007. Explaining cross-national differences in marriage, cohabitation, and divorce in Europe, 1990–2000. *Population Studies* 61 (3): 243–263.
- Keijer, M.G., I. Nagel, and A.C. Liefbroer. 2016. Effects of parental cultural and economic status on adolescents' life course preferences. *European Sociological Review* 32 (5): 607–618.
- Keijer, M.G., A.C. Liefbroer, and I. Nagel. 2018. Adolescents' expectations about the timing of family life events: Unraveling the role of value transmission and modeling. *Journal of Family Issues* 39 (15): 3755–3777.
- Koops, J.C. 2020. *Understanding nonmarital childbearing in Europe and North-America. The role of socio-economic background and ethnicity in different societal contexts* (PhD thesis). University of Groningen, Groningen.
- Koops, J.C., A.C. Liefbroer, and A.H. Gauthier. 2017. The influence of parental educational attainment on the partnership context at first birth in 16 Western societies. *European Journal of Population* 33 (4): 533–557.
- Lesthaeghe, R. 2014. The second demographic transition: A concise overview of its development. *Proceedings of the National Academy of Sciences* 111 (51): 18112–18115.
- Lesthaeghe, R., and D.J. Van de Kaa. 1986. Twee demografische transitie's? [Two demographic transitions?]. In *Bevolking: groei en krimp*, ed. D.J. Van de Kaa and R. Lesthaeghe, 9–24. Deventer: Van Loghum Slaterus.
- Mooyart, J.E. 2019. *Linkages between family background, family formation and disadvantage in young adulthood* (PhD thesis). University of Groningen, Groningen.
- Mooyart, J.E., and A.C. Liefbroer. 2016. The influence of parental education on timing and type of union formation: Changes over the life course and over time in the Netherlands. *Demography* 53 (4): 885–919.
- Mooyart, J.E., A.C. Liefbroer, and F.C. Billari. 2019. Becoming obese in young adulthood: The role of career-family pathways in the transition to adulthood for men and women. *BMC Public Health* 19 (1): 1511.

- Muller, J.S., N. Hiekel, and A.C. Liefbroer. 2020. The long-term costs of family trajectories: Women's later-life employment and earnings across Europe. *Demography* 57 (3): 1007–1034.
- Perelli-Harris, B., and T.P. Gerber. 2011. Nonmarital childbearing in Russia: Second demographic transition or pattern of disadvantage? *Demography* 48 (1): 317–342.
- Perelli-Harris, B., and M. Lyons-Amos. 2016. Partnership patterns in the United States and across Europe: The role of education and country context. *Social Forces* 95 (1): 251–281.
- Perelli-Harris, B., W. Sigle-Rushton, M. Kreyenfeld, T. Lappegård, R. Keizer, and C. Berghammer. 2010. The educational gradient of childbearing within cohabitation in Europe. *Population and Development Review* 36 (4): 775–801.
- Ruggles, S. 2014. Big microdata for population research. *Demography* 51 (1): 287–297.
- Schnaudt, C., M. Weinhardt, R. Fitzgerald, and S. Liebig. 2014. The European Social Survey: Contents, design, and research potential. *Journal of Contextual Economics – Schmollers Jahrbuch* 134 (4): 487–506.
- Sobotka, T. 2008. The diverse faces of the Second Demographic Transition in Europe. *Demographic Research* 19 (8): 171–224.
- Studer, M., A.C. Liefbroer, and J.E. Mooyaart. 2018. Understanding trends in family formation trajectories: An application of Competing Trajectories Analysis (CTA). *Advances in Life Course Research* 36: 1–12.
- Thévenon, O., and A.H. Gauthier. 2011. Family policies in developed countries: A 'fertility-booster' with side-effects. *Community, Work & Family* 14 (2): 197–216.
- Van Bavel, J. 2010. Choice of study discipline and the postponement of motherhood in Europe: The impact of expected earnings, gender composition, and family attitudes. *Demography* 47 (2): 439–458.
- Van de Kaa, D.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 (3): 389–432.
- Van de Vijver, F.J.R., D.A. Van Hemert, and Y.H. Poortinga. 2008. *Multilevel analysis of individuals and cultures*. New York: Lawrence Erlbaum.
- Wagner, M., and B. Weiß. 2006. On the variation of divorce risks in Europe: Findings from a meta-analysis of European longitudinal studies. *European Sociological Review* 22 (5): 483–500.
- Wolf, C., S.L. Schneider, D. Behr, and D. Joye. 2016. Harmonizing survey questions between cultures and over time. In *The SAGE handbook of survey methodology*, ed. C. Wolf, D. Joye, T.W. Smith, and Y.-c. Fu, 502–524. London: Sage.
- Wolfinger, N.H. 2000. Beyond the intergenerational transmission of divorce: Do people replicate the patterns of marital instability they grew up with? *Journal of Family Issues* 21 (8): 1061–1086.
- Zoutewelle-Terovan, M., and A.C. Liefbroer. 2018. Swimming against the stream: Non-normative family transitions and loneliness in later life across 12 nations. *The Gerontologist* 58 (6): 1096–1108.

**Open Access** This chapter is licensed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

