Linkages between family background, family formation and disadvantage in young adulthood

Mooyaart, Jarl Eduard

rijksuniversiteit groningen

Linkages between family background, family formation and disadvantage in young adulthood

Proefschrift

ter verkrijging van de graad van doctor aan de
Rijksuniversiteit Groningen
op gezag van de
rector magnificus prof. dr. E. Sterken
en volgens besluit van het College voor Promoties.

De openbare verdediging zal plaatsvinden op

woensdag 24 april 2019 om 12.45 uur

door

Jarl Eduard Mooyaart

geboren op 29 januari 1989
te Gouda

Promotores
Prof. dr. A.C. Liefbroer
Prof. dr. F.C. Billari

Beoordelingscommissie
Prof. dr. C.H. Mulder
Prof. dr. M. Kalmijn
Prof. dr. A. Berrington

Dedicated to my great-grandfather

dr. G.P. Frets

Honorary member of the

Nederlandse Vereniging voor Demografie

Publisher:

Koninklijke Van der Most BV

Europaweg 7

8181 BG Heerde

The Netherlands

ISBN: 978-94-034-1553-6

Acknowledgements

Looking back at where I was before this PhD and where I am now, it feels like a complete metamorphosis. Although doing a PhD on the transition to adulthood, while being in the middle of it myself, was quite confronting at times, I am very grateful for all this PhD has brought me. Also where it brought me, as this PhD has brought me to conferences in places that I will never forget, from San Diego to Lausanne.

After graduating with a master's degree, I was not sure whether I would ever be offered a PhD and whether I could do it. I want to thank the jongvolwassenen groep for helping me grow as a person, helping me be more confident about myself. I want to thank my former jobcoach Sabina Noordegraaff for her understanding and her help with arranging my first job at Nidi. Yet, there is only one person really responsible for me obtaining my PhD degree, my first supervisor, Aat Liefbroer. I will always be grateful for the chance you have given me to prove my capabilities as a researcher and ultimately offering me the PhD position. Not only did you help me develop as a researcher, you also are responsible for me getting me involved with other prominent researchers. You arranged that Francesco Billari would be my second supervisor and you also let me work together with Matthias Studer and yourself on a research paper. Starting with the first, I want to thank you, Francesco, for your inspiring ideas, helping me take my research to the next level. I also want to thank you for arranging my research stay at Nuffield College, giving me the Oxford experience. As for Matthias, I want to thank you for making me feel more confident as a sequence analysis researcher and for involving me in the sequence analysis community, which two times led to great conferences at amazing locations (I never get used to the beauty of Swiss lakes).

The environment at Nidi is also one of the reasons that has made my PhD a great memory. I want to thank all the members of the families and generations theme group and the

CONOPP team. It was a pleasure working with all of you. A special thanks to Anne Gauthier. You have been like a mentor for me, helping me getting teaching experience, helping me with applications, and ultimately helping me getting my position here at McGill University. I want to thank all my office mates, a special shoutout to Maria Eismann, Vesela Petricheva and Damiano Uccheddu for being amazing colleagues and office mates and the last one for also being a great paranymph. There are many more names I could include here, from academic colleagues to supporting staff, but let me just thank you all, for the great conversations, and wonderful times at outings and Christmas celebrations.

As if I was not lucky enough already with my supervisors, colleagues and collaborators, I was also lucky to be supported by a jobcoach throughout my period at Nidi. Thank you Patricia Koelewijn for basically being job and life coach in one. You were always there when I needed your help, even when I was in Oxford, which means a lot to me.

I would not take my own research seriously if I would not thank my family, especially my parents, brother and sister. Thank you for all that you have done to help me get where I am now. I am very grateful. I also want to thank my grandmother Joke Frets-Van Buuren, who sadly passed away during my PhD. Thank you for always believing in me. You have shown in your life what diligence, persistence and courage is, by completing a PhD as a woman and mother in the 1950s. Your example helped me get through the difficult times in my PhD.

Being allowed to do a PhD was a dream coming true, but during my PhD an even bigger dream came true. I was ever so lucky to meet a wonderful girl named Jin. I could not be more grateful for everything that you have given me, which is more than words can describe. A PhD degree is great, but you mean the world to me.

Jarl Mooyaart

Montreal, March 2019

TABLE OF CONTENTS

1. INTRODUCTION 11

1.1 THEORETICAL FRAMEWORK **15**
1.1.1 The link between socio-economic background and family formation 15
1.1.2 The link between socio-economic background and family formation change 19
1.1.3 Consequences of family formation on wellbeing 24

1.2 METHODOLOGY **27**

1.3 CHAPTERS OUTLINE **29**

REFERENCES **31**

2. THE INFLUENCE OF PARENTAL EDUCATION ON TIMING AND TYPE OF UNION FORMATION: CHANGES OVER THE LIFE COURSE AND OVER TIME IN THE NETHERLANDS 41

2.1 INTRODUCTION **42**

2.2 THEORY **44**
2.2.1 Parental Education and the Timing of Union Formation 44
2.2.2 Parental Education and the Choice Between Marriage and Cohabitation 46
2.2.3 Variability in the Influence of Parental Education 48

2.3 DATA & METHODS **52**
2.3.1 Data 52
2.3.2 Measures 53

2.4 RESULTS **61**

2.5 SUMMARY AND DISCUSSION **68**

REFERENCES **73**

APPENDIX **83**

3. THE CHANGING RELATIONSHIP BETWEEN SOCIO-ECONOMIC BACKGROUND AND FAMILY FORMATION IN FOUR EUROPEAN COUNTRIES 95

3.1 INTRODUCTION **96**

3.2 BACKGROUND **98**
3.2.1 Structuring the family formation process 98
3.2.2 Socio-economic background and the family formation process 99
3.2.3 Change over time 102

3.3 DATA & METHODS **105**
3.3.1 Data 105

3.3.2 Analytical strategy ... 107

3.4 RESULTS ... **109**
3.4.1 Family formation pathways ... 109
3.4.2 Results by country ... 110

3.5 DISCUSSION ... **123**

REFERENCES ... **127**

APPENDIX ... **135**

4. BORN TO BE RICH? THE INFLUENCE OF FAMILY BACKGROUND AND LIFE-COURSE PATHWAYS ON THE INCOME TRAJECTORIES OF YOUNG ADULTS ... 139

4.1 INTRODUCTION ... **140**

4.2 BACKGROUND ... **144**
4.2.1 Family background ... 144
4.2.2 Emerging adulthood ... 146
4.2.3 Income development in young adulthood ... 150
4.2.4 Gender ... 151

4.3 DATA AND METHODS ... **152**
4.3.1 Data ... 152
4.3.2 Family background measures ... 153
4.3.3 Pathways during emerging adulthood: sequences, distance, and clustering ... 154
4.3.4 Grade of Membership ... 156
4.3.5 Income trajectories during young adulthood: growth-curve modeling ... 158

4.4 RESULTS ... **159**
4.4.1 Family background ... 159
4.4.2 Men ... 164
4.4.3 Women ... 174
4.4.4 Comparisons with categorical indicators of pathways ... 183

4.5 SUMMARY AND DISCUSSION ... **184**

REFERENCES ... **190**

APPENDIX ... **201**

5. BECOMING OBESE IN YOUNG ADULTHOOD: THE ROLE OF CAREER-FAMILY PATHWAYS IN THE TRANSITION TO ADULTHOOD FOR MEN AND WOMEN ... 217

5.1 INTRODUCTION ... **218**

5.2 DATA & METHODS ... **222**
5.2.1 Data ... 222
5.2.2 Obesity ... 222

5.2.3 Multichannel analysis of career-family sequences 223
5.2.4 Family background and control variables 226
5.2.5 Analytical strategy 227

5.3 RESULTS **228**
5.3.1 Descriptive results on the transition to adulthood 228
5.3.2 Multivariate analysis 233

5.4 DISCUSSION **237**

REFERENCES **239**

6. CONCLUSION AND DISCUSSION 247

6.1 SUMMARY OF FINDINGS **248**

6.2 DISCUSSION OF FINDINGS **256**
6.2.1 The lasting influence of parental socio-economic status on family formation 256
6.2.2 The role of family formation in the intergenerational transmission of (dis)advantage 259
6.2.3 The importance of life courses and how to capture them 265

6.3 LIMITATIONS **269**

6.4 FUTURE RESEARCH **271**

REFERENCES **274**

NEDERLANDSE SAMENVATTING (SUMMARY IN DUTCH) 281

CURRICULUM VITAE 291

1. Introduction

Family change has been an important driver of the rise of socio-economic inequality in Western societies (Amato et al. 2015; Anon 2018; Putnam 2015). In all Western societies there have been increases in unmarried cohabitation, the number of children that are born outside of marriage, and divorce (Lesthaeghe 2010; Perelli-Harris et al. 2010; Shanahan 2000). According to the "Diverging Destinies" theory, single parenthood and divorce have particularly increased among the lower social strata, leading to increasing disadvantage for children born in low educated families (McLanahan 2004). While much research has focused on the intergenerational transmission of social status and children's socio-economic outcomes, this dissertation focuses on the influence of family background on the way people form their own families. Understanding family formation is important as it may form the foundation for how social inequality is passed on to the next generation. This dissertation aims to increase the understanding of how the relationship between family background and family formation has changed over time, and how family formation today is linked to advantage and disadvantage.

William J. Goode once predicted that with the increasing development of societies, the number of arranged marriages would decrease, indicating that the influence of parents on their children's family formation patterns would also decrease (Goode 1963). However, even if in line with Goode's prediction the influence of parents may have decreased, this does not mean that social background no longer has a large influence on family formation behavior. Yet, theories on family formation change pay relatively little attention to the role of family background. Furthermore, studies usually focus on someone's own socio-economic position at the moment of entering family formation, with limited attention to the influence of characteristics of the parental home. However, the literature on social mobility shows that

individuals with higher educated parents are (still) much more likely to become highly educated compared with those with lower educated parents (Bar Haim and Shavit 2013; Breen and Jonsson 2005). If the parental home remains to have such a strong influence on education, it is also likely to have a strong impact on other domains of life, such as family formation. More generally, just as educational level mediates the impact of parental education on career success, family formation may play an important role in the intergenerational transmission of (dis)advantage.

To contribute to our understanding of these issues, this dissertation covers two main research questions. The first research question is: How has the relationship between socio-economic background and family formation developed over time? The second research question is: What are the consequences for the individual of choosing a particular family formation pathway? In answering these questions, I adopt a life-course perspective (Elder 1994), in which family formation is considered as a process rather than it being split into single events. In this perspective, events in family formation have to be studied in relation to one another as the linkages between the events constitute what family formation entails. Furthermore, this dissertation takes into account that life courses take place within a context and that lives are interdependent. I examine how characteristics of the lives of one's parents impact one's own family life-courses and early adult life-outcomes. My main focus is on the role of parental education, although in two Chapters (4 and 5) I also examine the role of childhood family structure, parental income and racial background. Furthermore, a particular innovation of this dissertation is that it also examines to what extent the impact of the parental home has changed over time in different contexts.

Another contribution of this dissertation is that I measure the impact of family formation by linking it to indicators of subsequent wellbeing. The consequences of specific family formation patterns are often unclear. For instance, someone who gets married and has children

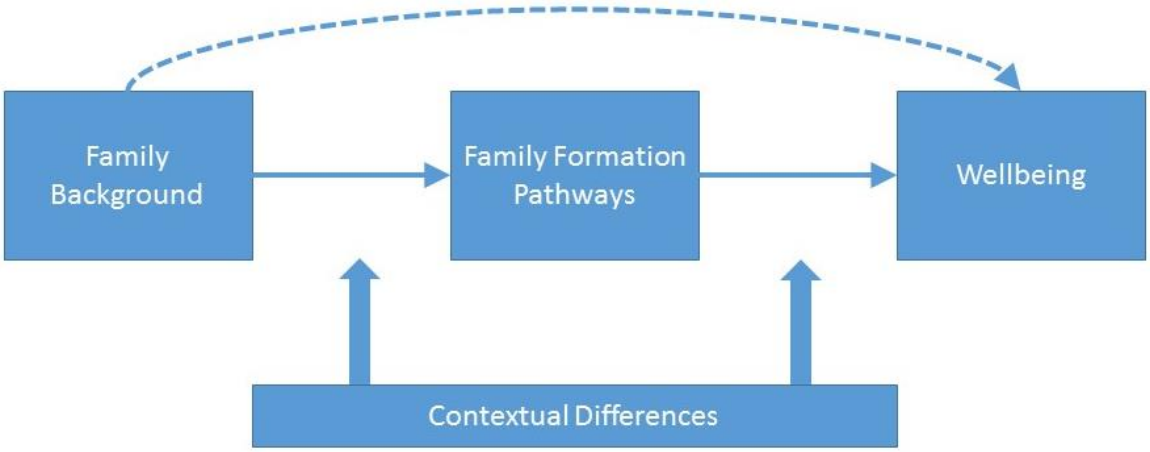
does not necessarily have a better quality of life compared with someone who remains single. There is research indicating that some family formation patterns, such as childbirth outside of marriage, are related to disadvantage (Mclanahan 2004; Perelli-Harris and Gerber 2011). However, most research on family formation does not reveal explicit linkages between family behavior and subsequent wellbeing, and when it does, it usually investigates the impact of one particular element of the family formation process, rather than investigating how family formation pathways as a whole impact wellbeing later in the life-course. Naturally, there is an abundance of indicators of wellbeing, some subjective and some more objective, which cannot be covered in a single dissertation. In this dissertation, I chose to study more objective indicators of wellbeing, as I want to unravel how family formation patterns are related to advantage and disadvantage in important life domains. Therefore, I link family formation patterns to two specific life-outcomes in young adulthood: income (economic outcome) and obesity (health outcome).

Figure 1 displays the theoretical model that underlies the structure of the dissertation. The figure represents the linkages between family background, family formation pathways and wellbeing, in which family formation pathways are expected to mediate the relationship between social background and wellbeing in (young) adulthood. The strength of all linkages may depend on the context, in which I consider differences both between countries and over time (period). Social background refers mainly to the socio-economic background, captured by socio-economic status of the parents, but in Chapters 4 and 5 I also include childhood family structure and racial background. Family formation pathways refer to how individuals start their own families and do not (necessarily) cover their whole family trajectory across the life-course. Finally, wellbeing in this dissertation is captured by more objective indicators that are associated with (dis)advantage rather than by subjective wellbeing. While there are many indicators to choose from, I chose to examine financial security and health. My first research

question on how the relationship between socio-economic background and family formation has evolved over time relates to the left side of the model. My second research question on the consequences for the individual of choosing a particular family formation pathway is covered on the right side of the model.

The outline of the remainder of this chapter is as follows. First, I discuss the theoretical framework of this dissertation, which will be split in three parts; mechanisms on how socio-economic background influences family formation, changes over time in the link between socio-economic background and family formation, and consequences of family formation for wellbeing. Second, I discuss the methodological approach used in this dissertation. Finally, I outline the chapters of this dissertation.

Figure 1 Theoretical model



1.1 THEORETICAL FRAMEWORK

1.1.1 The link between socio-economic background and family formation

Research has demonstrated that in most Western countries socio-economic background influences family formation. Young adults with a high socio-economic status (SES) background are more likely to postpone family formation events than young adults with a low SES background. This is true for entry into cohabitation, but even more so for entry into marriage and parenthood (Anne Brons, Liefbroer, and Ganzeboom 2017; Koops, Liefbroer, and Gauthier 2017; Sassler, Addo, and Hartmann 2010; Wiik 2009). Furthermore, young adults of lower social background have a higher chance of becoming parents outside of marriage, in particular when single parenthood is concerned (Amato et al. 2008; Koops et al. 2017). Multiple explanations have been suggested as to why family formation patterns are different for those from high and low socio-economic background. Many of these explanations point to differences between social classes in the way that they socialize their children and in the resources they can provide them.

Keijer et al. (2018) distinguish two ways in which social background can influence the family formation behavior of the children later in life. First, through the transmission of family values. Research demonstrates that the attitudes of parents and their children on marriage, fertility and divorce are often similar (Axinn and Thornton 1993; Musick 2002). Keijer, Liefbroer and Nagel (2016) show that highly educated parents often have higher age expectations regarding marriage for their children, and that children's own preferences for the timing of family formation are therefore also at a higher age than those of children with lower educated parents. Second, social background can impact family formation of the children through parents serving as a role model for their children's family formation behavior. High socio-economic status (SES) parents are less likely to have entered marriage at a young age.

On the other hand, low SES families generally have their children earlier, in some occasions even in their teens, making their children themselves also more likely to experience childbearing early (Barber 2000). There is a strong link between marital and fertility timing of the parents and that of their children (Axinn and Thornton 1993; Barber 2001), but also more in general family pathways that are similar between parents and children (Fasang and Raab 2014; Liefbroer and Elzinga 2012).

Preferences of parents and children may not always be easily distinguishable, but there are some preferences that could be considered as the youth's own, such as preferences around partner choice. According to marriage market theory, individuals differ in their desirability based on their social status, with individuals of high SES families being more desirable because of their SES background than those from a low SES background (Oppenheimer 1988). At the same time, individuals usually choose to marry someone with similar social background and social status (Kalmijn 1998). Those who are more desirable on the marriage market may be less inclined to marry early because they want to search for a high status partner, who are more scarce on the market, leading to the postponement of family formation (Oppenheimer 1988). Individuals from high SES background may also be more reluctant to marry straight away, because they want to take more time to be sure that the partner is the right one. Rather, they may first cohabit with their partner and only when they think that they are ready for the next step, proceed to marriage and having children. This kind of cohabitation is referred to as a "trial marriage" (Hiekel, Liefbroer, and Poortman 2014). On the other hand, individuals from disadvantaged background may have lower expectations and aspirations with respect to their partner and therefore proceed faster with family formation.

The transmission of family values through socialization is not the only mechanism linking social background to family formation. There are general differences in preferences and aspirations between those of high and low social SES background, which ultimately result

in different family formation pathways. Education and career aspirations play an important role. High status parents motivate and support their children to be successful in education in order to facilitate their later careers, helping them to maintain their social status throughout their lives in order to avoid downward mobility (Breen and Goldthorpe 1997). This does not imply that low educated parents do not wish their children to be successful in education, but rather that the aspirations of low educated parents are lower than those of high educated parents. As a result, low educated parents may push their children less towards attending higher education (Breen and Goldthorpe 1997), making children of high status more likely to stay longer in education than children of low social background. These educational differences also result in differences in family formation. Family formation usually starts after exiting the educational system. Staying in education serves as a moratorium preventing family formation, as evidenced by the fact that marriage and fertility rates are higher for those out of the educational system than for those still in it (Blossfeld and Huinink 1991a; Thornton, Axinn, and Teachman 1995). In sum, children from high social origin often are more successful in education, making them more likely to postpone family formation, whereas youths from disadvantaged social origin may more often enter family formation at a young age as an alternative to pursuing higher education (Amato et al. 2008).

Next to socialization differences in preferences and aspirations, resources and constraints are also important in explaining social background differences in family formation. Wealthy parents can help their children facilitate the transition to married life (Avery, Goldscheider, and Speare 1992), for instance by helping their children purchase a house (Helderman and Mulder 2007). Differences in educational outcomes can also be explained from a resource perspective. High SES parents are more likely to invest in their children's education making them more likely to become highly educated (Acemoglu and Pischke 2001). There are also theories as to why children from higher socio-economic background fare better

in the education system. Best-known is the theory of Bourdieu, for whom children of higher SES background possess more cultural capital (tastes, preferences and language use) than children of lower SES background. This helps the former to navigate the educational system better than the latter (Bourdieu and Passeron 1990). A study conducted by Lareau (2006) reaches a similar conclusion, but focuses on the way that children from middle and lower classes are raised, and how middle class children are raised in a more structured and empowering way that facilitates their educational and later career success. Thus, as advantaged children are provided with more resources to support their educational careers, disadvantaged children are more left on their own in terms of their educational attainment. Yet, even if children from low social background have received sufficient grades to enter university, they may still be less likely to do so compared with children from high SES background, because of lack of financial resources. Thus, disadvantaged children are not only less motivated or willing to continue in education, but also less able. As mentioned above, the lower likelihood to stay in education makes them more likely to enter family formation early.

Resources related to the parental home can also influence the family formation process. Children of high SES may be less inclined to leave the parental home and start a family of their own, because the circumstances are good and also their consumption aspirations are higher. So they might only want to leave the parental home when they have reached the point in their lives in which it is possible to afford the life-style of their parents (Avery et al. 1992; Easterlin 1980). On the other hand, children raised in poverty may take on every opportunity to leave the parental home, including living with an unstable partner, as this may still be better in terms of psycho-social conditions than staying in the parental home (Gierveld, Liefbroer, and Beekink 1991). Leaving the parental home abruptly may also result in entering a cohabiting relationship prematurely, which could be the start of a more unstable cohabiting relationship pattern.

Constraints can also influence the preferences of children. Disadvantaged youths may feel that a high-status job is unachievable for them and may therefore drop out of school. Furthermore, disadvantaged youths are more likely to engage in risky sexual behaviors, such as having unprotected sexual intercourse, thereby having a higher risk of becoming pregnant (Miller 2002). Friedman, Hechter & Kanazawa (1994) describe how youths instead of their career may focus on family formation. Disadvantaged youths may feel that while being successful in education is impossible, they can achieve starting a family. Edin and Kefalas (2005) describe how disadvantaged teenagers in the United States, even though they know that becoming a parent at a young age with an unstable partner is risky, may prefer to have a child as this is a goal within their reach. Thus, perceived barriers may alter youths expectations on what is an attainable family pathway for them.

In sum, there are multiple mechanisms through which social background can have a pervasive impact on social background. The focus of this dissertation will however not be on testing specific mechanisms, but rather on measuring the impact of social background on family formation and life-outcomes in young adulthood. Instead, a prime focus of this dissertation is to what extent the influence of socio-economic background has changed over time. I will discuss this issue in the next section.

1.1.2 The link between socio-economic background and family formation change

The most influential theory that describes why changes in family formation have occurred is the Second Demographic Transition theory (from now on SDT), first posited by Lesthaeghe and Van de Kaa (1986). As the name suggests, the second demographic transition occurs after

the first demographic transition. The first demographic transition links modernization and the decline of mortality as a result of medical advancement and improved hygiene in societies with a sharp decline in fertility (Kirk 1996). According to the SDT theory, a second transition occurs after societies develop a welfare state, in which economic safety is guaranteed for a vast majority of the population. This allows individuals to make choices independently and more focused on their own needs, rather than being constrained by social institutions or family obligations. Key changes in family formation include the postponement and the decline of marriage, postponement and decline of fertility and the rise of couples living together unmarried. International research on this topic has demonstrated that very many Western countries these changes indeed occurred (Heuveline and Timberlake 2004; Kiernan 2004; Sobotka and Toulemon 2008)). Lesthaeghe and colleagues describe the cultural change underlying the family life changes as a Maslowian drift; if human beings are provided in their most basic needs, they have more room for developing their own goals and aspirations, also referred to as self-realization (Lesthaeghe 2010). This process can be described as an increasing individualization of society and according to the theory it is this cultural shift that made people opt for different ways to start and maintain family life. While the SDT theory focusses on individualization, the theory does acknowledge other cultural and structural changes in society that can have an impact on family change, including secularization, the reduced power of the Church on family life, educational expansion, allowing more people to liberate themselves from more traditional ways of thinking, technological development (UID, contraception), providing humans better tools to plan fertility, and feminism, empowering women in making more independent decisions regarding their family life (Lesthaeghe 2010).

According to the SDT theory, the highly educated are the frontrunners of family formation change as they are more liberal and therefore more inclined to part with existing traditions in a society if this suits them. This also implies that children of the highly educated

are subsequently more likely to choose for new family formation pathways as their parents have more liberal views on family formation. The idea of the SDT theory is that while family formation changes may at the start only be visible among the higher social strata, eventually change diffuses across all layers of the society. Thus, according to the SDT theory the impact of SES background would increase at the early stages of the SDT, but then decrease as family formation behavior becomes more common and accepted among all members of the society. Although not explicitly mentioned in the theory, its emphasis on individualization implies that individuals will increasingly make important life decisions, such as when and how to start a family, on their own and be less influenced by third parties such as parents, family or social institutions. Thus, from the perspective of family change as portrayed by the SDT theory, one would expect the influence of SES background to become the weaker, the more attitudes and behaviors related to the SDT permeate societies.

There are, however, also indications that the impact of SES background has not decreased, or that it has even increased, in Western societies. The link between social class and divorce could be an explanation for increasing social class differences in family formation. The SDT theory describes the rise of divorce as one of the major changes that occurred as part of this transition. However, the SDT theory itself does not link divorce with social class. The relationship between divorce and social class has changed over time, as first the higher social classes were more likely to divorce, while more recent studies show that it is the lower social classes that have become the most likely to experience divorce (De Graaf and Kalmijn 2006; McLanahan and Jacobsen 2015). This means that children growing up in low SES households are more likely to experience parental divorce and thus the disadvantages stack up for the disadvantaged children. McLanahan (2004) describes this process in the United States, and calls “Diverging Destinies” the phenomenon of lower SES background increasingly experiencing marital dissolution and living with single parents over the years, implying that

the changing family patterns between the high and low social classes may play an important role in exacerbating social class inequality. The higher likelihood of lower-class children to experience parental divorce may also play a role in family formation differences between social classes once these children have reached adulthood. Research on the impact of parental divorce on the family formation behavior of children demonstrates that children of divorced parents are less likely to marry, but that they cohabit earlier compared with those from intact homes (Härkönen, Bernardi, and Boertien 2017; Wolfinger 2005). Thus, children from lower SES background may partly display different family formation behavior compared with their peers from higher SES background, because of their higher likelihood of having experienced a parental divorce, which was less the case in the decades before.

The Diverging Destinies narrative resonates with a common criticism on SDT theory, i.e. that SDT theory only considers cultural change and neglects differences in economic circumstances across time and place (Zaidi and Morgan 2017). Perelli-Harris and colleagues claim that those with little economic resources choose unmarried cohabitation and childbearing outside of marriage over married family life not because they prefer to, but rather because they do not have the resources to marry (Perelli-Harris et al. 2010; Perelli-Harris and Gerber 2011). The Pattern of Disadvantage (PoD) theory, as it is referred to in the literature, posits itself as an alternative to predictions made by SDT theory, by claiming that many decisions regarding family life are the result of economic constraints rather than of cultural preferences. In support of this claim, Perelli-Harris and colleagues find that even among countries that are considered to have experienced the SDT, those with lower education are more likely to have a child outside of a relationship or within cohabitation rather than marriage. Next to the PoD theory, Blossfeld and Mills (2013) argue that globalization of the economy has a significant impact on family formation behavior, particularly the rise in uncertainty on the job market, leading to postponement of family formation.

Many scholars have criticized SDT theory for being a theory on family change that applies mainly to Northern and Western Europe and not to other developed countries around the world (Sobotka 2008; Zaidi and Morgan 2017). They state that family values are rooted in the culture and institutions of a particular country or region and therefore family behavior change will differ between contexts and are difficult to compare. Proponents of the SDT, on the other hand, argue that the basic principles of the SDT are visible in all developed countries, but that different countries or even regions within countries vary in the time that the SDT occurs (Lesthaeghe 2010; Lesthaeghe and Neidert 2005). Nevertheless, following SDT theory one would ultimately expect convergence between countries in their family formation behaviors, but also a convergence in a weaker link between social background and family formation for all countries. On the other hand, from alternative perspectives, such as the diverging destinies and PoD, one would not expect a decrease in the influence of social background, but even a potential increase of the influence of social background on family formation, as social inequality increases in a country. Therefore, societies may vary in the strength of the link between social background and family formation, depending on social inequality and poverty. Thus, a country comparison may reveal the empirical validity of different perspectives.

Only few studies have provided empirical tests of change over time in the impact of social background on family formation. Results from these studies are mixed. Some find a decrease in the impact of SES background, but these are only in single country contexts, such as Norway and US (South 2001; Wiik 2009). Cross-country comparative research finds an impact of socio-economic background in multiple Western countries, but these studies do not examine whether within countries there has been change in the influence of SES background over time (Anne Brons et al. 2017; Koops et al. 2017). Yet, all this research thus far has focused on single transitions, such as cohabitation, marriage and parenthood. This dissertation will examine the impact of socio-economic background on family formation more holistically.

While it is interesting in itself to examine how the link between socio-economic background and family formation changed over time, examining the consequences for individuals of certain family formation patterns has strong societal relevance as well. I will discuss this issue in the next section.

1.1.3 Consequences of family formation on wellbeing

While there may be a clear link between social background and family formation, which could have also changed, the question arises to what extent it matters. As mentioned above, the new diversity and differences along different social backgrounds may be partly the result of different preferences regarding family formation, but when differences in family formation facilitate the transmission of intergenerational disadvantage, research on links between social background and family formation becomes of major societal relevance.

An important way in which family formation links with inequality over the life course is through the potential incompatibility with career. Above, we mentioned how being enrolled in education often prevents individuals from starting a family. Education is a means for disadvantaged youths to climb the social ladder. However, disadvantaged youths may not be able to pursue an academic career because of family obligations. For instance, when someone becomes a parent in his or her late teens, he or she may have to search for a job in order to cover the costs of having a child, whereas if there would not have a been a child, this same person would have entered tertiary education, which would have provided the person with more valuable human capital. Research demonstrates that teenage single parenthood has detrimental effects on income for both men and women over the life course (Christopher et al. 2002; Dariotis et al. 2011). It may not only be parenthood that has an impact on career development.

For instance, having a spouse may also hinder career development, as individuals may be less inclined to move for a job opportunity if it means leaving their spouse behind. In short, career and family are not always compatible, but when individuals have more time to first develop their careers before being potentially constrained by family life, they become more able to build human capital, which provides them more economic security over the life course.

Since family and career are so intertwined and dependent on one another, one cannot study the impact of different family formation patterns without considering educational and work careers. As a result, the study of family formation also links to another important line of research, i.e. research on the transition to adulthood (Billari, Philipov, and Baizán 2001; Furstenberg 2010; Hogan and Astone 1986) or emerging adulthood (Arnett 2000). Research in this area focusses on when major transitions such as leaving the parental home, leaving education, entering the labor market, cohabitation, marriage and parenthood take place and in what order (Aassve, Billari, and Piccarreta 2007; Amato et al. 2008; Sironi, Barban, and Impicciatore 2015). As the list of transitions demonstrates, the transition to adulthood is a demographically dense life-phase in which many key life-events take place (Rindfuss 1991). This type of research, however, often views life-course pathways as outcomes in themselves and does not make the consequences of specific life-course pathways.

Family formation pathways do not only affect career and income, but also other aspects of wellbeing and health of a person. For instance, Waite and Gallagher (2002) analyzed the benefits of married life in the US. They find that, apart from better finances, married couples generally have a better wellbeing, live longer and have better sex. However, marriage is not only associated with benefits, as multiple studies have shown that marriage is related with higher prevalence of obesity. Furthermore, those who marry run the risk of divorce and life-outcomes of the divorced are relatively poor (Covizzi 2008; Waite and Gallagher 2002). The benefits of marriage may also depend on characteristics of the marriage. For instance,

Berrington (1999) finds that those who enter a marriage early are more likely to divorce compared with those who enter marriage relatively later. Thus, the benefits of family life are likely to be linked with how family life started.

Social background influences what kind of life path an individual chooses and the different life paths are in turn associated with different levels of (dis)advantage. This means that advantaged youths are also more likely to choose pathways that are associated with better outcomes in terms of wellbeing, whereas for disadvantaged youths it is the other way around. The idea that disparities over the life-course become larger is also referred to as the Cumulative Disadvantage theory or framework. This cumulative (dis)advantage framework was first introduced by Merton (1968) to describe differences in the careers of academics, but it was later applied more generally to careers, but also to the life-course in general (Claudia. Buchmann and DiPrete 2006; Dannefer 2003; Elman and O'Rand 2004). The role of family formation in cumulative (dis)advantage could be twofold. First, certain family formation pathways may be linked to relatively immediate disadvantages. As mentioned before, those starting a family early may have to forgo on postsecondary education, which lowers their labor market position compared with others that do obtain a higher educational degree. Second, family formation could influence subsequent family outcomes that in turn could be related to more positive or negative outcomes. For instance, those who have a child early without a partner may find it more difficult to find a high-quality partner later. On the other hand, those who enter family life successfully may have provided themselves a foundation for a stable life, giving and receiving the financial and emotional support they need. Thus, what occurs during the start of the family life-course has major implications for what follows and thereby the wellbeing of individuals.

Measuring the impact of family formation on indicators of wellbeing is challenging. In the next section I will discuss methodological challenges.

1.2 METHODOLOGY

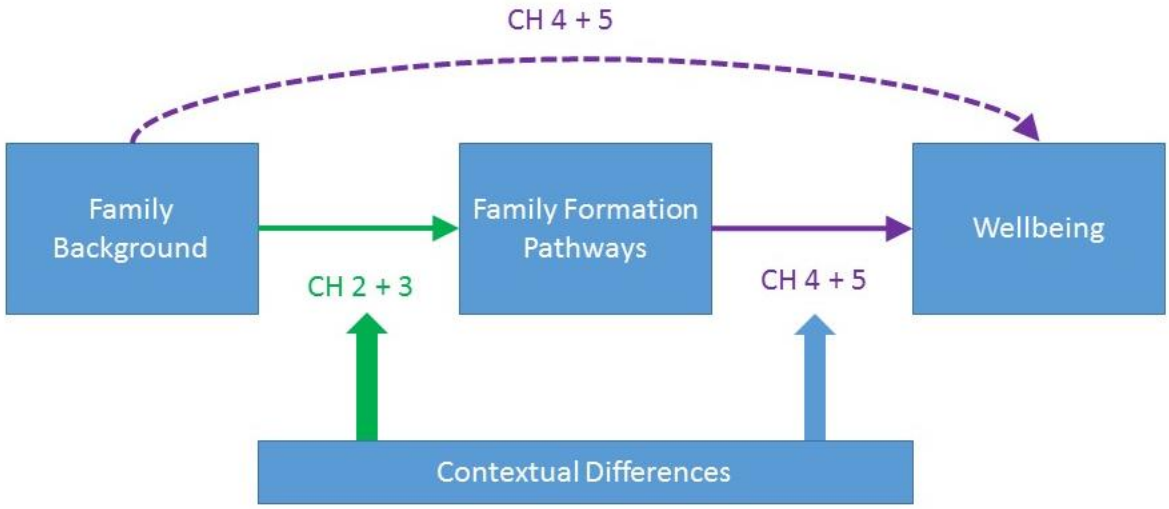
Family formation is a process and not a simple sum of events or transitions. One therefore requires a method that can capture this life-course complexity. Much research on family formation has used event history analysis (EHA) (e.g. Baizán, Aassve, and Billari 2003; Blossfeld and Huinink 1991; Liefbroer and Corijn 1999), and in this thesis I also use discrete-time event history logistic regression (Allison 1982). An advantage of this method is that one can (more easily) assess what the impact is of indicators that vary over time. The use of EHA also facilitates a macro-micro approach. In Chapter 2, for instance, I use a macro indicator representing the national economic conditions in a particular time period, in order to assess whether the relationship between socio-economic background and relationship formation changes depending on these conditions. Next to models predicting the timing of first union and first marriage, I also use competing risk models in which one can assess the relative risk of following one transition over the other, in this case unmarried cohabitation over marriage.

While investigating the risk to experience certain transitions, such as marriage and parenthood, or the competing risks to experience either of two events, such as marriage or cohabitation, provides useful insights, family formation is a process in which the type, timing and ordering of events provide specific meaning to the family formation process as a whole (Billari, Fürnkranz, and Prskawetz 2006). For instance, cohabitation can be perceived as 'trial marriage' when it precedes marriage, but can be viewed as an alternative to marriage when the couple never marries (Hiekel et al. 2014). Therefore, more recently, scholars have started to use more holistic methods such as Sequence Analysis (SA). In sequence analysis, pathways are defined by their distance to one another. The more dissimilar sequences are, the larger their distance (Abbott and Tsay 2000). Using a distance matrix as an input, one can subsequently cluster sequences that show relatively high similarity. SA can also provide information on

general characteristics of sequences, such as their entropy and turbulence (Elzinga and Liefbroer 2007; Gabadinho et al. 2011). Research using SA has been able to describe more in depth family change and country differences in family formation and the transition to adulthood across countries (Elzinga and Liefbroer 2007; Lesnard et al. 2016; Van Winkle 2018).

In this dissertation, I use both EHA and SA in order to study (aspects of) family formation. Not only does this dissertation use these methods, it also uses advanced applications of these methods. SA is often used in more exploratory research. In this dissertation I demonstrate that SA can also be of more analytic value, by using it to create metric independent variables, which represent differences in career and family pathways. In the next section, I will provide an overview of each chapter including the methods that will be used in each of these chapters.

Figure 2 Theoretical model displaying which parts are studied in different chapters



1.3 CHAPTERS OUTLINE

Figure 2 displays the parts of the theoretical model that will be covered in the different chapters. In Chapters 2 and 3 I aim to answer the first research question: how has the relation between social background and family formation developed over time? Both chapters use parental education as an indicator of SES background, as it captures both a cultural and economic aspect of (dis)advantage. In Chapter 2 I examine to what extent the influence of parental education on union formation changes over time and across the life-course in the Netherlands. More specifically, the study examines the influence of parental education on the timing of the first union, the timing of first marriage and the choice for either unmarried or married cohabitation as the first union among Dutch born between 1930 and 1990. As mentioned above, according to SDT theory one would expect the influence of parental education to decrease over time. Next to possible cultural change I also assess whether changes in national economic conditions may account for the variation of the influence of parental education on union formation. For this, I apply event-history analysis. Parental education is measured by mother's and father's education. Furthermore, the study examines whether the effect of mother's and father's education on union formation varies with age, birth cohort, economic conditions and gender.

Chapter 3 expands on Chapter 2 in two ways. First, this chapter examines the influence of parental education over time on family formation rather than (only) first union formation. Second, instead of one country context (the Netherlands), this chapter includes four European countries, Sweden, France, Italy and Romania. The first two countries can be considered as having experienced the SDT early, whereas Italy and Romania experienced the SDT later. The question is to what extent the influence of parental education on family formation has developed (dis)similarly across these four European countries. Data from the first wave of the Generations and Gender Survey (Vikat et al. 2007) is analyzed using Competing Trajectories

Analysis (Studer, Liefbroer, and Mooyaart 2018). Competing Trajectories Analysis (CTA) is an analytical procedure which combines sequence analysis and event-history analysis. Applying this procedure, I examine over time change in the influence of parental education on timing of family formation and on what kind of family pathway is opted.

Chapters 4 and 5 focus on the second research question: What are the consequences for the individual on choosing a particular family formation pathway? Both chapters use the same data set, the National Longitudinal Survey of Youth (1997). This is a panel research conducted in the United States by the US Bureau of Labor Statistics. Respondents were first contacted in 1997 when they are still in high school, between the ages of 12 and 17 and then followed annually ever since (biannually since 2011). Each year respondents report their monthly status in terms of education, employment (weekly), relationship status. Using this information, I construct career and family sequence data for each respondent. In Chapters 4 and 5, social background is operationalized in a more multifaceted way. The data also contains a parental supplement, which contains information on parental education and parental income. Finally, I also use childhood family structure and race as social background indicators in both chapters. Thus, in these chapters a broad and diverse set of social background indicators are included.

In Chapter 4 I aim to broaden the understanding on intergenerational transmission of advantage through a life-course perspective. In this study I link social background and life-course pathways in the transition to adulthood, i.e. career and family pathways from the age of 17 until 25, with income trajectories from 25 to 32. It is important to examine income trajectories as income from a single point in time can provide a distorted view (Cheng 2015). In this study I examine whether social background remains to have an impact on income trajectories even if one takes into account the career and family pathways that an individual followed. Furthermore, I examine whether both family pathways and career pathways matter for income trajectories. To measure the influence of social background and career and family

pathways during the transition to adulthood on income trajectories in young adulthood growth curve analysis is used. Optimal Matching (Abbott and Tsay 2000) is used to cluster career and family pathways. From each of these clusters a medoid sequence is obtained, which is a sequence that best represents the cluster. Next, the relative distance of a respondent's trajectory to each of these medoids is calculated. These 'Grade of Membership' variables (Manton et al. 1992) are then included, together with the social background variables, in the growth curve model to predict whether having a career or family sequence more or less similar to the medoid of that cluster is associated with higher income and income growth.

In Chapter 5 I examine the combined influence of career and family pathways on obesity risk. Multi-channel sequence analysis (Gauthier et al. 2010; Pollock 2007) is used to cluster different types of career-family pathway combinations. After this analysis, I construct a variable is constructed indicating to which cluster a respondent belongs. This variable is then included in a logistic regression with obesity risk at age 28 (this age is chosen as group of the respondents have only just reached this age) as the dependent variable. The same social background indicators as in Chapter 4 are included. Furthermore, a variable on obesity status at age 17, i.e. prior to the transition to adulthood is included. Therefore, this chapter controls for possible selection of obese youths into certain career and family pathways.

In Chapter 6 I summarize and discuss the results from the empirical chapters. Implications of the results are discussed as well as directions for future research on the influence of social background on family formation.

REFERENCES

Aassve, Arnstein, Francesco C. Billari, and Raffaella Piccarreta. 2007. "Strings of Adulthood: A Sequence Analysis of Young British Women's Work-Family

Trajectories." Pp. 369–88 in *European Journal of Population*, vol. 23.

Abbott, Andrew and Angela Tsay. 2000. "Sequence Analysis and Optimal Matching Methods in Sociology: Review and Prospect." *Sociological Methods & Research* 29(1):3–33.

Acemoglu, Daron and J. S. Pischke. 2001. "Changes in the Wage Structure, Family Income, and Children's Education." *European Economic Review* 45(4–6):890–904.

Allison, Paul D. 1982. "Discrete-Time Methods for the Analysis of Event Histories." *Sociological methodology* 13:61–98.

Amato, Paul R. et al. 2008. "Precursors of Young Women's Family Formation Pathways." *Journal of Marriage and Family* 70(5):1271–86.

Amato, Paul R., Alan Booth, Susan M. McHale, and Jennifer Van Hook, eds. 2015. *Families in an Era of Increasing Inequality*. Cham: Springer International Publishing.

Anon. 2018. *Unequal Family Lives: Causes and Consequences in Europe and the Americas*. Cambridge: Cambridge University Press.

Arnett, Jeffrey Jensen. 2000. "Emerging Adulthood: A Theory of Development from the Late Teens through the Twenties." *American Psychologist* 55(5):469–80.

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):375–88.

Axinn, William G. and Arland Thornton. 1993. "Mothers, Children, and Cohabitation: The Intergenerational Effects of Attitudes and Behavior." *American Sociological Review* 58(2):233.

Baizán, Pau, Arnstein Aassve, and Francesco C. Billari. 2003. "Cohabitation, Marriage, and First Birth: The Interrelationship of Family Formation Events in Spain." *European Journal of Population*.

Bar Haim, Eyal and Yossi Shavit. 2013. "Expansion and Inequality of Educational Opportunity: A Comparative Study." *Research in Social Stratification and Mobility*.

Barber, J. S. 2000. “Intergenerational Influences on the Entry into Parenthood: Mothers’ Preferences for Family and Nonfamily Behavior.” *Social Forces* 79(1):319–48.

Barber, Jennifer S. 2001. “The Intergenerational Transmission of Age at First Birth among Married and Unmarried Men and Women.” *Social Science Research* 30(2):219–47.

Berrington, Ann and Ian Diamond. 1999. “Marital Dissolution among the 1958 British Birth Cohort: The Role of Cohabitation.” *Population Studies* 53(1):19–38.

Billari, Francesco C., Johannes Fürnkranz, and Alexia Prskawetz. 2006. “Timing, Sequencing, and Quantum of Life Course Events: A Machine Learning Approach.” *European Journal of Population* 22(1):37–65.

Billari, Francesco C., Dimiter Philipov, and Pau Baizán. 2001. “Leaving Home in Europe: The Experience of Cohorts Born around 1960.” *International Journal of Population Geography* 7(5):339–56.

Blossfeld, Hans-Peter and Johannes Huinink. 1991. “Human Capital Investments or Norms of Role Transition? How Women’s Schooling and Career Affect the Process of Family Formation.” *The American Journal of Sociology* 97(1):143–68.

Bourdieu, Pierre and Jean-Claude Passeron. 1990. *Reproduction in Education, Society and Culture*. Sage.

Breen, R. and J. H. Goldthorpe. 1997. “Explaining Educational Differentials: Towards a Formal Rational Action Theory.” *Rationality and Society* 9(3):275–305.

Breen, Richard and Jan O. Jonsson. 2005. “Inequality of Opportunity in Comparative Perspective: Recent Research on Educational Attainment and Social Mobility.” *Annual Review of Sociology*.

Brons, Anne M. D., Aart C. Liefbroer, and Harry 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):809–22.

Brückner, Hannah and Karl Ulrich 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.

Buchmann, Claudia. and Thomas a. DiPrete. 2006. “The Growing Female Advantage in College Completion: The Role of Family Background and Academic Achievement.” *American Sociological Review* 71(4):515–41.

Cheng, Siwei. 2015. “Unequal Origins, Unequal Trajectories: Social Stratification over the Life Course.”

Christopher, Karen, Paula England, Timothy M. Smeeding, and Katherin Ross Phillips. 2002. “The Gender Gap in Poverty in Modern Nations: Single Motherhood, the Market, and the State.” *Sociological Perspectives* 45(3):219–42.

Covizzi, Ilaria. 2008. “Does Union Dissolution Lead to Unemployment? A Longitudinal Study of Health and Risk of Unemployment for Women and Men Undergoing Separation.” *European Sociological Review* 24(3):347–61.

Dannefer, Dale. 2003. “Cumulative Advantage/Disadvantage and the Life Course: Cross-Fertilizing Age and Social Science Theory.” *J Gerontol B Psychol Sci Soc Sci* 58(6):S327-37.

Dariotis, Jacinda K., Joseph H. Pleck, Nan M. Astone, and Freya L. Sonenstein. 2011. “Pathways of Early Fatherhood, Marriage, and Employment: A Latent Class Growth Analysis.” *Demography* 48(2):593–623.

Easterlin, Richard A. 1980. “Birth and Fortune: The Effects of Generation Size on Personal Welfare.” *New York*.

Edin, Kathryn and Maria Kefalas. 2005. *Promises I Can Keep. Why Poor Woman Put the Motherhood before Marriage*.

Elder, Glen H. 1994. “Time, Human Agency, and Social Change: Perspectives on the Life Course.” *Social Psychology Quarterly* 57(1):4–15.

Elman, Cheryl and Angela M. O’Rand. 2004. “The Race Is to the Swift: Socioeconomic Origins, Adult Education, and Wage Attainment.” *American Journal of Sociology* 110(1):123–60.

Elzinga, Cees H. and Aart C. Liefbroer. 2007. “De-Standardization of Family-Life Trajectories of Young Adults: A Cross-National Comparison Using Sequence Analysis.” *European Journal of Population / Revue européenne de Démographie* 23(3–4):225–50.

Fasang, Anette Eva and Marcel Raab. 2014. “Beyond Transmission: Intergenerational Patterns of Family Formation Among Middle-Class American Families.” *Demography* 51:1703–28.

Friedman, Debra, Michael Hechter, and Satoshi Kanazawa. 1994. “A Theory of the Value of Children.” *Demography* 31(3):375.

Furstenberg, Frank F. 2010. “On a New Schedule : Adulthood and Transitions to Family Change.” *The Future of Children* 20(1):67–87.

Gabadinho, Alexis, Gilbert Ritschard, Nicolas Séverin Mueller, and Matthias Studer. 2011. “Analyzing and Visualizing State Sequences in R with TraMineR.” *Journal of Statistical Software* 40(4):1–37.

Gauthier, Jacques-Antoine, Eric D. Widmer, Philipp Bucher, and Cédric Notredame. 2010. “Multichannel Sequence Analysis Applied to Social Science Data.” *Sociological Methodology* 40(1):1–38.

Gierveld, Jenny De Jong, Aart C. Liefbroer, and Erik Beekink. 1991. “The Effect of Parental Resources on Patterns of Leaving Home among Young Adults in the Netherlands.” *European Sociological Review* 7(1):55–71.

Goode, W. J. 1963. *World Revolution and Family Patterns*. Free Press of Glencoe.

De Graaf, Paul M. and Matthijs Kalmijn. 2006. “Change and Stability in the Social Determinants of Divorce: A Comparison of Marriage Cohorts in the Netherlands.” *European Sociological Review* 22(5):561–72.

Härkönen, Juho, Fabrizio Bernardi, and Diederik Boertien. 2017. “Family Dynamics and Child Outcomes: An Overview of Research and Open Questions.” *European Journal of Population*.

Helderman, Amanda and Clara Mulder. 2007. “Intergenerational Transmission of Homeownership: The Roles of Gifts and Continuities in Housing Market Characteristics.” *Urban Studies*.

Heuveline, Patrick and Jeffrey M. Timberlake. 2004. “The Role of Cohabitation in Family Formation: The United States in Comparative Perspective.” *Journal of Marriage and Family*.

Hiekel, Nicole, Aart C. Liefbroer, and Anne-Rigt Poortman. 2014. “Understanding Diversity in the Meaning of Cohabitation across Europe.” *European Journal of Population* 30(4):391–410.

Hogan, Dennis P. and Nan Marie Astone. 1986. “The Transition to Adulthood.” *Annual Review of Sociology* 12:109–30.

Kalmijn, Matthijs. 1998. “Intermarriage and Homogamy: Causes, Patterns, Trends.” *Annual Review of Sociology* 24(1):395–421.

Keijer, Micha G., Ineke Nagel, and Aart C. Liefbroer. 2016. “Effects of Parental Cultural and Economic Status on Adolescents’ Life Course Preferences.” *European Sociological Review*.

Kiernan, Kathleen. 2004. “Unmarried Cohabitation and Parenthood in Britain and Europe.” *Law & Policy* 26(1):33–55.

Kirk, D. 1996. “Demographic Transition Theory.” *Population studies*.

Koops, Judith C., Aart C. Liefbroer, and Anne 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):533–57.

Lareau, Annette. 2006. “Unequal Childhoods: Class, Race and Family Life.” *American Journal of Sociology* 112:635–36.

Lesnard, Laurent, Anne-Sophie Cousteaux, Flora Chanvril, and Viviane Le Hay. 2016. “Do Transitions to Adulthood Converge in Europe? An Optimal Matching Analysis of Work–Family Trajectories of Men and Women from 20 European Countries.” *European Sociological Review* 32(3):355–69.

Lesthaeghe, R. and L. Neidert. 2005. “The" Second Demographic Transition" in the US: Spatial Patterns and Correlates’.” *Unpublished. Population Studies Center, University of Michigan, Ann Arbor*.

Lesthaeghe, Ron. 2010. “The Unfolding Story of Transition.” *Population and Development Review* 36(2):211–51.

Lesthaeghe, Ron and Dirk J. Van de Kaa. 1986. “Twee Demografische Transities.” *Bevolking: groei en krimp* 9–24.

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 = Revue européenne de démographie* 15(1):45–75.

Liefbroer, Aart C. and Cees 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.

Manton, Kenneth, Max Woodbury, Eric Stallard, and Larry Corder. 1992. “The Use of Grade-of-Membership Techniques to Estimate Regression Relationships.” *Sociological Methodology*.

Mclanahan, Sara. 2004. “Diverging Destinies : How Children Are Faring Under the Second Demographic Transition *.” 41(4):607–27.

McLanahan, Sara and Wade Jacobsen. 2015. “Diverging Destinies Revisited.” Pp. 3–23 in *Families in an Era of Increasing Inequality SE - 1*, vol. 5, *National Symposium on Family Issues*, edited by P. R. Amato, A. Booth, S. M. McHale, and J. Van Hook. Springer International Publishing.

Merton, Robert K. 1968. “The Matthew Effect in Science.” *Science* 159(3810):56–63.

Miller, Brent C. 2002. “Family Influences on Adolescent Sexual and Contraceptive Behavior.” *Journal of sex research* 39(1):22–26.

Mills, Melinda and Hans-Peter Blossfeld. 2013. “The Second Demographic Transition Meets Globalization: A Comprehensive Theory to Understand Changes in Family Formation in an Era of Rising Uncertainty.” Pp. 9–33 in *Negotiating the life course. Stability and change in life pathways*.

Musick, Kelly. 2002. “Planned and Unplanned Childbearing among Unmarried Women.” *Journal of Marriage and Family*.

Oppenheimer, Valerie Kincade. 1988. “A Theory of Marriage Timing.” *American Journal of Sociology* 563–91.

Perelli-Harris, Brienna et al. 2010. “The Educational Gradient of Childbearing within Cohabitation in Europe.” *Population and Development Review* 36(4):775–801.

Perelli-Harris, Brienna and Theodore P. Gerber. 2011. “Nonmarital Childbearing in Russia: Second Demographic Transition or Pattern of Disadvantage?” *Demography* 48(1):317–42.

Pollock, Gary. 2007. “Holistic Trajectories: A Study of Combined Employment, Housing and Family Careers by Using Multiple-Sequence Analysis.” *Journal of the Royal Statistical Society. Series A: Statistics in Society* 170(1):167–83.

Putnam, Robert D. 2015. *Our Kids: The American Dream in Crisis*. Simon & Schuster.

Rindfuss, Ronald R. 1991. "The Young Adult Years: Diversity, Structural Change, and Fertility." *Demography* 28(4):493–512.

Sassler, Sharon, Fenaba Addo, and Elizabeth Hartmann. 2010. "The Tempo of Relationship Progression among Low-Income Couples." *Social Science Research* 39(5):831–44.

Shanahan, Michael J. 2000. "Pathways to Adulthood in Changing Societies: Variability and Mechanisms in Life Course Perspective." *Annual Review of Sociology* 26(1):667–92.

Sironi, Maria, Nicola Barban, and Roberto Impicciatore. 2015. "Parental Social Class and the Transition to Adulthood in Italy and the United States." *Advances in Life Course Research* 26:89–104.

Sobotka, Tomáš. 2008. "Overview Chapter 6: The Diverse Faces of the Second Demographic Transition in Europe." *Demographic Research* 19:171–224.

Sobotka, Tomáš and Laurent Toulemon. 2008. "Overview Chapter 4: Changing Family and Partnership Behaviour: Common Trends and Persistent Diversity across Europe." *Demographic Research* 19:85–138.

South, Scott J. 2001. "The Variable Effects of Family Background on the Timing of First Marriage: United States, 1969–1993." *Social Science Research* 30(4):606–26.

Studer, Matthias, Aart C. Liefbroer, and Jarl 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, Arland, William G. Axinn, and Jay D. Teachman. 1995. "The Influence of School Enrollment and Accumulation on Cohabitation and Marriage in Early Adulthood." *American Sociological Review* 60(5):762.

Vikat, Andres et al. 2007. "Generations and Gender Survey (GGS) Towards a Better Understanding of Relationships and Processes in the Life Course." *Demographic*

research 17:389–440.

Waite, Linda and Maggie Gallagher. 2002. *The Case for Marriage: Why Married People Are Happier, Healthier and Better off Financially*. Broadway Books.

Wiik, Kenneth Aarskaug. 2009. "'You'd Better Wait!'- Socio-Economic Background and Timing of First Marriage versus First Cohabitation." *European Sociological Review* 25(2):139–53.

Van Winkle, Zachary. 2018. "Family Trajectories Across Time and Space: Increasing Complexity in Family Life Courses in Europe?" *Demography* 55(1):135–64.

Wolfinger, Nicholas H. 2005. *Understanding the Divorce Cycle: The Children of Divorce in Their Own Marriages*.

Zaidi, Batool and S. Philip Morgan. 2017. "The Second Demographic Transition Theory: A Review and Appraisal." *Annual Review of Sociology* 43(1):473–92.

2. The Influence of Parental Education on Timing and Type of Union Formation: Changes Over the Life Course and Over Time in the Netherlands[1]

Jarl E. Mooyaart; Aart C. Liefbroer

Abstract *Family background shapes young adults' decisions in their transition to adulthood, and the outcomes of these decisions lay the foundation for their subsequent life course. This study examines the influence of parental education on their children's union formation. We examine the timing of entry into a first union (a married or a cohabiting union), the choice between marriage and cohabitation, and the timing of first marriage. Data from eight nationally representative surveys conducted in the Netherlands are pooled (N = 39,777), with respondents being born between 1930 and 1990, to examine not only the effect of parental education on union formation but also whether this effect changes over birth cohorts, periods, and the life course, and varies by gender. Results from discrete-time hazard analyses show little change in the effect of parental education across cohorts and periods but strong life-course effects. Gender differences in the effect of parental education are relatively small.*

[1] A similar version of this chapter has been published in the journal *Demography* - Mooyaart, J. E., & Liefbroer, A. C. (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.

2.1 INTRODUCTION

Parental educational attainment strongly influences union formation (Axinn and Thornton 1992; Cavanagh 2011; Liefbroer 1991; Mulder et al. 2006; South 2001; Thornton et al. 2008; Uecker and Stokes 2008; Wiik 2009). Young adults with highly educated parents enter their first union (Cavanagh 2011; Mulder et al. 2006; Wiik 2009) and first marriage (Axinn and Thornton 1992; Sassler et al. 2009; South 2001; Uecker and Stokes 2008) at a later age than young adults with relatively low-educated parents. The timing of the first union can have important implications for the subsequent life course. Unions formed at an early age have a higher chance of disruption (Berrington and Diamond 1999; Lyngstad 2006), and union dissolution has been associated with higher risks of unemployment (Covizzi 2008). Furthermore, children born in cohabiting households are more likely to have lived with a single mother compared with those born to married parents (Heuveline et al. 2003). As a result, children of cohabiting parents may end up with fewer resources than children raised within marriage (Manning and Brown 2006; Manning and Lichter 1996). Therefore, examining the influence of parental education on union formation may improve our knowledge about persisting intergenerational social inequality.

In many Western countries, unmarried cohabitation is on the rise, often replacing marriage as the most popular type of first union (Bumpass and Lu 2000; Kiernan 2001). In the Netherlands, the focus of the present study, 83 % of those born between 1970 and 1979 opted for unmarried cohabitation, which is a somewhat lower rate than seen in the Scandinavian countries (86 % in Norway to 94 % in Denmark) but relatively high compared with other Western European countries, such as Germany (74 %) and the United Kingdom (72 %) (Billari and Liefbroer 2010).

The increasing popularity of unmarried cohabitation complicates the analysis of the influence of parental education on union formation. Unmarried cohabitation can serve as both a precursor of marriage and an alternative to it (Berrington and Diamond 2000; Cherlin 2004;

Hiekel et al. 2014; Landale and Forste 1991; Wiik 2009). Parents may influence not only the timing of relationship formation but also the choice for the type of first union: that is, married or unmarried cohabitation. Most U.S. research regarding the choice between married and unmarried cohabitation has shown that cohabitation is more common among those from disadvantaged backgrounds (Bumpass and Lu 2000; Kennedy and Bumpass 2008; Manning and Cohen 2015; Seltzer 2004), although some studies have shown no effect of parental education (Lichter et al. 2010; Sassler et al. 2009) or even that cohabitation is more likely among those with higher-educated mothers (Cohen and Manning 2010; Lichter and Qian 2008). Liefbroer (1991) found that in the Netherlands, children with highly educated parents are more likely to opt for unmarried cohabitation. Research from other European countries is scarce and has produced mixed results (Hoem and Kostova 2008; Schröder 2006).

The central focus of this study is the extent to which the effect of parental education on the timing of union formation and on the choice between marriage or unmarried cohabitation as the first union type varies over birth cohorts, periods, the life course, and with gender. Previous research has found that the effect of parental education on timing of relationship formation decreases over the life course and across cohorts (Sassler and Goldscheider 2004; South 2001; Wiik 2009). This study contributes to this literature in four ways. First, it examines the influence of parental education among a broad range of cohorts born between 1930 and 1990. No previous studies have covered such an extensive range of cohorts, allowing us to study whether the influence of parental education attenuated among cohorts that experienced the second demographic transition (SDT) (Lesthaeghe 2010; Lesthaeghe and Surkyn 1988; Lesthaeghe and Van de Kaa 1986). Second, previous research on changes in the influence of parental education over the life course and over time has focused only on the timing of union formation, whereas this study also includes the choice between married or unmarried cohabitation for the first union. Third, this study examines the timing of both the first union and

the first marriage. Finally, this study examines not only cohort change but also period change by taking into account national annual changes in economic circumstances.

2.2 THEORY

With the rise in unmarried cohabitation, the relationship formation process has become more complex. Before the 1960s, unmarried cohabitation occurred only in rare circumstances; however, today, it is a common form of first union in the Netherlands (Manting 1996) and in many other Western countries (Billari and Liefbroer 2010; Bumpass and Lu 2000). First, we discuss how parental education influences the timing of entry into a first union (either married or unmarried cohabitation) and first marriage. Next, we examine the influence of parental education on the choice between marriage and unmarried cohabitation. Finally, we discuss how these processes may vary by cohort, period, age, and gender.

2.2.1 Parental Education and the Timing of Union Formation

There are several arguments about why higher parental education leads to postpone- ment of first union and first marriage. Children with highly educated parents may be socialized differently than children with low-educated parents. As theories on the intergenerational transmission of education stipulate, children with educated parents are likely to have higher education and career aspirations (e.g., Dubow et al. 2009; Schoon and Parsons 2002; Sewell and Shah 1968), leading to higher educational attainment and to prolonged enrollment in the educational system (Van Hek et al. 2015; Shavit and Blossfeld 1993). This prolonged

enrollment in the educational system leads to the postponement of relationship formation because the educational system serves as a moratorium in which demographic transitions are delayed (Blossfeld and Huinink 1991; Liefbroer and Corijn 1999; Raymore et al. 2001; Thornton et al. 1995). Given the strong association between education and income (e.g., Ashenfelter and Rouse 2000; Bradbury 2002; Miller et al. 1995), children with highly educated parents are more likely to be raised in a wealthy home environment than children with low-educated parents.

Individuals who were raised in a household with high consumption levels may develop the same consumption aspirations for their own household (Easterlin 1980) and may not want to start a household before they are able to afford a similar lifestyle themselves, which will delay their timing of marriage (Axinn and Thornton 1992). In addition, remaining in the parental home longer may be more appealing to children with highly educated parents given that their parental home is likely to provide more nonmaterial (such as a warm psychological climate) and material (such as a larger house and more luxury in the home) resources, making them less inclined to leave the parental home (Axinn and Thornton 1992). Moreover, children with low-educated parents may be more inclined to view entry into a union as a potential route to leave an unsatisfying parental home situation (Clarkberg 1999). Parental resources may also influence the relationship formation for those who already left the parental home. Parents can use their financial resources to influence the timing of the first union by providing better alternatives to early marriage in late adolescence and early adulthood (Manting 1996; Sassler and Goldscheider 2004; Waite et al. 1986). Therefore, we expected the following:

Hypothesis 1: The higher the parents' level of educational attainment, the higher the age of entry into first union and first marriage of their children.

Until now, we assumed that parental education affects the timing of cohabiting and marriage in

comparable ways. However, given that marriage is less easily reversible and more consequential than cohabitation, perhaps parents are more involved with their children's marriage timing than their timing of cohabitation (Wiik 2009). In addition, given the high costs of marriage, parental financial support may be more important for the decision to marry. Both arguments lead one to expect that the influence of parental education on the timing of marriage is somewhat stronger on marriage than on cohabitation. On the other hand, given that in the Netherlands cohabitation often precedes marriage (Statistics Netherlands 2006), one could argue that the influence of parents on marriage timing may be weaker because by the time of first marriage, children will be less dependent on their parents. Wiik (2009) did not find differences in the effect of parental education on whether the first union is a cohabiting or marital relationship. Thus, we will not formulate a specific hypothesis on this issue but explore the issue in our empirical analysis.

2.2.2 Parental Education and the Choice Between Marriage and Cohabitation

Parents' educational attainment may also influence whether their children opt for marriage or unmarried cohabitation when they first enter a union. The literature is divided about whether children with an advantaged or a disadvantaged background opt for cohabitation. One popular idea is that cohabitation is a type of "poor man's marriage," in which young adult men and women engage who do not have the financial resources to enter marriage (yet) (Hiekel et al. 2014; Perelli-Harris et al. 2010). Young adults with low-educated parents are likely to have fewer resources than their peers with highly educated parents. Thus, lower parental education would result in a higher propensity to opt for unmarried cohabitation rather than direct marriage.

Research from the United States (Bumpass and Lu 2000; Kennedy and Bumpass 2008; Lichter et al. 2006; Manning and Cohen 2015; Seltzer 2004), and Bulgaria (Hoem and Kostova

2008) supports this idea. In contrast, the SDT theory claims that the choice for unmarried cohabitation is based on a cultural preference rather than structural constraint, with those who are more individualistic and less traditional being more likely to opt for this relationship form (Lesthaeghe 2010). Higher education has been associated with having less-orthodox family and marital values, including less disapproval of unmarried cohabitation (De Valk and Liefbroer 2007; Liefbroer and Billari 2010; Van der Valk et al. 2008). Thus, highly educated parents are likely to socialize their children with these more liberal values, implying that their children are more likely to opt for unmarried cohabitation. In the Netherlands (Liefbroer 1991) and Italy (Schröder 2006), children with highly educated parents are more likely to opt for unmarried cohabitation for their first union. Furthermore, although much research has indicated that lower education is associated with a higher propensity for unmarried cohabitation, some research in the United States has suggested that those with highly educated mothers are more prone to single-instance and serial cohabiting (Cohen and Manning 2010; Lichter and Qian 2008).

In the Netherlands, low parental education may be less strongly associated with unmarried cohabitation than in other countries for two reasons. First, the Netherlands is a country with relatively little poverty and high welfare expenditure (Caminada et al. 2012; Peichl et al. 2010). Thus, even young adults with limited parental resources are likely to have the means to marry. Second, in the Netherlands, teenage births and births to single mothers are much less common than in the United States and many other European countries (Ellwood and Jencks 2004; Perelli-Harris et al. 2010; Robson and Berthoud 2003; Santelli and Melnikas 2010). Thus, the pool of young adults from a low class background that is most likely to opt for cohabitation is simply smaller in the Netherlands than in other countries. Therefore, we expect the following:

Hypothesis 2: The higher the parents' level of educational attainment, the more likely that their children will enter their first union by unmarried cohabitation rather than by direct marriage.

2.2.3 Variability in the Influence of Parental Education

Cohort Changes

In the twentieth century, both cultural and structural changes occurred in the Netherlands that likely decreased the influence of parental education on their children's union formation decisions. First, SDT theory claims that around the 1960s, a cultural shift occurred in which values of solidarity and social group adherence lost their prominent position to values of autonomy and self-realization (Lesthaeghe 2010; Lesthaeghe and Van de Kaa 1986). Parents reevaluated their role in socialization, placing more emphasis on stimulation and autonomy rather than on discipline (Sieben and De Graaf 2003; Van Poppel et al. 2008). Moreover, parents became less able and willing to exert social pressure on their children (Kalmijn 1998). Although unmarried cohabitation is still less popular among religious people (Jansen 2002), the Netherlands became more secularized in the 1960s (Becker and De Wit, 2000), increasing the acceptance of unmarried cohabitation among all social strata. These cultural shifts are likely to have decreased the role of parents in their children's decisions regarding living arrangements and parenthood.

Structural societal changes may also account for the potential decline in the influence that parents have over their children's relationship formation behavior. Educational expansion and the rise of the welfare state increased the ability of young adults to provide for themselves without requiring the use of parental resources. Furthermore, the association between parental education and children's education may have decreased as a result of more equal access to education for children with highly educated and low-educated parents. There is indeed some evidence that educational attainment has become more meritocratic in the Netherlands (van Hek et al. 2015). If children with low-educated parents become increasingly enrolled in education, they will also postpone union formation. Therefore, we expect the following:

Hypothesis 3: The effect of parent's level of educational attainment on children's union formation decisions decreases across cohorts.

Period Change

Although cultural and structural changes may have led to a decline across cohorts in the influence of parental education on union formation behavior, there may have been some period fluctuations in the effect of parents linked to business cycle effects. Although overall prosperity has increased over the last half-century, the Netherlands has been hit by several economic crises. The crisis in the 1970s and early 1980s was caused by the global oil crisis, and the most recent one starting in 2008 was caused by the global credit crisis. The economic consequences of these crises included an increase in (youth) unemployment, stagnation, a decrease in wages, and increased difficulty in obtaining a mortgage (Bagheloe-Datadin 2013). During the last crisis, the timing of marriage and parenthood has been postponed (de Beer 2012). In times of financial hardship, young adults may have to rely more on their parental resources. As a result, the parents may increase their influence on the union formation decisions of their children: for instance, by supporting them in buying a house (Mulder and Smits 1999). The better educated parents are, the more resources they are likely to have, which may especially make a difference during times of economic hardship. Thus, the influence of parental education is likely to increase in times of economic crisis and decrease in time of economic prosperity, leading to the following hypothesis:

Hypothesis 4: The better the economic circumstances are, the smaller the effect of parents' level of educational attainment is on their children's union formation decisions.

Life Course Changes

The influence of parents on their children is likely to change during their children's life course. Although highly educated parents may try to prevent early union formation, they may stimulate union formation later in young adulthood by providing the necessary means for marriage (Manting 1996; Sassler and Goldscheider 2004; Waite and Spitze 1981). However, several arguments have suggested that the influence of parents on their children decreases with age. Young adults reexamine their worldviews and increasingly start adopting their own beliefs based on independent reflection (Arnett 2000). Furthermore, on their path to adulthood, the importance of young adults' own life experiences and preferences increases relative to features of family background (Hogan and Astone 1986; South 2001). Life events, such as leaving the parental home and obtaining a full-time job, may alter the relationship between parents and children. When children leave home, geographical distance decreases the influence that parents have on their children. Bucx et al. (2012), for instance, showed that children who live independently receive less counsel or personal advice from their parents. Individuals will gain financial independence when they enter full-time employment, enabling them to rely on their own resources and to be less reliant on parental resources. Furthermore, considering first marriage, those who are already cohabiting are likely to be less influenced by their parents because they may (at least partly) rely on the resources of their partner. All these arguments suggest that the influence of parental characteristics, such as parental education, is likely to decrease across young adulthood. This leads to the following hypothesis:

Hypothesis 5: The effect of parent's level of educational attainment on their children's union formation decisions decreases over the life course.

Gender Differences

Women enter unions earlier than men (e.g., Waite et al. 1986; Uecker and Stokes 2008; Winkler-Dworak and Toulemon 2007). However, few studies have considered whether the influence of parental education has a gender gradient (Axinn and Thornton 1992; Michael and Tuma 1985; Wiik 2009). Highly educated parents may place more pressure on daughters to postpone family formation and focus on their career, knowing that these are more difficult to combine for women given that they are likely to have a larger share in childcare responsibilities than men (Barber 2000; Wiik 2009). However, Wiik (2009) did not find any evidence that this is the case in Norway for those who entered a union between 1970 and 2002. In the United States, Michael and Tuma (1985) found stronger effects for women than for men, but Axinn and Thornton (1992) did not find substantial gender differences.

Mothers and fathers may also differ in their influence on their sons and daughters. Fathers are found to be more involved with sons than with daughters (Harris et al. 1998; Starrels 1994), but for mothers, it is the other way around (Dornbusch 1989; Steinberg 1987). If so, the effect of father's education may be stronger on sons' union formation decisions than on those of daughters, and the opposite may be true for mother's education. However, Russell and Saebel (1997) argued that it is not clear how strong the differences are between the four possible parent–child dyads (mother–daughter, mother–son, father–daughter, father–son). In sum, there is little direct evidence that the influence of parental educational attainment on the union formation process differs by gender of the child or of the parent. Therefore, we will not formulate a hypothesis on gender differences but rather empirically explore whether gender differences are observed.

2.3 DATA & METHODS

2.3.1 Data

Data from eight Dutch surveys containing retrospective partner histories were pooled and include four waves (1993, 1998, 2003, 2008) of the Dutch Fertility and Family survey (Onderzoek Gezinsvorming (OG)) (Statistics Netherlands 2008), two waves of the Family Survey Dutch Population (Familie-enquête (FE)) of the year 2003 (De Graaf et al. 2003) and 2009 (Kraaykamp et al. 2009), the Living Arrangements and Social Networks of Older Adults survey in 1992 (NESTOR) (Knipscheer et al. n.d), the ESR telepanel of 1992 (ESR/STP 1992), and selected respondents born in 1930 or later. All surveys are based on probability sampling techniques to assure that they are nationally representative. Nonresponse rates vary considerably between the surveys (see Table 1). To cover for nonresponse, weights were included in the analysis. For all surveys, weights were based on at least the following characteristics: sex, age, marital status, and region or level of urbanization. The age of respondents varies between the data sets. In NESTOR, respondents from the age of 54 were interviewed; in the other data sets, individuals aged 18 and older were included. OG 1993 included only those individuals aged 18–42, but in the other waves of the OG surveys, the upper age limit was 52 in OG 1998 and 62 in OG 2003 and OG 2008. In the other surveys, the maximum age lies at least at age 70. In general, women are slightly overrepresented, with a maximum of 55 % women in FE 2003. The total number of observations in our study is 39,777.

Missing values on respondent's, mother's, and father's level of educational attainment were treated by using multiple imputation methods. We opted for predictive mean matching (PMM) because of the skewed distribution of mother's and father's education. Another advantage of using PMM is that it imputes only those values already in the data rather than out-of-range values (such as negative values). Values for parents' and respondent's education were

predicted using gender, birth year, the union formation outcome variable, and the Nelson-Aalen estimator[2]. The standard PMM matching technique imputes a value from the observation that has the nearest *z* value. One can, however, increase the number of potential donors by selecting a random pick from a *k* number of nearest donors. In our analysis, a *k* value of 10 is used as suggested by Morris et al. (2014). The data are imputed 10 times, and the results from the imputed data sets are combined using Rubin's (1987) rules.

Table 1 *An overview of the surveys used in this study*

	Non-response rate	Age range	Percentage of women
NESTOR 1992	38%	54-89	51
ESR telepanel 1993	43%	18-89	48
OG 1993[a]	50%	18-42	55
OG1998	27%	18-52	54
OG 2003	43%	18-62	52
OG 2008	40%	18-62	51
FE 2003	47%	18-70	55
FE 2009	49%	18-90	51

[a] survey description states a non-response of at least 50% percent

2.3.2 Measures

In all surveys, respondents were asked to report the start and end dates (in years and months) of all their cohabiting (married or unmarried) relationships that lasted at least three months. Based on this information, the three dependent variables (timing of entry into a first union, timing

[2] White and Royston (2009) recommend using the Nelson-Aalen estimator in the imputation model.

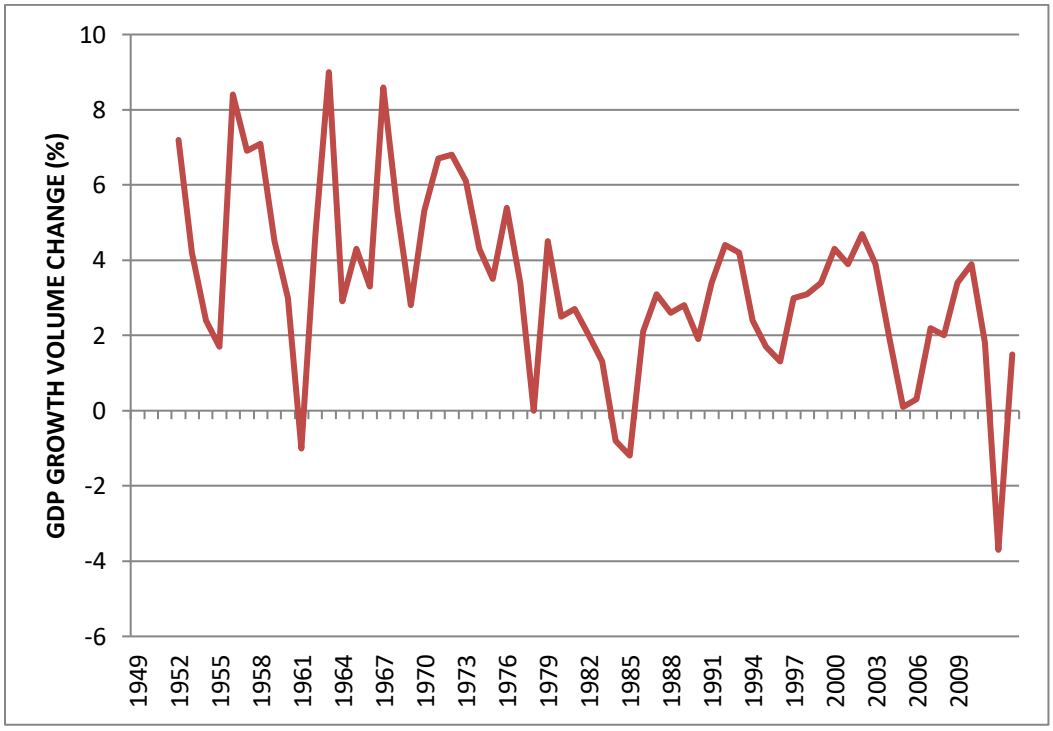
of entry into first marriage, and whether the first union was entered by marriage or by unmarried cohabitation) were constructed. The main independent variables are father's and mother's level of educational attainment. Because level of education was coded slightly different in each survey, a strategy had to be adopted to recode these variables into a uniform measure of education. Some OG surveys used broad categories with scores ranging from 1 (primary education or less) to 5 (university), while the FE surveys and the ESR telepanel had (respectively) 10 and 8 educational level categories. In NESTOR, the education variables indicated the number of years of education. We chose to create a continuous measure for education using the International Standard Level of Education (ISLED) (Schröder and Ganzeboom 2013). The ISLED is a continuous measure of education that allows comparison across surveys and across countries. For all these categories, ISLED scores were matched (see appendix, Table 8). When more than one ISLED score could be matched to a category, the average of all the different ISLED scores that were covered by a category was taken.

For respondents themselves, we also use information on their highest educational attainment. However, because using highest education as a time-constant variable could lead to estimation bias (Hoem and Kreyenfeld 2006), we created a time-varying incremental ISLED score in which respondents have a lower ISLED at younger ages based on where they are in the Dutch educational system at that age, and only reach their reported highest level of education at the youngest age at which this would be possible, given the structure of the Dutch educational system[3]. The variables that are interacted with father's and mother's education are *age*, *cohort*, *economic growth*, *female*; and for the timing of first marriage, also the variable *cohabitation*. The

[3] This approach will underestimate some of the randomness in the process of educational attainment. However, given the highly stratified nature of the Dutch educational system, this assumption is reasonable.

age variable is constructed as the number of years since age 15 until one experiences a transition[4]. To examine whether there have been changes over time, a continuous *cohort* variable is included, using the birth year of the respondent. *Economic growth* is measured by GDP volume change (percentage). For GDP, yearly information from 1949 until 2009 is available from Statistics Netherlands (2012). Figure 1 shows the trend in economic growth. In our models, the economic growth measure is lagged by one year. The *female* variable is coded 0 for males and 1 for females. In the analysis of timing of first marriage, *cohabitation* is a time-varying dichotomous variable indicating whether someone at a certain age is in a cohabiting relationship.

Figure 1 Development of GDP growth volume change from 1949 to 2009



[4] Age is derived from information on year and month of birth. In 25.8 % of the cases, only information on year of birth was available. In these cases, month of birth was randomly imputed.

Table 2 *Descriptive statistics of independent variables*[a]

Variables	Mean (SD)	Range	N
Year of birth	1961.73(11.64)	1930 - 1990	39777
Gender (ref=male)	0.53	0/1	39777
NESTOR	0.02	0/1	39777
ESR telepanel	0.04	0/1	39777
OG 1993	0.21	0/1	39777
OG 1998	0.26	0/1	39777
OG 2003	0.20	0/1	39777
OG 2008	0.20	0/1	39777
FE 2003	0.03	0/1	39777
FE 2009	0.05	0/1	39777
Father no religion	0.21	0/1	39777
Father catholic	0.38	0/1	39777
Father protestant	0.26	0/1	39777
Father other religion	0.07	0/1	39777
Father missing religion	0.09	0/1	39777
Mother no religion	0.18	0/1	39777
Mother catholic	0.40	0/1	39777
Mother protestant	0.28	0/1	39777
Mother other religion	0.07	0/1	39777
Mother missing religion	0.07	0/1	39777
Divorce parents <18	0.05	0/1	39777
Father's education	42.69 (22.58)	16.55 - 92.63	34368
Mother's education	35.17 (17.58)	16.55 - 92.63	35592
Respondent's education	58.31 (19.13)	16.55 - 94.62	39334

[a] more detailed information on the age of entry into first union and first marriage is provided in table 3

Finally, some controls are included in the analysis. First, the religious affiliation of both mother and father is incorporated, categorized as 0 = no religion (reference category), 1 = Catholic, 2 = Protestant, 3 = other religion, or 4 = missing. Second, a dummy variable indicating whether

the respondent experienced a parental divorce before age 18 is included. Finally, we control for possible survey differences by including a series of dummy variables for each of the surveys (OG 1998 = reference category). Descriptive information on all dependent and independent variables are shown in Table 2.

2.3.3 Analytical Strategy

The data are organized in a person-period file (Allison 1984), with separate records for each month that an individual was at risk, starting from age 15. If respondents do not experience entry into a union or entry into marriage, they are censored when they reach age 40 or at the time of interview, whichever comes first. Discrete-time (logistic regression) hazard models are estimated for entry into first union and entry in first marriage. A multinomial logistic regression model is estimated for the choice between married and unmarried cohabitation.

For all analyses, three models are presented. Model A is the base model and includes only the main independent variables and controls but not respondents' own educational attainment. For age and cohort, quadratic and cubic terms are included[5]. Age is cubed because union rates decrease at older ages. Cohort is cubed because the changes in union rates may not be linear. In fact, they show a dramatic increase around the 1960s and then more or less stabilize thereafter. The model also controls for differences in men's and women's age patterns and cohort changes of union formation by interacting female with age, age^2, age^3, cohort, cohort^2, and cohort^3. In Model B, respondents' own level of education is included to examine the extent to which the influence of parental education is mediated by respondents' own educational attainment. Model

[5] To facilitate interpretation and model convergence, we center age and cohort. For age, we center it on the mean age of entry into a partner relationship. In addition, we divide the quadratic and cubic terms for cohort by, respectively, 10 and 100.

C includes interactions of parental education with cohort, economic growth, age, and female. In the analysis of entry into first marriage, parental education is also interacted with unmarried cohabitation to examine whether this life-course event changes the influence that parental education has on marriage timing of their children.

Table 3 *Median age of entry into first union, first marriage and the percentage of unmarried cohabitation for men and women across cohorts, father's and mother's education*

	Low education father	Middle education father	High education father	Low education mother	Middle education mother	High education mother	Total
Median age at first union							
Women 1930-1960	22.1	22.3	23.3	22.1	22.5	23.7	22.2
Women 1960-1990	22.2	22.7	23.6	22.3	22.8	23.9	22.6
Men 1930-1960	24.5	24.5	24.9	24.4	24.9	24.8	24.5
Men 1960-1990	25.0	25.2	25.5	25.0	25.3	25.7	25.3
Median age at first marriage							
Women 1930-1960	22.4	23.3	25.5	22.5	24.1	26.3	22.8

Women 1960-1990	25.9	27.4	30.2	26.1	28.3	30.9	27.2
Men 1930-1960	25.1	26.0	27.6	25.2	27.3	27.8	25.5
Men 1960-1990	29.8	30.9	32.4	30.0	31.6	33.9	31.0
% Cohabitation as first union							
Women 1930-1960	20.3%	35.2%	51.2%	22.0%	45.5%	56.7%	27.1%
Women 1960-1990	66.3%	78.4%	84.9%	69.1%	80.1%	90.1%	73.3%
Men 1930-1960	25.8%	45.2%	56.2%	28.7%	52.3%	61.4%	34.1%
Men 1960-1990	74.9%	81.2%	86.1%	75.8%	85.1%	88.8%	78.8%

2.4 RESULTS

Table 3 presents the median age of entry into first union and first marriage as well as the percentage of first unions that started as an unmarried cohabitation, by gender, cohort, and parents' level of education. Educational level is split into those with low (i.e., at most lower vocational education (ISLED $\leq$ 29.34)), middle (i.e., those who have an educational level somewhere in between (ISLED > 29.34 and ISLED < 77.92)), and high (i.e., those with at least some finished tertiary education (ISLED $\geq$ 77.92)). Two cohorts are distinguished: those born before 1960 and those born since then. Table 3 shows that in general, the median age at first union has remained fairly stable across cohorts: that is, for women and men at approximately 22 and 25 years, respectively. However, the median age at first marriage is much higher for men and women born since 1960 compared with those born before 1960. One-half of the women and men born before 1960 had already married by ages 23 and 26, respectively, whereas the median ages for men and women born after 1960 increased to approximately 27 and 31, respectively. Finally, men and women born after 1960 were much more likely to opt for unmarried cohabitation as their first union compared with those born before 1960. About one-third of those born before 1960 chose unmarried cohabitation, whereas more than two-thirds of those born after 1960 did so. In both cohorts, men are slightly more likely than women to enter a cohabiting union. These gender differences arise because men generally are somewhat older (and thus are a member of an earlier birth cohort) at entry into a first union than their female partner. As a result, a shift toward unmarried cohabitation will occur a few birth cohorts earlier among men than among women.

Table 3 also shows differences in union formation by level of parental education. For both men and women, the more highly educated the mother and father are, the higher the median age of entry into first union and first marriage is; the only exception is that men born before 1960 who have a highly educated mother have a slightly lower median age of

entry into first union than men who have a middle-level-educated mother. The median age differences between parental educational groups are larger for first marriage than for first union. For women, there is only about a one-year difference in median age of first union between those with high- and low-educated mothers and fathers; for men, this difference is smaller. For first marriage, these differences range from about 2.5 to 4.5 years, again with somewhat smaller differences for men than for women. There appears to be little cohort change in educational background differences in entry into a union and marriage. The increase in the median age at first marriage in the youngest cohort is observed among all parental education groups, which implies that relative differences remain about the same. In general, median age differences appear to be slightly larger for mother's than for father's education.

The percentage of men and women who enter their first union by unmarried cohabitation also varies considerably by parents' education. In the 1930–1960 cohort, approximately one-quarter of those with a low-educated parent opt for unmarried cohabitation, and approximately one-half of those with a highly educated parent do so. In the 1960–1990 cohort, the proportion of individuals with a low-educated parent who opt for unmarried cohabitation as a first union rises to about two-thirds for women and about three-quarters for men; for those with a highly educated parent, it increases to more than 80 % for both men and women. For both men and women, the relative differences between those with low-educated and highly educated fathers and/or mothers decrease over the two cohorts. In sum, these descriptive results suggest that although the entry into first union and first marriage has been postponed among all groups, a parental educational gradient remains. The same applies to the choice between marriage and cohabitation.

Table 4 *Results of discrete-time and multinomial logistic regression on the influence of father's and mother's education on union formation.*

	First union			First Marriage			Cohabitation vs. Marriage		
	Model A	Model B	Model C	Model A	Model B	Model C	Model A	Model B	Model C
	b (S.E).	b (S.E.)	b (S.E.)	b (S.E.)	b (S.E.)	b (S.E.)	b (S.E.)	b (S.E.)	b (S.E.)
Father's education	-0.0032**	-0.0023**	-0.0002	-0.0066**	-0.0051**	-0.0084**	0.0098**	0.0076**	0.0095**
	(0.0003)	(0.0004)	(0.0008)	(0.0004)	(0.0005)	(0.0011)	(0.0007)	(0.0007)	(0.0016)
Mother's education	-0.0049**	-0.0042**	-0.0035**	-0.0077**	-0.0065**	-0.0146**	0.0111**	0.0095**	0.0109**
	(0.0005)	(0.0005)	(0.0011)	(0.0006)	(0.0006)	(0.0016)	(0.0010)	(0.0010)	(0.0023)
Respondent's education		-0.0048**	-0.0050**		-0.0072**	-0.0073**		0.0101**	0.0099**
		(0.0004)	(0.0004)		(0.0004)	(0.0004)		(0.0008)	(0.0008)
Interactions									
Father's educ.*cohort			-0.0000			-0.0000			0.0002*
			(0.0000)			(0.0000)			(0.0001)
Father's educ.*econ. growth			-0.0002			0.0006**			0.0002
			(0.0002)			(0.0002)			(0.0004)
Father's educ.*age			0.0005**			0.0007**			-0.0003
			(0.0001)			(0.0001)			(0.0002)
Father's educ.*female			-0.0028**			-0.0007			-0.0000

			(0.0007)			(0.0009)			(0.0016)
Father's educ.*cohabitation						0.0045**			
						(0.0009)			
Mother's educ.*cohort			0.0000			-0.0002**			-0.0000
			(0.0001)			(0.0001)			(0.0001)
Mother's educ.*econ. growth			-0.0003			0.0000			0.0004
			(0.0003)			(0.0003)			(0.0006)
Mother's educ.*age			0.0005**			0.0010**			-0.0009**
			(0.0001)			(0.0001)			(0.0003)
Mother's educ.*female			0.0005			0.0031*			0.0006
			(0.0010)			(0.0013)			(0.0023)
Mother's educ.*cohabitation						0.0102**			
						(0.0012)			
χ^2(df)[a]	391.85**(2)	163.94**(1)	166.93**(8)	748.71**(2)	302.37**(1)	514.04**(10)	938.25**(4)	356.93**(2)	320.60**(16)

Note: ** p<0.01, * p<0.05. For all controls included see Appendix: tables 5,6 and 7

[a]Wald test: Model A, comparing this model with a model with only controls, Model B comparing to Model A and Model C comparing to Model B. df, degrees of freedom, indicates the number of additional variables in the respective model compared to the previous. For the multinomial regression this number is doubled, since there is a Cohabitation vs. Marriage model and a Single vs. Marriage model (see Appendix)

In Table 4, the effects of parental educational attainment—and its relevant interactions—on the rate of entry into first union and first marriage and on the choice for cohabitation versus marriage are presented. In Table 4, Models A, entry into a first union and entry into a first marriage show significant effects for both father's and mother's education. Every additional ISLED point of father's and mother's education decreases the rate of entering a first union by, respectively, 0.3 % and 0.5 %. For first marriage, these figures are somewhat larger (0.7 % and 0.8 % per ISLED point, respectively). This confirms Hypothesis 1, in that higher parental education is associated with a delay of both first union and first marriage. Regarding the choice between cohabitation and marriage, Model A shows that an increase of one ISLED point for father's and mother's education is associated with, respectively, a 1.0% and a 1.1 % increase in the odds of choosing unmarried cohabitation rather than marriage at entry into a first union. These results confirm Hypothesis 2: that is, children with highly educated parents are more likely to opt for unmarried cohabitation. In all three analyses, Models B of Table 4 show that respondents' own level of education has the same type of effects as parental education, but also that the effects of father's and mother's level of education are only slightly reduced if respondent's own level of education is included. In Models C of Table 4, interactions between father's and mother's education and age, cohort, economic growth, and female are added to the model in order to test variations in the effect of parental education. First, we examine interactions between parental education and cohort to test Hypothesis 3: that is, the effect of parental education decreases over cohorts. The results offer little support for this hypothesis. The only significant effect in the expected direction is observed in the multinomial model, where the positive effect of father's education on the choice for unmarried cohabitation decreases across cohorts. Contrary to expectations, we also observe a statistically significant negative interaction between mother's education and cohort in the analysis of first marriage, indicating that the delaying effect of mother's education on the timing of first marriage has

increased rather than decreased across cohorts.

Hypothesis 4 states that with better economic circumstances, the effect of parental education decreases. To test this hypothesis, we include interactions between father's and mother's level of educational attainment and the level of economic growth in Table 4, Models C. Only one of these interactions is statistically significant: the delaying effect of father's education on the timing of the first marriage becomes smaller when economic circumstances improve. Thus, we find only weak support for Hypothesis 4.

The fifth hypothesis states that the effect of parental level of educational attainment decreases over the life course. To test this hypothesis, we include interactions between father's and mother's level of education and the child's age in Table 4, Models C. These interactions are positive and statistically significant for entry into first union and entry into first marriage, implying that the delaying effect of father's and mother's education on entry into a first union and entry into first marriage attenuates as their child grows older. Regarding the choice between married and unmarried cohabitation, we find a negative and statistically significant effect for the interaction between mother's education and age, indicating that the increased likelihood to choose unmarried cohabitation decreases as children age. The interaction between age and father's education is also negative, but it is not significant.

In addition, by including an interaction between father's and mother's education and cohabitation, we test whether the effect of parental education on the timing of entry of marriage is weaker for those young adults who are already cohabiting. This interaction is positive and statistically significant, indicating that the delaying effect of father's and mother's education is weaker after the child has entered a cohabiting relationship[6]. Thus, overall, we find strong support for Hypothesis 5.

In the Theory section, we discussed the possibility of gender differences in the effect of parental education. Therefore, we test whether the effects of mother's and father's education differ and interacted father's and mother's education with gender. Regarding the difference between father's and mother's education, additional Wald tests (not shown in table) reveal that the effect of mother's education is stronger than father's education for the timing of the first union ($\chi^2(1) = 5.42$, $p < .05$) and for the choice between cohabitation and marriage ($\chi^2(1) = 10.58$, $p < .01$) but not for the timing of first marriage ($\chi^2(1) = 1.53$, $p > .10$). The interactions with gender reveal that for first union, there is an effect only of father's education for women; for first marriage, the effect of mother's education is stronger for men than for women. Regarding the choice between marriage and cohabitation, no significant differences exist in the strength of father's or mother's education between men and women.

Finally, examining the effects of some controls (presented in Tables 5, 6, and 7 in the appendix) shows that those with religious parents are more likely to choose marriage rather than cohabitation as their first union and to enter marriage earlier. Having experienced a parental

[6] One could argue that the effect of parental education on entry into marriage does not diminish because children are cohabiting but rather because they have left the parental home. Because information on leaving home is missing in part of the data sets, we checked this in a subsample (results available upon request). The effect of parental education is stronger when children are still living in the parental home than after they left home. However, the interaction between unmarried cohabitation and parental education remains significant as well.

divorce before age 18 accelerates entry into first union, leads to a postponement of marriage, and increases the likelihood of choosing unmarried cohabitation as the first union. Finally, in bad economic times, people are more likely to postpone union formation and to opt for cohabitation rather than marriage as their first union type.

2.5 SUMMARY AND DISCUSSION

The aim of this study was to examine how parental educational attainment influences the union formation process, and to what extent this influence varies by cohort, period, life course, and gender. Because of the rise in unmarried cohabitation, we examined the influence of parental education on three aspects of the union formation process: (1) the timing of the start of the first union (irrespective of whether this was an unmarried cohabitation or a marriage), (2) the timing of first marriage, and (3) whether the first union was entered as an unmarried cohabitation or a marriage. The study was conducted in the Netherlands, which can be considered a country with relatively high levels of unmarried cohabitation.

In line with Hypothesis 1, individuals with highly educated parents postpone entry into first union and first marriage compared with those with lower-educated parents. This finding is consistent with previous research on the timing of first unions (Cavanagh 2011; Mulder et al. 2006; Wiik 2009) and of first marriage (Axinn and Thornton 1992; South 2001; Uecker and Stokes 2008). Also in line with previous studies, the effect of parental education is only partially mediated by children's own educational attainment (Cavanagh 2011; Wiik 2009), implying that the influence of educated parents is not just a result of the intergenerational transmission of education. Although not hypothesized, the effects of parental education appear stronger for first marriage than for first union. Given that the consequences of the decision to

marry are often somewhat greater than those of the decision to cohabit, perhaps parents put more effort in trying to influence the decision to marry.

Higher parental education is also associated with increased odds of choosing unmarried cohabitation rather than marriage as a first union, which is in line with Hypothesis 2. This confirms previous research in the Netherlands (Liefbroer 1991) but runs counter to research in the United States and Eastern Europe, where lower education is associated with the choice of unmarried cohabitation as a first union (Bumpass and Lu 2000; Hoem and Kostova 2008; Kennedy and Bumpass 2008; Lichter et al. 2006; Manning and Cohen 2015; Perelli-Harris and Gerber 2011; Seltzer 2004). In the Netherlands, as well as in some other Western European countries, opting for cohabitation as a first union may be mainly an expression of individualistic preferences rather than a result of economic circumstances (Hiekel et al. 2014).

This study used a long historical time range, including birth cohorts from 1930 to 1990, meaning that individuals entering a union before the presumed start of the SDT were included. It was expected, as stated in Hypothesis 3, that the influence of parental education would decrease across birth cohorts. However, the results of this study suggest that the influence has remained stable with only two exceptions. First, in line with expectations, the effect of father's education on the choice between cohabitation and marriage decreases across birth cohorts. Second, and contrary to our expectations, this study finds that the delaying effect of mother's education increases across cohorts. This result is difficult to explain, but it may be related to the fact that relatively few mothers among older cohorts in our study had reached a high level of education. As a result, mother's educational attainment might have become a more important distinguishing feature among younger cohorts in our study. Not finding a decreasing effect of parental education over time contrasts with results from previous studies using data from the United States and Norway (Sassler and Goldscheider 2004; South 2001; Wiik 2009), which have not found a decreasing effect of parental education over time. However, the empirical

evidence is not conclusive. Studies have found this decrease over time either for entry into first marriage (Sassler and Goldscheider 2004; South 2001) or first union (Wiik 2009) only in two national contexts. Furthermore, Wiik (2009) found that the influence of mother and not of the father decreases, whereas South (2001) did not find mother's educational level to be significant in all models.

Not only do we find little change in the effect of parental education across cohorts, but also period-related changes in the economy do not appear to alter the effect of parental education much. According to Hypothesis 4, the better the economic circumstances are, the weaker the influence parental education would be. However, only the effect of father's education on first marriage is found to be significantly weaker the better the economic circumstances, providing very limited support for Hypothesis 4. Thus, neither cultural nor economic changes in the second half of the last century appear to have changed the effect of parental education on union formation behavior. This finding is in contrast with the SDT theory, according to which the process of individualization would ultimately diminish the role of parental education on relationship formation. The absence of change in the effect of parental education over time may result for two reasons. First, although normative influence may have decreased, parents may still use their financial resources to avoid early marriage or cohabitation for their children, even in times of an economic crisis. Second, rather than a decline in adherence to social norms, new norms may have emerged that differ between social classes. Liefbroer and Billari (2010) indicated that the higher educated have developed a new set of norms that include preferences for spending a period living independently, a period of unmarried cohabitation, and the postponement of childbearing. Moreover, childbearing within cohabitation has become increasingly common among the lower-educated in Europe (Perelli-Harris et al. 2010). Thus, although norms and behaviors change, differences between individuals with high- or low-education parents may remain.

Regarding changes over the life course, as expected in Hypothesis 5, the effect of education of the parents on timing of the first union and first marriage decreases with age, which is in line with previous research (South 2001; Wiik 2009). Furthermore, the influence of mother's education on choice for cohabitation and marriage also decreases with age, although we do not observe the same for father's education. In addition, unmarried cohabitation decreases the effect of parental education on the timing of first marriage, indicating that life-course events—such as the start of an unmarried cohabiting relationship—decrease the influence of parents on their children's marriage timing. Thus, strong evidence exists for the importance of parental education mainly in the early phases of young adulthood.

The results on gender differences generally show that mother's level of education matters more than father's level of education, at least with regard to the timing of first union and the choice between marriage and cohabitation. One reason could be that Dutch mothers invest more in childrearing than do fathers. If so, mother's level of education could also be expected to more strongly influence other decisions in young adulthood—for instance, in the employment domain. Alternatively, perhaps this stronger effect of mothers is mainly limited to family formation. Classical thinking on parental socialization suggests that mothers are more influential in the family domain, whereas fathers are more influential in the employment domain (Aldous and Hill 1965). This reasoning could particularly apply to a country like the Netherlands that has long been characterized by a fairly traditional division of labor. The effects of parental education on sons and daughters are generally comparable, with only two exceptions. Father's educational attainment does not influence their son's union formation timing at all, and mother's educational attainment is particularly important for entry into marriage among sons. Although it is difficult to suggest a convincing explanation for these exceptions, the general storyline is that both sons and daughters are influenced by their parents' educational attainment.

This study has a number of limitations. First, we were not able to distinguish to what

extent the influence of parental education can be attributed to financial resources or socialization because most surveys did not contain information on family income, occupational status of the parents, or both. Second, we used a national estimator for economic conditions for young adults, whereas a measure focusing specifically on the economic conditions of young adults would have been preferable. For instance, information on youth unemployment would have been a better indicator. However, there was no information on youth unemployment earlier than the 1970s. Third, our measure of respondent's own education was constructed as a time-varying education variable, based on the final educational level, whereas the inclusion of a school enrollment variable would have been preferable. However, no data on the timing of actual school enrollment was available. Those enrolled in school are likely to postpone both cohabitation and marriage (Blossfeld and Huinink 1991; Raymore et al. 2001; Thornton et al. 1995). Although not central to our research concerns, it would have been interesting to show how the structural effect of enrollment and the more cultural effect captured by children's own attained educational level influence both timing and choice of the relationship formation. Finally, this study used retrospective union history data, which implies that results have to be interpreted with some caution given that respondents who entered a first union very long ago might be more likely to underreport such unions—particularly if the union only lasted for a short period of time—than respondents who entered their first union rather recently (Hayford and Morgan 2008). However, as Hayford and Morgan (2008) recommended, we did control for survey differences in our analyses.

In summary, the key findings are that the influence of parental education on their children's union formation decisions is sizable and has hardly changed over time but becomes weaker as children grow older. Future research on life- course-related changes in the effect of parental education should aim to disentangle whether the influence of family characteristics changes because of a gradual psychological maturation process or the

experience of demographic transitions. Furthermore, future research could also examine life-course changes in the association between parental background and other demographic transitions, such as parenthood and divorce. Finally, internationally comparative research is important in order to explain differences between countries in the influence of parental education on union formation behavior. In countries with higher welfare expenditure, individuals may have less difficulty affording marriage, which may make parental resources less important. Cultural differences could be important as well. For instance, in the United States, 74 % of marriages are church weddings (Cherlin 2004) compared with 58 % in the Netherlands (Kalmijn 2004). Because church weddings are, on average, more costly than civil marriages (Kalmijn 2004), parental financial resources may be more important in the timing and occurrence of marriage in the United States than in the Netherlands. Expanding research in these directions will provide a clearer picture of how parental education continues to influence decisions on demographic transitions and its impacts on intergenerational inequality.

REFERENCES

Aldous, J., & Hill, R. (1965). Social cohesion, lineage type, and intergenerational transmission. *Social Forces, 43,* 471–482.

Allison, P. D. (1984). *Event history analysis: Regression for longitudinal event data*. Beverly Hills, CA: Sage Publications.

Arnett, J. J. (2000). Emerging adulthood. *American Psychologist, 55,* 469–480.

Ashenfelter, O., & Rouse, C. (2000). Schooling, intelligence, and income in America. In K. Arrow, S. Bowles, & S. Durlauf (Eds.), *Meritocracy and economic inequality* (pp. 89–117). Princeton, NJ: Princeton University Press.

Axinn, W. G., & Thornton, A. (1992). The influence of parental resources on the timing of the transition to marriage. *Social Science Research, 21,* 261–285.

Bagheloe-Datadin, R. (2013). *De huidige crisis in vergelijking met die in de jaren tachtig* [The current crisis compared with the one in the 80's]. In *De Nederlandse economie 2012* (pp. 226–247). The Hague/ Heerlen, The Netherlands: CBS.

Barber, J. S. (2000). Intergenerational influences on the entry into parenthood: Mothers' preferences for family and nonfamily behavior. *Social Forces, 79,* 319–348.

Becker, J. W., & De Wit, J. S. J. (2000). *Secularisatie in de jaren negentig: Kerklidmaatschap, veranderingen in opvattingen en een prognose* [Secularization in the nineties: Church membership, changes in attitudes and a forecast]. The Hague, The Netherlands: Sociaal en Cultureel Planbureau.

Berrington, A., & Diamond, I. (1999). Marital dissolution among the 1958 British birth cohort: The role of cohabitation. *Population Studies, 53,* 19–38.

Berrington, A., & Diamond, I. (2000). Marriage or cohabitation: A competing risks analysis of first- partnership formation among the 1958 British birth cohort. *Journal of the Royal Statistical Society: Series A (Statistics in Society), 163,* 127–151.

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

Blossfeld, H.-P., & Huinink, J. (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,* 143–168.

Bradbury, K. L. (2002). Education and wages in the 1980s and 1990s: Are all groups moving up together? *New England Economic Review, First Quarter,* 19–46.

Bucx, F., van Wel, F., & Knijn, T. (2012). Life course status and exchanges of support between young adults and parents. *Journal of Marriage and Family, 74,* 101–115.

Bumpass, L., & Lu, H. H. (2000). Trends in cohabitation and implications for children's family contexts in the United States. *Population Studies, 54,* 29–41.

Caminada, K., Goudswaard, K., & Koster, F. (2012). Social income transfers and poverty: A cross-country analysis for OECD countries. *International Journal of Social Welfare, 21,* 115–126.

Cavanagh, S. E. (2011). Early pubertal timing and the union formation behaviors of young women. *Social Forces, 89,* 1217–1238.

Cherlin, A. (2004). The deinstitutionalization of American marriage. *Journal of Marriage and Family, 66,* 848–861.

Clarkberg, M. (1999). The price of partnering: The role of economic well-being in young adults' first union experiences. *Social Forces, 77,* 945–968.

Cohen, J., & Manning, W. (2010). The relationship context of premarital serial cohabitation. *Social Science Research, 39,* 766–776.

Covizzi, I. (2008). Does union dissolution lead to unemployment? A longitudinal study of health and risk of unemployment for women and men undergoing separation. *European Sociological Review, 24,* 347–361.

De Beer, J. (2012, November 12). *Crisis in de economie, crisis in relatie- en gezinsvorming?* [Crisis in the economy, crisis in relationships and family formation?] In *Bevolkingstrends*. The Hague/Heerlen, The Netherlands: CBS.

De Graaf, N. D., de Graaf, P. M., Kraaykamp, G., & Ultee, W. C. (2003). Familie-enquête Nederlandse Bevolking 2003 [Family Survey Dutch Population 2003] [Data file]. Retrieved from http://dx.doi.org/ 10.17026/dans-xm2-5fue

De Valk, H. A., & Liefbroer, A. C. (2007). Parental influence on union formation preferences among Turkish, Moroccan, and Dutch adolescents in the Netherlands. *Journal of Cross-Cultural Psychology, 38,* 487– 505.

Dornbusch, S. M. (1989). The sociology of adolescence. *Annual Review of Sociology, 15,* 233–259.

Dubow, E. F., Boxer, P., & Huesmann, L. R. (2009). Long-term effects of parents' education on children's educational and occupational success: Mediation by family interactions, child aggression, and teenage aspirations. *Merrill-Palmer Quarterly, 55,* 224–249.

Easterlin, R. (1980). *Birth and fortune*. New York, NY: Basic Books.

Ellwood, D. T., & Jencks, C. (2004). *The spread of single-parent families in the United States since 1960* (KSG Working Paper No. RWP04-008). Cambridge, MA: Kennedy School of Government, Harvard University. Retrieved from http://ssrn.com/abstract=517662 or http://dx.doi.org/10.2139/ssrn.517662

ESR/STP. (1992). SSCW data file. Owner: Stichting Economische, Sociaal-culturele en Ruimtelijke Wetenschappen (ESR) of the Netherlands Organisation for the Advancement of Scientific Research (NWO), The Hague. Data collection: Stichting Telepanel, Amsterdam. Data management: Steinmetz Archive, Amsterdam (P1107).

Harris, K. M., Furstenberg, F. F., & Marmer, J. K. (1998). Paternal involvement with adolescents in intact families: The influence of fathers over the life course. *Demography, 35,* 201–216.

Hayford, S. R., & Morgan, S. P. (2008). The quality of retrospective data on cohabitation. *Demography, 45,* 129–141.

Heuveline, P., Timberlake, J. M., & Furstenberg, F. F. (2003). Shifting childrearing to single mothers: Results from 17 Western countries. *Population and Development Review, 29,* 47–71.

Hiekel, N., Liefbroer, A. C., & Poortman, A. R. (2014). Understanding diversity in the meaning of cohabitation across Europe. *European Journal of Population, 30*(4), 1–20.

Hoem, J. M., & Kostova, D. (2008). Early traces of the second demographic transition in

Bulgaria: A joint analysis of marital and non-marital union formation, 1960–2004. *Population Studies, 62,* 259–271.

Hoem, J. M., & Kreyenfeld, M. (2006). Anticipatory analysis and its alternatives in life-course research Part 1: The role of education and first childbearing. *Demographic Research, 15*(article 16), 461–484. doi:10.4054/DemRes.2006.15.16

Hogan, D. P., & Astone, N. M. (1986). The transition to adulthood. *Annual Review of Sociology, 12,* 109–130.

Jansen, M. (2002). *Religiositeit en relatie- en gezinsvorming in Nederland nader beschouwd* [A closer look at religiosity and union and family formation in the Netherlands]. *Bevolking en Gezin, 31,* 125–150.

Kalmijn, M. (1998). Intermarriage and homogamy: Causes, patterns, trends. *Annual Review of Sociology, 24,* 395–421.

Kalmijn, M. (2004). Marriage rituals as reinforcers of role transitions: An analysis of weddings in the Netherlands. *Journal of Marriage and Family, 66,* 582–594.

Kennedy, S., & Bumpass, L. (2008). Cohabitation and children's living arrangements: New estimates from the United States. *Demographic Research, 19*(article 47), 1663–1692. doi:10.4054/DemRes.2008.19.47

Kiernan, K. (2001). The rise of cohabitation and childbearing outside marriage in Western Europe. *International Journal of Law, Policy and the Family, 15,* 1–21.

Knipscheer, C. P. M., de Jong-Gierveld, J., van Tilburg, T. G., & Dykstra, P. A. (n.d.). *Leefvormen en sociale netwerken van ouderen 1992: Hoofdstudie* [Living arrangements and social networks of the elderly in 1992: Main study] [Data set]. DANS. Retrieved from doi:10.17026/dans-x53-ta72

Kraaykamp, G., Ruiter, S., & Wolbers, M. H. J. (2009). *Familie-enquête Nederlandse bevolking 2009* [Family Survey Dutch Population 2009]. The Hague, The Netherlands: Data

Archiving and Networked Services. Retrieved from http://dx.doi.org/10.17026/dans-x67-64zp

Landale, N. S., & Forste, R. (1991). Patterns of entry into cohabitation and marriage among mainland Puerto Rican women. *Demography, 28,* 587–607.

Lesthaeghe, R. (2010). The unfolding story of the second demographic transition. *Population and Development Review, 36,* 211–251.

Lesthaeghe, R., & Surkyn, J. (1988). Cultural dynamics and economic theories of fertility change. *Population and Development Review, 14,* 1–45.

Lesthaeghe, R., & Van de Kaa, D. J. 1986. *Twee demografische transities?* [Two demographic transitions?]. In R. Lesthaeghe & D. J. van de Kaa (Eds.), *Bevolking: Groei en krimp. Mens en Maatschappij* (pp. 9–24). Deventer, The Netherlands: Van Loghum-Slaterus.

Lichter, D. T., & Qian, Z. (2008). Serial cohabitation and the marital life course. *Journal of Marriage and Family, 70,* 861–878.

Lichter, D. T., Qian, Z., & Mellott, L. M. (2006). Marriage or dissolution? Union transitions among poor cohabiting women. *Demography, 43,* 223–240.

Lichter, D. T., Turner, R. N., & Sassler, S. (2010). National estimates of the rise in serial cohabitation. *Social Science Research, 39,* 754–765.

Liefbroer, A. C. (1991): *Kiezen tussen ongehuwd samenwonen en trouwen* [Choosing between cohabitation and marriage]. Amsterdam, The Netherlands: Centrale Huisdrukkerij Vrije Universiteit.

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

Liefbroer, A. C., & Corijn, M. (1999). Who, what, where, and when? Specifying the impact of educational attainment and labour force participation on family formation. *European*

Journal of Population, 15, 45–75.

Lyngstad, T. H. (2006). Why do couples with highly educated parents have higher divorce rates? *European Sociological Review, 22,* 49–60.

Manning, W. D., & Brown, S. (2006). Children's economic well-being in married and cohabiting parent families. *Journal of Marriage and Family, 68,* 345–362.

Manning, W. D., & Cohen, J. A. (2015). Teenage cohabitation, marriage, and childbearing. *Population Research and Policy Review, 34,* 161–177.

Manning, W. D., & Lichter, D. T. (1996). Parental cohabitation and children's economic well-being. *Journal of Marriage and Family, 58,* 998–1010.

Manting, D. (1996). The changing meaning of cohabitation and marriage. *European Sociological Review, 12,* 53–65.

Michael, R. T., & Tuma, N. B. (1985). Entry into marriage and parenthood by young men and women: The influence of family background. *Demography, 22,* 515–544.

Miller, P., Mulvey, C., & Martin, N. (1995). What do twins studies reveal about the economic returns to education? A comparison of Australian and U.S. findings. *American Economic Review, 85,* 586–599.

Morris, T. P., White, I. R., & Royston, P. (2014). Tuning multiple imputation by predictive mean matching and local residual draws. *BMC Medical Research Methodology, 14*(1), 75. doi:10.1186/1471-2288-14-75

Mulder, C. H., Clark, W. A. V., & Wagner, M. (2006). Resources, living arrangements and first union formation in the United States, the Netherlands and West Germany. *European Journal of Population, 22,* 3–35.

Mulder, C. H., & Smits, J. (1999). First-time home-ownership of couples the effect of inter-generational transmission. *European Sociological Review, 15,* 323–337.

Peichl, A., Schaefer, T., & Scheicher, C. (2010). Measuring richness and poverty: A micro data

application to Europe and Germany. *Review of Income and Wealth, 56,* 597–619.

Perelli-Harris, B., & Gerber, T. (2011). Nonmarital childbearing in Russia: Second demographic transition of pattern of disadvantage? *Demography, 48,* 317–342.

Perelli-Harris, B., Sigle-Rushton, W., Kreyenfeld, M., Lappegård, T., Keizer, R., & Berghammer, C. (2010). The educational gradient of childbearing within cohabitation in Europe. *Population and Development Review, 36,* 775–801.

Raymore, L. A., Barber, B. L., & Eccles, J. S. (2001). Leaving home, attending college, partnership and parenthood: The role of life transition events in leisure pattern stability from adolescence to young adulthood. *Journal of Youth and Adolescence, 30,* 197–223.

Robson, K., & Berthoud, R. (2003). Teenage motherhood in Europe a multi-country analysis of socioeconomic outcomes. *European Sociological Review, 19,* 451–466.

Rubin, D. B. (1987). *Multiple imputation for nonresponse in surveys*. New York, NY: Wiley.

Russell, A., & Saebel, J. (1997). Mother–son, mother–daughter, father–son, and father–daughter: Are they distinct relationships? *Developmental Review, 17,* 111–147.

Santelli, J. S., & Melnikas, A. J. (2010). Teen fertility in transition: Recent and historic trends in the United States. *Annual Review of Public Health, 31,* 371–383.

Sassler, S., Cunningham, A., & Lichter, D. T. (2009). Intergenerational patterns of union formation and relationship quality. *Journal of Family Issues, 30,* 757–786.

Sassler, S., & Goldscheider, F. (2004). Revisiting Jane Austen's theory of marriage timing changes in union formation among American men in the late 20th century. *Journal of Family Issues, 25,* 139–166.

Schoon, I., & Parsons, S. (2002). Teenage aspirations for future careers and occupational outcomes. *Journal of Vocational Behavior, 60,* 262–288.

Schröder, C. (2006). Cohabitation in Italy: Do parents matter? *Genus, 62*(3), 53–85.

Schröder, H., & Ganzeboom, H. B. G. (2013). Measuring and modeling education levels in

European societies. *European Sociological Review, 30,* 119–136.

Seltzer, J. A. (2004). Cohabitation in the United States and Britain: Demography, kinship, and the future. *Journal of Marriage and Family, 66,* 921–928.

Sewell, W. H., & Shah, V. P. (1968). Parents' education and children's educational aspirations and achievements. *American Sociological Review, 33,* 191–209.

Shavit, Y., & Blossfeld, H.-P. (1993). *Persistent inequality: Changing educational attainment in thirteen countries*. Boulder, CO: Westview Press.

Sieben, I., & De Graaf, P. M. (2003). The total impact of the family on educational attainment. *European Societies, 5*(1), 33–68.

South, S. J. (2001). The variable effects of family background on the timing of first marriage: United States, 1969–1993. *Social Science Research, 30,* 606–626.

Starrels, M. E. (1994). Gender differences in parent-child relations. *Journal of Family Issues, 15,* 148–165.

Statistics Netherlands. (2006). *Minder huwelijk na samenwonen* [Fewer marriages after cohabitation]. In CBS (Ed.), *Webmagazine 27*. The Hague, The Netherlands: CBS.

Statistics Netherlands. (2008). *Onderzoek gezinsvorming - OGV 1993 1998 2003 2008* [Fertility Survey - OGV 1993 1998 2003 2008]. The Hague, The Netherlands: Data Archiving and Networked Services. Retrieved from http://dx.doi.org/10.17026/dans-znk-f36y

Statistics Netherlands. (2012). *CBS StatLine: Nationale rekeningen; historie 1900–2012* [CBS StatLine: National accounts; History 1900–2012]. Retrieved from http://statline.cbs.nl/StatWeb/ publication/? VW=T&DM=SLNL& PA=7343nr& D1 =0- 8 &D2 =0& D3 =a&HD= 080827 - 1126&HDR=T,G1&STB=G2

Steinberg, L. (1987). Recent research on the family at adolescence: The extent and nature of sex differences. *Journal of Youth and Adolescence, 16,* 191–197.

Thornton, A., Axinn, W. G., & Teachman, J. D. (1995). The influence of school enrollment and

accumulation on cohabitation and marriage in early adulthood. *American Sociological Review, 60,* 762–774.

Thornton, A., Axinn, W. G., & Xie, Y. (2008). *Marriage and cohabitation*. Chicago, IL: University of Chicago Press.

Uecker, J. E., & Stokes, C. E. (2008). Early marriage in the United States. *Journal of Marriage and Family, 70,* 835–846.

Van der Valk, I., Spruijt, E., de Goede, M., Larsen, H., & Meeus, W. (2008). Family traditionalism and family structure: Attitudes and intergenerational transmission of parents and adolescents. *European Psychologist, 13,* 83–95.

Van Hek, M., Kraaykamp, G., & Wolbers, M. H. (2015). Family resources and male–female educational attainment: Sex specific trends for Dutch cohorts (1930–1984). *Research in Social Stratification and Mobility, 40,* 29–38.

Van Poppel, F., Monden, C., & Mandemakers, K. (2008). Marriage timing over the generations. *Human Nature, 19*(1), 7–22.

Waite, L. J., Goldscheider, F. K., & Witsberger, C. (1986). Nonfamily living and the erosion of traditional family orientations among young adults. *American Sociological Review, 51,* 541–554.

Waite, L. J., & Spitze, G. D. (1981). Young women's transition to marriage. *Demography, 18,* 681–694. White, I. R., & Royston, P. (2009). Imputing missing covariate values for the Cox model. *Statistics in Medicine, 28,* 1982–1998.

White, I. R., & Royston, P. (2009). Imputing missing covariate values for the Cox model. *Statistics in medicine*, *28*(15), 1982-1998.

Wiik, K. A. (2009). "You'd better wait!"—Socio-economic background and timing of first marriage versus first cohabitation. *European Sociological Review, 25,* 139–153.

Winkler-Dworak, M., & Toulemon, L. (2007). Gender differences in the transition to adulthood

in France: Is there convergence over the recent period? *European Journal of Population, 23*, 273–314.

APPENDIX

Table 5 *Complete results of logistic discrete-time analysis for first union*

	Model A b (S.E.)	Model B b (S.E.)	Model C b (S.E.)
Father's education	-0.0032**	-0.0023**	-0.0002
	(0.0003)	(0.0004)	(0.0008)
Mother's education	-0.0049**	-0.0042**	-0.0035**
	(0.0005)	(0.0005)	(0.0011)
Respondent's education		-0.0048**	-0.0050**
		(0.0004)	(0.0004)
Interactions			
Father's educ.*cohort			-0.0000
			(0.0000)
Father's educ.*econ. growth			-0.0002
			(0.0002)
Father's educ.*age			0.0005**
			(0.0001)
Father's educ.*gender			-0.0028**
			(0.0007)
Mother's educ.*cohort			0.0000
			(0.0001)
Mother's educ.*econ. growth			-0.0003
			(0.0003)

Mother's educ.*age			0.0005**
			(0.0001)
Mother's educ.*gender			0.0005
			(0.0010)
Controls			
Age	0.1866**	0.1888**	0.1499**
	(0.0037)	(0.0037)	(0.0055)
Age^2	-0.0469**	-0.0474**	-0.0475**
	(0.0009)	(0.0009)	(0.0009)
Age^3	0.0020**	0.0020**	0.0020**
	(0.0001)	(0.0001)	(0.0001)
Cohort	-0.0158**	-0.0156**	-0.0137**
	(0.0015)	(0.0016)	(0.0023)
$Cohort^2$	0.0014	0.0011	0.0015
	(0.0010)	(0.0010)	(0.0011)
$Cohort^3$	0.0276**	0.0287**	0.0300**
	(0.0051)	(0.0051)	(0.0052)
Survey, ref.=OG 1998			
NESTOR	-0.2386**	-0.3111**	-0.2977**
	(0.0666)	(0.0669)	(0.0670)
ESR telepanel	-0.5229**	-0.5661**	-0.5572**
	(0.0353)	(0.0355)	(0.0355)
OG 1993	0.0877**	0.0708**	0.0693**
	(0.0188)	(0.0189)	(0.0189)
OG 2003	0.0535**	0.0364*	0.0362*
	(0.0183)	(0.0184)	(0.0184)
OG 2008	0.1592**	0.1336**	0.1301**
	(0.0187)	(0.0189)	(0.0189)
FE 2003	-0.3297**	-0.3736**	-0.3728**
	(0.0386)	(0.0387)	(0.0388)
FE 2009	0.0250	-0.0553	-0.0629

	(0.0379)	(0.0380)	(0.0378)
Gender	0.4958**	0.4975**	0.5962**
	(0.0191)	(0.0191)	(0.0370)
Economic growth	0.0115**	0.0114**	0.0289**
	(0.0036)	(0.0036)	(0.0084)
Relig. father, ref.=no relig.			
Father catholic	-0.1255**	-0.1206**	-0.1195**
	(0.0300)	(0.0298)	(0.0298)
Father protestant	-0.1318**	-0.1275**	-0.1249**
	(0.0267)	(0.0267)	(0.0265)
Father other religion	0.0058	-0.0081	-0.0061
	(0.0441)	(0.0440)	(0.0441)
Father missing religion	-0.1474**	-0.1729**	-0.1724**
	(0.0450)	(0.0449)	(0.0448)
Relig. mother, ref.=no relig.			
Mother catholic	-0.0463	-0.0382	-0.0357
	(0.0306)	(0.0304)	(0.0304)
Mother protestant	-0.0537*	-0.0439	-0.0433
	(0.0273)	(0.0273)	(0.0273)
Mother other religion	-0.0517	-0.0596	-0.0660
	(0.0431)	(0.0430)	(0.0431)
Mother missing religion	-0.6490**	-0.6552**	-0.6581**
	(0.0582)	(0.0580)	(0.0580)
Divorce parents <18	0.1992**	0.1855**	0.1841**
	(0.0337)	(0.0336)	(0.0336)
Gender*age	-0.1534**	-0.1528**	-0.1528**
	(0.0052)	(0.0052)	(0.0052)
Gender*age^2	0.0070**	0.0068**	0.0066**
	(0.0011)	(0.0011)	(0.0011)
Gender*age^3	0.0001	0.0001	0.0001
	(0.0001)	(0.0001)	(0.0001)

Gender*cohort	-0.0017	-0.0005	0.0014
	(0.0020)	(0.0020)	(0.0020)
Gender*cohort^2	-0.0029*	-0.0030*	-0.0026*
	(0.0013)	(0.0013)	(0.0013)
Gender*cohort^3	0.0050	0.0036	0.0042
	(0.0060)	(0.0060)	(0.0060)
Constant	-3.9169**	-3.6743**	-3.7693**
	(0.0278)	(0.0336)	(0.0441)

Note: ** p<0.01, * p<0.05

Table 6 *Complete results of logistic discrete-time analysis for first marriage*

	Model A b (S.E).	Model B b(S.E.)	Model C b(S.E.)
Father's education	-0.0066**	-0.0051**	-0.0084**
	(0.0004)	(0.0005)	(0.0011)
Mother's education	-0.0077**	-0.0065**	-0.0146**
	(0.0006)	(0.0006)	(0.0016)
Respondent's education		-0.0072**	-0.0073**
		(0.0004)	(0.0004)
Interactions			
Father's educ.*cohort			0.0000
			(0.0000)
Father's educ.*econ. growth			0.0006**
			(0.0002)
Father's educ.*age			0.0007**
			(0.0001)
Father's educ.*gender			-0.0007
			(0.0009)
Father's educ.*cohab.			0.0045**
			(0.0009)
Mother's educ.*cohort			-0.0002**
			(0.0001)
Mother's educ.*econ. growth			0.0000
			(0.0003)
Mother's educ.*age			0.0010**
			(0.0001)
Mother's educ.*gender			0.0031*
			(0.0013)
Mother's educ.*cohab.			0.0102**
			(0.0012)

Controls			
Age	0.0651**	0.0676**	0.0097
	(0.0041)	(0.0041)	(0.0057)
Age^2	-0.0399**	-0.0403**	-0.0412**
	(0.0008)	(0.0008)	(0.0008)
Age^3	0.0021**	0.0021**	0.0021**
	(0.0001)	(0.0001)	(0.0001)
Cohort	-0.0672**	-0.0677**	-0.0610**
	(0.0019)	(0.0019)	(0.0030)
$Cohort^2$	-0.0053**	-0.0056**	-0.0045*
	(0.0015)	(0.0015)	(0.0015)
$Cohort^3$	0.0344**	0.0376**	0.0396**
	(0.0068)	(0.0068)	(0.0069)
Survey, ref.=OG 1998			
NESTOR	-0.7634**	-0.8668**	-0.8741**
	(0.0826)	(0.0827)	(0.0833)
ESR telepanel	-1.0445**	-1.112**	-1.1136**
	(0.0479)	(0.0481)	(0.0481)
OG 1993	0.0032	-0.0294	-0.0273
	(0.0211)	(0.0212)	(0.0212)
OG 2003	0.0654**	0.0311	0.0303
	(0.0206)	(0.0208)	(0.0208)
OG 2008	-0.3559**	-0.3986**	-0.4055**
	(0.0239)	(0.0242)	(0.0242)
FE 2003	-0.2439**	-0.3202**	-0.3205**
	(0.0393)	(0.0396)	(0.0397)
FE 2009	0.0359	-0.0125	-0.0192
	(0.0323)	(0.0325)	(0.0325)
Gender (ref = male)	0.2406**	0.2471**	0.1797**
	(0.0224)	(0.0222)	(0.0451)
Economic growth	0.0500**	0.0494**	0.0231*
	(0.0041)	(0.0041)	(0.0102)

Relig. father, ref.=no relig.			
Father catholic	0.0675*	0.0771*	0.0756**
	(0.0299)	(0.0295)	(0.0296)
Father protestant	0.1300**	0.1339**	0.1292**
	(0.0295)	(0.0295)	(0.0296)
Father other religion	0.3885**	0.3811**	0.3657**
	(0.0439)	(0.0439)	(0.0439)
Father missing religion	-0.0330	-0.0611	-0.0655
	(0.0486)	(0.0482)	(0.0483)
Relig. mother, ref.=no relig.			
Mother catholic	0.1085**	0.1257**	0.1203**
	(0.0309)	(0.0306)	(0.0306)
Mother protestant	0.1338**	0.0158**	0.1525**
	(0.0306)	(0.0306)	(0.0307)
Mother other religion	0.2448**	0.2272**	0.2154**
	(0.0433)	(0.0434)	(0.0435)
Mother missing religion	-0.1390*	-0.1547**	-0.1572**
	(0.0619)	(0.0612)	(0.0613)
Divorce parents <18	-0.1484**	-0.1829**	-0.1790**
	(0.0387)	(0.0386)	(0.0386)
Cohabitation	1.0113**	1.0147**	0.4794**
	(0.0159)	(0.0159)	(0.0412)
Gender*age	-0.1354**	-0.1346**	-0.1384**
	(0.0058)	(0.0058)	(0.0059)
Gender*age^2	0.0115**	0.0113**	0.0111**
	(0.0009)	(0.0009)	(0.0009)
Gender*age^3	-0.0002*	-0.0002*	-0.0002*
	(0.0001)	(0.0001)	(0.0001)
Gender*cohort	0.0011	0.0024	0.0009
	(0.0024)	(0.0024)	(0.0023)
Gender*cohort^2	-0.0019	-0.0018	-0.0024

	(0.0018)	(0.0018)	(0.0019)
Gender*cohort[3]	0.0038	0.0028	0.0032
	(0.0082)	(0.0082)	(0.0083)
Constant	-4.9578**	-4.6083**	-4.1998**
	(0.0353)	(0.0398)	(0.0577)

Note: ** p<0.01, * p<0.05

Table 7 *Complete results of the multinomial analysis, with base category marriage*

	Cohabitation vs. Marriage			Single vs. Marriage		
	Model A	Model B	Model C	Model A	Model B	Model C
	b (S.E.)	b(S.E.)	b(S.E.)	b(S.E.)	b(S.E.)	b(S.E.)
Father's education	0.0098**	0.0076**	0.0095**	0.0089**	0.0068**	0.0071**
	(0.0007)	(0.0007)	(0.0016)	(0.0005)	(0.0006)	(0.0012)
Mother's education	0.0111**	0.0095**	0.0109**	0.0127**	0.0112**	0.0124**
	(0.0010)	(0.0010)	(0.0023)	(0.0008)	(0.0008)	(0.0019)
Respondent's education		0.0101**	0.0099**		0.0094**	0.0098**
		(0.0008)	(0.0008)		(0.0005)	(0.0005)
Interactions						
Father's educ.*cohort			-0.0002*			0.0002**
			(0.0001)			(0.0001)
Father's educ.*econ. growth			0.0002			-0.0000
			(0.0004)			(0.0003)
Father's educ.*age			-0.0003			-0.0006**
			(0.0002)			(0.0002)
Father's educ.*gender			-0.0000			0.0020
			(0.0016)			(0.0012)
Mother's educ.*cohort			-0.0000			0.0003**
			(0.0001)			(0.0001)
Mother's educ.*econ. growth			0.0004			0.0002
			(0.0006)			(0.0004)
Mother's educ.*age			-0.0009**			-0.0009**
			(0.0003)			(0.0002)
Mother's educ.*gender			0.0006			-0.0002
			(0.0023)			(0.0018)
Controls						
Age	-0.0037	-0.0068	0.0276*	-0.1912**	-0.1938**	-0.1464**
	(0.0074)	(0.0074)	(0.0114)	(0.0055)	(0.0055)	(0.0085)
Age^2	0.0231**	0.0240**	0.0242**	0.0611**	0.0619**	0.0621**

	(0.0019)	(0.0019)	(0.0019)	(0.0016)	(0.0016)	(0.0016)
Age^3	-0.0011**	-0.0012**	-0.0012**	-0.0027**	-0.0027**	-0.0027**
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Cohort	0.1112**	0.1108**	0.1211**	0.0857**	0.0852**	0.0663**
	(0.0038)	(0.0038)	(0.0055)	(0.0024)	(0.0024)	(0.0039)
Cohort^2	-0.0201**	-0.0195**	-0.0190**	-0.0016	-0.0010	-0.0030
	(0.0025)	(0.0025)	(0.0026)	(0.0019)	(0.0019)	(0.0019)
Cohort^3	-0.0182	-0.0198	-0.0157	-0.0697**	-0.0711**	-0.0743**
	(0.0150)	(0.0151)	(0.0150)	(0.0074)	(0.0075)	(0.0076)
Survey, ref.=OG 1998						
NESTOR	0.5676*	0.7372**	0.8209*	0.2472**	0.4081**	0.3615**
	(0.2768)	(0.2768)	(0.2751)	(0.0728)	(0.0733)	(0.0735)
ESR telepanel	0.1489*	0.2501**	0.2558**	0.5797**	0.6754**	0.6636**
	(0.0716)	(0.0720)	(0.0720)	(0.0452)	(0.0456)	(0.0455)
OG 1993	-0.0194	-0.0603	-0.0567	-0.0809**	-0.0421	-0.0428
	(0.0377)	(0.0379)	(0.0380)	(0.0280)	(0.0281)	(0.0281)
OG 2003	-0.0082	0.0373	0.0388	-0.0436	0.0001	-0.0026
	(0.0367)	(0.0369)	(0.0369)	(0.0270)	(0.0271)	(0.0271)
OG 2008	-0.1319**	-0.0633	-0.0668	-0.2275**	-0.1614**	-0.1651**
	(0.0374)	(0.0378)	(0.0378)	(0.0278)	(0.0282)	(0.0282)
FE 2003	0.0970	0.2041*	0.2097**	0.3807**	0.4824**	0.4915**
	(0.0755)	(0.0758)	(0.0760)	(0.0500)	(0.0503)	(0.0506)
FE 2009	-0.1085	-0.0243	-0.0289	-0.0052	0.0762	0.0743
	(0.0713)	(0.0715)	(0.0711)	(0.0415)	(0.0418)	(0.0418)
Gender	-0.1830**	-0.1863**	-0.1975**	-0.6318**	-0.6348**	-0.7066**
	(0.0411)	(0.0411)	(0.0768)	(0.0316)	(0.0316)	(0.0600)
Economic growth	-0.0367**	-0.0366**	-0.0579**	-0.0198**	-0.0198**	-0.0245*
	(0.0075)	(0.0075)	(0.0182)	(0.0046)	(0.0046)	(0.0120)
Relig. father, ref.=no relig.						
Father catholic	-0.2814**	-0.2947**	-0.2912**	-0.0495	-0.0622	-0.0650
	(0.0586)	(0.0582)	(0.0583)	(0.0420)	(0.0415)	(0.0414)

Father protestant	-0.4254**	-0.4360**	-0.4288**	-0.1062**	-0.1161**	-0.1179**
	(0.0540)	(0.0539)	(0.0536)	(0.0383)	(0.0382)	(0.0380)
Father other religion	-0.8488**	-0.8254**	-0.8480**	-0.4370**	-0.4155**	-0.4224**
	(0.0923)	(0.0923)	(0.0923)	(0.0558)	(0.0557)	(0.0554)
Father missing religion	-0.2419*	-0.1908*	-0.1905*	-0.0172	-0.0303	-0.0304
	(0.0889)	(0.0888)	(0.0890)	(0.0669)	(0.0667)	(0.0665)
Relig. mother, ref.=no relig.						
Mother catholic	-0.2135**	-0.2273**	-0.2310**	-0.1062*	-0.1189**	-0.1204**
	(0.0601)	(0.0598)	(0.0598)	(0.0438)	(0.0433)	(0.0432)
Mother protestant	-0.3065**	-0.3273**	-0.3389**	-0.1553**	-0.1749**	-0.1768**
	(0.0557)	(0.0539)	(0.0553)	(0.0407)	(0.0406)	(0.0404)
Mother other religion	-0.6987**	-0.6871**	-0.6700**	-0.3495**	-0.3399**	-0.3152**
	(0.0898)	(0.0898)	(0.0899)	(0.0557)	(0.0558)	(0.0556)
Mother miss. religion	-0.5567**	-0.5347**	-0.5525**	0.2998**	0.3211**	0.3225**
	(0.1150)	(0.1147)	(0.1150)	(0.0848)	(0.0844)	(0.0839)
Divorce parents <18	0.5441**	0.5752**	0.5714**	0.1986**	0.2280**	0.2272**
	(0.0706)	(0.0706)	(0.0706)	(0.0584)	(0.0583)	(0.0584)
Gender*age	0.0873**	0.0852**	0.0858**	0.2039**	0.2019**	0.0203**
	(0.0103)	(0.0103)	(0.0104)	(0.0077)	(0.0077)	(0.0077)
Gender*age^2	-0.0091**	-0.0088**	-0.0088**	-0.0135**	-0.0132**	-0.0130**
	(0.0022)	(0.0022)	(0.0022)	(0.0019)	(0.0018)	(0.0018)
Gender*age^3	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	(0.0002)	(0.0002)	(0.0002)	(0.0001)	(0.0001)	(0.0001)
Gender*cohort	-0.0091	-0.0118*	-0.0120*	-0.0085**	-0.0110**	-0.0125**
	(0.0047)	(0.0047)	(0.0048)	(0.0030)	(0.0030)	(0.0030)
Gender*coh.^{2}	0.0015	0.0016	0.0012	0.0080**	0.0081**	0.0077**
	(0.0033)	(0.0033)	(0.0033)	(0.0024)	(0.0025)	(0.0025)
Gender*coh.^{3}	0.0533**	0.0566**	0.0574**	0.0192*	0.0224*	0.0214*
	(0.0183)	(0.0183)	(0.0184)	(0.0092)	(0.0092)	(0.0093)
Constant	0.4449**	-0.0463	-0.1614	4.8619**	4.4068**	4.3405**
	(0.0590)	(0.0709)	(0.0933)	(0.0464)	(0.0517)	(0.0700)

Note: ** p<0.01, * p<0.05

Table 8 *ISLED scores and their label (information from Schröder and Ganzeboom 2013)*

Label	ISLED score
Not completed primary school	16.55
Primary school or first stage of basic education	22.98
Lower secondary school, technical training [lbo]	29.34
Lower secondary school, theoretical training [mulo,mavo]	45.27
Short upper secondary professional education [kmbo, vhbo]	45.70
Upper secondary professional education [mbo]	52.70
Higher secondary school [mms, havo]	62.30
Post-secondary, non-tertiary education [mbo plus]	64.58
Pre-scientific secondary school [hbs, vwo]	71.92
Tertiary professional education [hbo]	77.93
Tertiary scientific education, university	87.13
Tertiary post-scientific education [teachers, doctors]	90.63
Second stage of tertiary education, Ph.D. education	94.62

3. The changing relationship between socio-economic background and family formation in four European countries[1]

Jarl E. Mooyaart; Aart C. Liefbroer; Francesco C. Billari

Abstract *Family formation, a process that includes union formation, fertility, their timing and pathways, has become increasingly diverse and complex in Europe. We examine how the relationship between socio-economic background (measured by parental education) and family formation as a process has changed over time in France, Italy, Romania and Sweden, using data from the first wave of the Generations and Gender Survey (GGS). Competing Trajectories Analysis (CTA), a procedure which combines event-history with sequence analysis, allows us to examine family formation as a process, capturing both differences in timing of the start of family formation and in the pathways that young adults follow. For timing, socio-economic background differences in France and Sweden remained relatively small, whereas in Italy and Romania higher parental education has become more strongly associated with postponement. For pathways, we observe a divergence between individuals of different socio-economic backgrounds in all countries, particularly in Sweden and France. Generally, those with high educated parents increasingly shun pathways which involve early marriage and parenthood, whereas a high share of those with low educated parents still enters these pathways, while also being increasing likely to enter pathways which involve childbearing outside of marriage.*

[1] A similar, but somewhat different version of this chapter is currently under review at an international peer-reviewed journal.

3.1 INTRODUCTION

Over the last decades, there has been a diversification and destandardization of family formation patterns in Europe (Brückner and Mayer 2004; Buchmann and Kriesi 2011). Marriage rates have declined, unmarried cohabitation and out-of-wedlock childbearing have risen (Lesthaeghe, 2010; OECD 2011). Some scholars have argue that these changes have contributed to increasing social inequality, because of the rise in more precarious forms of family formation particularly among the disadvantaged (Amato et al. 2015; Perelli-Harris et al. 2010). This idea is well captured by McLanahan (2004) with the notion of "Diverging Destinies": the disadvantaged are increasingly more likely to experience single parenthood or divorce, and less likely to marry. A core question is whether also the children of the disadvantaged have become increasingly likely to experience these family formation pathways.

While there are many studies describing and explaining the societal changes in family formation in Europe, few studies have examined how the effect of family background on family formation has changed over time. Moreover, Europe is heterogeneous. According to the Second Demographic Transition (SDT) theory, European differences in family formation patterns are expected to become smaller, the more the SDT spreads across European countries (Lesthaeghe 2010). Some research (e.g, Billari and Liefbroer (2010)) suggests however that cross-national differences may rather be increasing. This study examines how the effect of socio-economic background on family formation has changed over time in four European countries, selecting two countries which can be described as forerunners in the SDT, i.e. Sweden, France and two countries that can be described as laggards in the SDT, i.e. Italy and Romania.

Although there has been ample research on the effect of young adults' own educational attainment on family formation patterns (Blossfeld and Huinink 1991; Perelli-Harris et al. 2010; Zimmermann and Konietzka 2017), there has been relatively little research on the impact

of the socio-economic characteristics of the family of origin, or socio-economic background. This is surprising, as socio-economic background is an ascribed rather than an achieved characteristic, and thus if it has an effect it would demonstrate continuing stratification on the basis of characteristics the individual had no influence on. Previous research on the link between socio-economic background and family formation across time and space has typically focused on specific demographic events. These studies show differences in the timing and choice for marriage or cohabitation between countries (Brons, Liefbroer, and Ganzeboom 2017; Hoem et al. 2009; Wiik 2009) or in the relationship context in which a child is born (Koops, Liefbroer, and Gauthier 2017; McLanahan and Percheski 2008; Perelli-Harris et al. 2010).

Yet, examining separate transitions does not provide a complete picture on the comprehensive effect of socio-economic background. Conceptualizing and analyzing family formation as a process has merit, as the family events are clearly interrelated. It is important to examine sequences of family events, as sequences contain rich information about the timing, quantum, and ordering of family events (Billari 2001), but also on the duration of time that is spent in specific family states (Studer and Ritschard 2016). Existing studies using sequence analysis and latent-class analysis have indeed allowed a detailed examination of the diversity in family pathways in Europe (Lesnard et al. 2016; Perelli-Harris and Lyons-Amos 2016; Schwanitz 2017; Sironi, Barban, and Impicciatore 2015; Van Winkle 2018). However, hardly any attention has been paid to differences in family pathways between young adults coming from different socio-economic backgrounds (Sironi et al. 2015). Thus, little is known about how the influence of socio-economic background on the process of family formation has evolved over time and to what extent this process is similar across countries. In this study, we therefore formulate two research questions: (1) To what extent does socio-economic background shape the family formation process among young adults? (2) Does the extent

through which socio-economic background shape family formation change across cohorts and between national contexts?

3.2 BACKGROUND

3.2.1 Structuring the family formation process

Family formation is a complex process. People differ in when the process starts (for some rather early, for some rather late), but also in the type of family formation pathways they follow once the processes has started. The distinction between timing and type makes it easier to observe to what extent differences in family formation between subpopulations are based on differences in when they start family formation and/or whether they differ in the family formation pathways that they follow. Thus, this distinction facilitates the comparisons between family formation life course trajectories. The distinction is also important, as the consequences of the same type of pathway may depend on its timing. For instance, Berrington and Diamond (1999) find that early marriages are more likely to be dissolved, and that early single parenthood in particular has a large impact on future socio-economic status (Christopher et al. 2002; Dariotis et al. 2011). Still, single parenthood remains a risk when it occurs at a later age as well, because the backup of a partner is lacking. Therefore, even though single parenthood that starts during a person's twenties may have fewer negative consequences than teenage single parenthood, both have an inherent precariousness in them.

In what follows, family formation is therefore viewed as a process that starts when young adults experience their first family-formation event, and that continues with subsequent family-formation events. The first event defines the *timing* of family formation, and it could be either starting to live with a partner (either married or unmarried) and/or becoming a parent.

After the first event, *pathways* are defined by subsequent family-formation events. In our analyses, the pathways period will include the first six years after the first event has taken place. While for some individuals, the family formation process has already finished well within this time period, for others it might still be under way. However, even though for some the family formation process may not have finished, for most individuals the first six years of their family formation pathway can be seen as decisive for their further family careers.

In the next sections we use this framework in which we distinguish between the timing of the start of family formation and the subsequent pathways to describe temporal changes in the family formation process between individuals with different socio-economic background. First, we discuss the general impact of socio-economic background on family formation.

3.2.2 Socio-economic background and the family formation process

Socio-economic background influences the timing and pathways of family formation through various mechanisms. First, differences in how children from different social background are socialized are important. Particularly highly educated parents may warn their children on the risks of unprotected sex, early union formation and childbearing (Cavanagh 2011; Sassler, Addo, and Hartmann 2010; Wiik 2009). However, socialization may also have a more indirect influence. Individuals with higher educated parents, compared to those with lower educated parents, tend to have higher career aspirations, increasing their likelihood of entering tertiary education (Blossfeld and Shavit 1993; Palmer et al. 2010). This in turn leads to the postponement of family formation (Blossfeld and Huinink 1991; Thornton, Axinn, and Teachman 1995). In addition, children from lower background families have a higher likelihood to drop out of compulsory education (Chevalier et al. 2013).

Second, children from high background families tend to have higher expectations about their partner's social status (Kalmijn 1998). This implies they may only settle for a partner if this partner meets certain criteria, such as a sufficient educational level or income. From a marriage market perspective, as these candidate partners are in high demand and relatively scarce, it will take more time to find such a partner (Oppenheimer 1988).

Third, children from high social background may have higher consumption aspirations. They may only want to start a family when they feel that they can maintain the same lifestyle that they had during their childhood. This means family formation is postponed until after they have found steady employment with good enough income (Easterlin 1980). Moreover, children from high background families may be reluctant to leave the parental home to start a family as the parental home provides economic and psychological security, in contrast to the homes of those from disadvantaged backgrounds, who may have less to lose when leaving the parental home (Easterlin 1980; Gierveld, Liefbroer, and Beekink 1991). On the other hand, highly educated parents may be more likely to assist their children financially in their transfer to family life (Avery, Goldscheider, and Speare 1992).

Fourth, even though many children, regardless of their socio-economic background, initially have the intention to marry at some time in their lives (Wood, Avellar, and Goesling 2008), life may not go as planned. This is particularly true for disadvantaged youths who are more likely to engage in risky behaviors, such as unprotected sex (Miller 2002), thereby increasing the risk of becoming a teenage parent. While this indicates a risk of early family formation for disadvantaged youths, this also influences the structure of family formation. Disadvantaged youths are not only likely to start family formation earlier, but they are also more likely to become parents outside of marriage and to a lesser extent outside of any cohabiting union (Koops et al. 2017; Perelli-Harris et al. 2010).

Fifth, while young adults from a low social background family may follow more precarious family formation pathways, those from a high social background family are more likely to opt for pathways that are more reversible and require less initial commitment. Highly educated parents are more likely to raise their children to value autonomy rather than conformity (Kohn 1963), which may make the children themselves less likely to commit to family life early in their life as they want to remain more autonomous and spend time on self-development. Moreover, when they enter the family formation process, they may do so more carefully, by for instance first cohabiting rather than marrying, in order to retain some independence. Furthermore, they cohabit for a longer period of time before transitioning to marriage, because they may need more time before giving up autonomy and fully commit to family life. Because children with an advantaged background tend to value autonomy more than conformity, they may also be less likely to conform to traditional pathways, such as having children shortly after marriage. They may even not marry at all, in order to break with traditions (Lesthaeghe 2010), opting for having children within cohabitation and never marrying instead.

In summary, socio-economic background influences both the timing of family formation and subsequent pathways in the family formation process. Young adults from high social background will generally start later than those from low social background. Furthermore, those from high social background are more likely to postpone family commitments that are less reversible, as they may first want to focus on realizing their personal goals or maintaining their social status. Additionally, young adults from lower social background are more likely to have children without living with a partner. While those from lower background families may have a faster family formation process, they may be less likely to achieve a stable family form such as being married and having children in the end.

The question we address in the next section is to what extent the influence of socio-economic background on family formation has changed over time.

3.2.3 Change over time

During the first half of the previous century, the family formation process had become highly standardized. The vast majority of young adults left the parental home in order to marry and start a family (Mayer 2004). Since the Second World War, the rise in unmarried cohabitation, divorce and parenthood outside of marriage, and the decrease in marriage and fertility rates led to a diversification of family formation pathways. Lesthaeghe and Van de Kaa (1986), in their Second Demographic Transition (SDT) thesis, see these family formation changes to be the result of cultural change. The explanation that Lesthaeghe (Lesthaeghe 1998, 2010) provides can be linked to changes that involve the whole family formation process, including the timing of its start and the pathways that follow. One reason for change, Lesthaeghe argues, is that increasing welfare and ideational change pushed the focus of individuals towards realizing personal goals, such as self-realization. As a result, family formation was postponed, because individuals first focused on self-fulfillment (for instance on their own career) rather than on conforming to family life. Other societal changes that caused a delay in the timing of family formation were the increased use of contraceptives, educational expansion and an increasing number of women entering higher education and the labor market. Also secularization, feminism, and generally the spread of liberal values made it more likely that young adults opted for unmarried cohabitation and divorce.

The question is whether these general temporal changes have also influenced the linkages between socio-economic background and the family formation process. According to the SDT theory, it is the highly educated segment of the population that were trendsetters on new living arrangements such as unmarried cohabitation (although in an adjustment of the original theory it has also been acknowledged that in some national contexts these new behaviors were initiated by the lower social strata (Lesthaeghe 2014)). Nonetheless, the SDT

theory assumes that the demographic trends diffuse among all layers of the society. This appears to imply that the link between socio-economic background and family formation patterns would have become weaker across birth cohorts. In our reading, according to the SDT theory, at the start of the SDT differences between socio-economic background would increase, as children from high background families adopted new family formation behaviors earlier than children from low background families. However, these differences would decrease again as these new family formation patterns became more widespread and eventually even lead to overall smaller differences according to socio-economic background in family formation than before the SDT.

The SDT has not remained unchallenged. Main criticisms include that it merely is a continuation of the first demographic transition and that the SDT mainly applies to Northern and Western European countries (Coleman 2003; Sobotka 2008; Zaidi and Morgan 2017). If indeed the SDT mainly applies to North-West Europe, the influence of socio-economic background may have changed in Northern and Western European countries, but not (so much) in Southern and Eastern countries. Lesthaeghe, however, insists that the SDT, having started in Northern and Western Europe, has later spread to other developed countries, including Southern and Eastern Europe (Lesthaeghe 2010). We can therefore infer that the influence of socio-economic background on family formation patterns changed later in Southern and Eastern Europe than in Northern and Western European countries. With respect to Eastern Europe, scholars even claim that only after the fall of the iron curtain, the SDT could spread to the former Soviet union countries (Frejka 2008; Potârcă, Mills, and Lesnard 2013).

Another criticism of SDT theory is that it assumes an irreversible cultural change, while relatively little attention is being paid to changes in economic conditions (Zaidi and Morgan 2017). Perelli-Harris et al. (2011) suggest that new family forms, such as unmarried cohabitation, are not chosen because of individualistic preferences, but rather because of

financial necessity, and call this explanation the Pattern of Disadvantage (PoD). Furthermore, they claim that childbearing outside of marriage is usually chosen by the lower educated (Perelli-Harris et al. 2010; Perelli-Harris and Lyons-Amos 2016). The importance of economic conditions for family formation is also stressed by Mills and Blossfeld (2013) who emphasize the process of globalization led to rising uncertainty about individual economic prospects, creating a need for people to opt for flexible unions, and preferring cohabitation over marriage. Both the PoD and globalization theory suggest that socio-economic status may be one of the main drivers of the diversification of family formation patterns and that differences in family formation between individuals from different family backgrounds remain.

The SDT and PoD perspectives lead to different expectations about how the relationship between socio-economic background and family formation changes across cohorts. As discussed earlier, from an SDT perspective, one would expect first a slight divergence to be followed by convergence and eventually little to no differences in family formation behavior on the basis of social origin. In terms of timing, it implies that at the beginning of the SDT those from high background families postpone their family formation process more than those from lower background families, but that in the end individuals of all social origins postpone family formation. It also implies that young adults from high background families will pioneer new demographic behaviors, such as unmarried cohabitation, union dissolution and childbearing outside of marriage, but that these behaviors will later spread to individuals of all social origins. From the PoD perspective, the strength of the link between socio-economic background and family formation depends on the level of poverty among the low background groups. If the economic circumstances of the lower social strata become worse, the children from disadvantaged families will become less able to afford marriage. This could imply the postponement of family formation. At the same time, those with little parental resources may have the financial need to cohabit. Furthermore, as described above, if social inequality is

linked to less social mobility, young adults from low background families may lose confidence in their career and marriage prospects and resort to risky behavior that can lead to early parenthood. On the other hand, children with high background families may have the financial safety net to support marriage and a family. Thus, from the PoD perspective one would expect that unmarried cohabitation and particularly childbearing outside of marriage is a phenomenon that will occur among young adults from low socio-economic background families rather than among young adults from high socio-economic background families. Finally, while from the SDT perspective one expects a similar process, but starting at different points in time, across countries, the PoD perspective argues that the link between family background and family formation is context-dependent, and will mainly be driven by the position of low socio-economic background groups in a given society.

3.3 DATA & METHODS

3.3.1 Data

This study uses data from the first wave of the Gender and Generations Survey (GGS) harmonized version 4.2 (Perelli-Harris et al. 2010; Vikat et al. 2007). The GGS contains rich information on family formation histories, including timing of all married and unmarried cohabitating relationships and childbirth. As a measure for socio-economic background we opt for educational level of the parents as the information . Although socio-economic background can be also captured by other indicators, such as occupational status of the parents, educational level of the parents may reflect more the cultural and to a lesser extent the economic aspect of the parental home compared with occupational status (Lyngstad 2006). The GGS includes information on the educational attainment of the mother and father, from which we construct a

measure in which we take the highest education among both parents, reducing the number of missing values on this variable to about 5%. Starting from the ISLED scale (Schröder and Ganzeboom 2013) as recorded for the GGS data by Brons and Mooyaart (2018), parental education is recoded to three parental education categories: low (ISLED <33), mid (ISLED>=33 and ISLED<=66) and high (ISLED>66).

We focus on four countries that differ in the timing of the onset of the SDT and in their welfare systems. The key aim is to examine how the impact of socio-economic background on family formation changes across cohorts, and how this process differs across countries that differ in their SDT patterns and welfare system. If we would include all available countries, it would be hard to condense the large amount of information on country differences, which would in our view reduce the clarity of the results. The four countries that we selected –France, Italy, Sweden and Romania– can provide information on the level of heterogeneity in the links between socio-economic background and family formation across birth cohorts. Number of respondents, parental education, gender and age distributions can be found in Table 1.

Table 1 *Descriptive information per country*

	France	Italy	Romania	Sweden
Low Parental Education	57.6%	79.5%	72.2%	63.2%
Middle Parental Education	29.2%	16.0%	20.2%	21.8%
High Parental Education	13.1%	4.6%	7.6%	15.1%
Male	43.4%	46.6%	49.9%	48.5%
Female	56.6%	53.5%	50.1%	51.5%
Birth year mean	1957.9	1959.3	1955.9	1964.7
Birth year stand. dev.	16.5	12.7	16.3	17.0

3.3.2 Analytical strategy

Our focus is on how parental education influences both the timing of the start of the family formation process and the course of family formation after that start. To empirically study this issue, we use Competing Trajectories Analysis[2] (Studer, Liefbroer, and Mooyaart 2018), a method that combines elements of event history analysis and sequence analysis. Sequence analysis is used to create a meaningful typology of pathways during the first six years of family formation. Event history analysis is used to analyze the timing of family formation.

Creating a typology of family formation pathways

For all respondents, family formation sequences starting at the moment that the first family event occurs (i.e. when the state switches from single to any of the other family states), are constructed. Each month respondents are assigned to one of the following states: unmarried cohabitation (cohabitation), marriage, parenthood outside of relationship (parenthood), having a child in a cohabiting relationship (cohabitation and child), having a child within marriage (marriage and parenthood) and finally being in no cohabiting relationship and having no child (single). It is important to note that having a child does not necessarily mean that the respondent is living with the child. Furthermore, we do not distinguish between having one or more children. Respondents are followed for six years (72 months) after that first event. We opted

[2] Although we apply CTA, we diverge from the original usage in Studer et al. (2018). First, we use different types of analyses as described above. We use predicted cumulative incidence whereas they used discrete time hazard and multinomial regression models. Second, we do not right-censor observations in our event-history part of the analysis that do not have a shorter than 6 year trajectory (because timing of interview minus the timing of the start of family formation > 6 years), but rather include these in the Kaplan-Meier survival analysis, but leave these out in the cumulative incidence rate, simply because they cannot be included here.

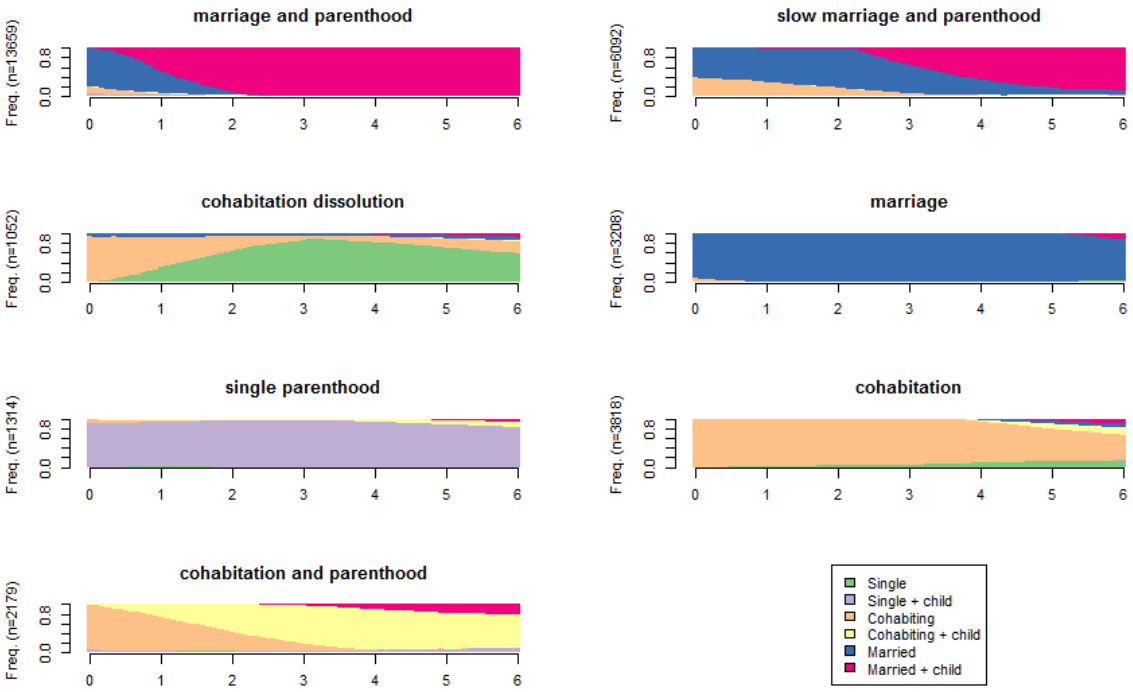
for a six-year family formation sequence as we that the kind of family formation pathway young adults will follow becomes clear within that time window[3]. Respondents who had not experienced any family event or could not be followed for six years after the first event occurred were censored at the time of interview, age 45, or the time of the first event, depending on which of these events occurred earliest. For the clustering of the sequences we make use of the TraMineR and WeigthedCluster packages in R (Gabadinho et al. 2011; Studer 2013). We choose Optimal Matching (Abbott and Tsay 2000) with substitution costs based on the transition rates between family states in the data to calculate distances between all six-year family formation sequences. Finally, hierarchical clustering (Ward method) is used to generate the optimal number of clusters (see Appendix for details).

Analyzing differences by parental education

First, median ages of at which the first family formation event occurred by country, birth cohort, gender and parental education group, are presented, based on Kaplan-Meier estimates. Next, the predicted cumulative incidence functions into each family formation cluster, for each country, birth cohort and parental education group are estimated non-parametrically and visualized, using the R–cmprsk package (Scrucca, Santucci, and Aversa 2010). Gray's tests are conducted to verify whether the predicted cumulative incidence rates differ between groups with different levels of parental education (Gray 1988).

[3] If we would opt for a longer period we would have to exclude too many sequences from the analyses as they would be right censored. Thus, with CTA there is always a trade-off between the length of sequence (which would contain more information) and the number of sequences included in the analysis (the shorter the sequence the more could be included). We opt for a 6 year sequence as we believe this length balances both issues.

Figure 1 A typology of family formation pathways



3.4 RESULTS

3.4.1 Family formation pathways

Based on the sequence analysis, seven family formation pathways can be distinguished (see Figure 1). We provide names to the clusters that describe their distinguishing features. The first cluster (*marriage and parenthood*) portrays what traditionally has been the most "socially acceptable" pathway. Marriage constitutes the first family formation event, quickly followed by having a first child. The second cluster (*slow marriage and parenthood*) is quite similar to the first, but more people cohabit prior to marriage and childbearing within marriage only starts 2.5 years after the union. We consider this a more modern version of the first cluster, given that family formation is more delayed and involves unmarried cohabitation more often. The third cluster (*cohabitation dissolution*) includes respondents who experience the dissolution of their

first cohabiting union. Some re-enter a new union relatively soon, whereas others do not. The fourth cluster (*marriage*) includes people who marry, but do not enter parenthood within the first six years of their family formation pathway. The fifth cluster (*Single parenthood*) is characterized by the fact that entry into single parenthood constitutes the start of the family formation pathway[4]. The sixth cluster (*Cohabitation*) is mainly composed of people who remain cohabiting for six years, although some enter a different family state towards the end of the six-year period. The final cluster (*Cohabitation and parenthood*) includes respondents who enter a cohabiting union and have a child within this union. Only a small minority marries after the child is born. Most individuals follow the *Marriage and parenthood* (44%) pathway, followed by *Slow marriage and parenthood* (19%), *Cohabitation* (12%), *Marriage* (10%), *Cohabitation and parenthood* (7%), *Single parenthood* (4%) and *Cohabitation dissolution* (3%).[5]

3.4.2 Results by country

Now, socio-economic background differences in the timing of onset of family formation and in the family pathways chosen after the start of family formation are examined, as well as how these socio-economic background differences vary across cohorts and countries. For each country, a Table with information on the median age of entry into family formation for each parental education group and birth cohort is presented. These results are split for men and women, since there are substantial differences between them in their timing of family formation

[4] Note, that being a single parent does not necessarily mean co-residing with the child.

[5] These statistics are comparing percentages of those who have a 6-year family trajectory. In total about 76% have a 6-year family trajectory. 8% have started family formation, but have not reached the 6-year mark in the data

(Winkler-Dworak and Toulemon 2007). A graph displays the cumulative entry into different family formation pathways, with from left to right, the oldest (1925-44), middle (1945-64) and youngest (1965-94) cohorts and from top to bottom, those with low, middle, and high parental education. We discuss the results in the order in which the SDT (may) have occurred in each country, with Sweden first, followed by France, Italy and finally Romania. We only discuss significant differences as observed in the Chi^2 tables in the appendix.

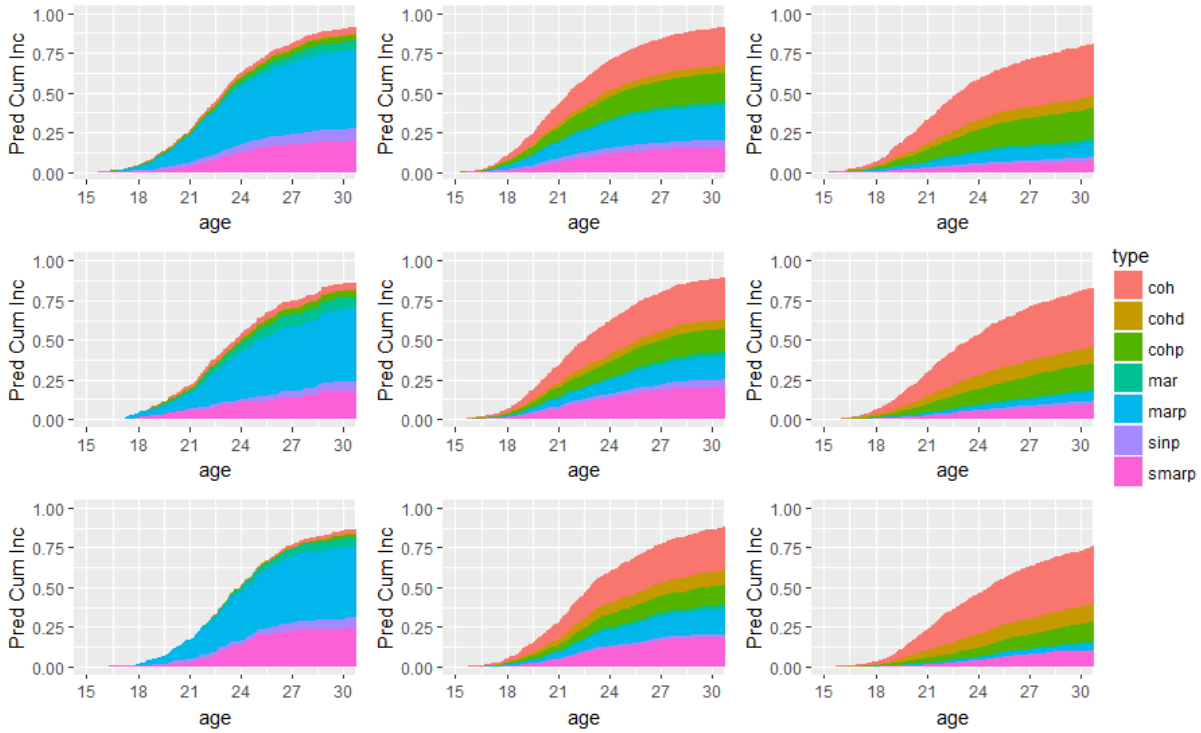
Sweden

Table 2 displays the median age of entry into family formation per country by gender, cohort and parental education group. When examining the results for Sweden, we observe little differences in median age between those with low, middle and high parental education, with a maximum difference of 1.5 years for both men and women. For men there appears to be a slight downward trend in timing differences between the parental education groups, whereas for women differences appear to be quite stable. Generally, the higher the parental education the later the start of the family formation process, but in the youngest cohort it is actually those with middle educated parents that have the lowest median age of entering family formation. For men the relationship between parental education and timing of family formation even completely reverses as those with low educated parents have the highest median age. Nevertheless, the overall picture in Sweden is that parental education has little impact on family formation timing and that this did not change across cohorts.

Table 2 *Median entry into family formation per country split by gender, cohort and parental education*

			Sweden	France	Italy	Romania
gender	cohort	par. educ.	median age of entry into family formation (years)			
female	1925	low	21.8	21.5	23.1	20.3
		middle	22.6	22.3	26.1	22.3
		high	22.8	23.0	25.9	21.6
	1945	low	20.3	20.8	23.4	19.9
		middle	21.2	21.7	25.8	21.3
		high	21.8	22.9	28.4	22.9
	1965	low	21.3	21.8	26.8	19.7
		middle	21.0	22.0	29.2	21.4
		high	22.2	22.8	32.7	24.9
male	1925	low	23.9	24.0	27.0	23.8
		middle	25.3	24.7	27.7	25.0
		high	25.3	24.9	26.1	25.4
	1945	low	23.2	23.0	28.0	23.9
		middle	24.1	23.3	29.8	24.6
		high	24.3	24.8	30.7	25.0
	1965	low	24.7	23.9	32.7	23.8
		middle	24.0	23.9	31.8	24.7
		high	24.3	24.0	35.8	26.8

Figure 2 Predicted cumulative entry into family formation pathways by parental education and birth cohort in Sweden



Note: from left to right: cohorts 1925-44, 1945-64 and 1965-90. From top to bottom: low parental education, middle parental education, high parental education

Figure 2 displays the cumulative entry into family formation pathways for each birth cohort and parental education group for Sweden. In the 1925-44 cohort, the process of family formation differs little between parental education groups. Among all parental educational groups the *Marriage and parenthood* pathway is clearly dominant.

In the 1945-64 cohort, a trend towards more diversity is observed. The percentages following the *Cohabitation* and *Cohabitation and child* pathways and to a lesser extent the *Cohabitation dissolution* pathway increase, resulting in fewer people following pathways that include marriage and childbearing. At the same time, significant differences between parental education groups emerge. Young adults with low educated parents are most likely to still follow the traditional *Marriage and parenthood* pathway. The *Cohabitation and child* and *Single*

parenthood pathways are also most common among young adults with low educated parents. It is the other way around for the *Cohabitation dissolution* pathway, which is mainly found among young adults with higher educated parents. Having middle-educated parents is associated with a higher likelihood of following the *Slow marriage and parenthood* pathway.

For the 1965-94 cohort the general trends observed in the second cohort continue, with a decreasing percentage of young adults following pathways that include marriage and childbearing, and an increasing percentage following pathways that include cohabitation. Differences between the parental education groups largely remain similar to those found among the 1945-64 cohort.

In summary, in Sweden young adults with highly educated parents consistently postpone family formation compared to young adults with lower educated parents. Differences by parental education in the types of family formation pathways have increased. Young adults with low educated parents have become relatively more likely to enter pathways that involve either early marriage (i.e. marriage, marriage and parenthood) or parenthood outside marriage (i.e. cohabitation and parenthood, single parenthood), whereas young adults with highly educated parents have become relatively more likely to opt for the *Cohabitation* pathway.

France

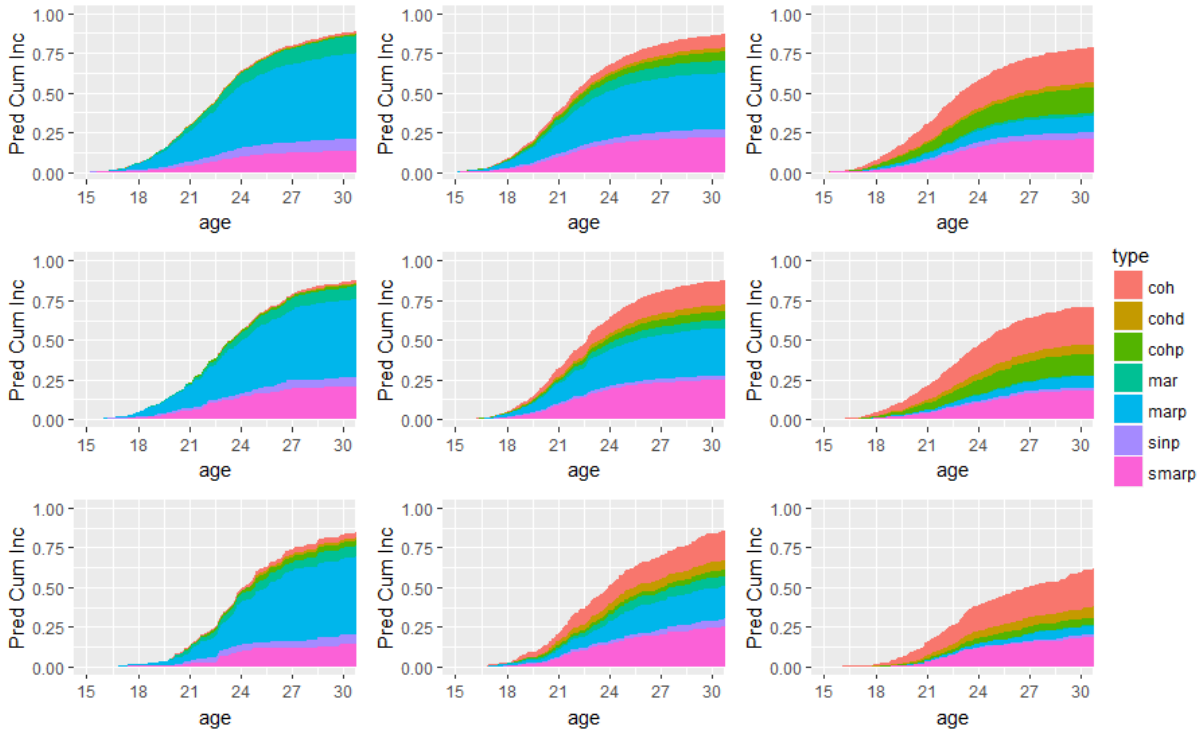
When examining the results on median age of entry for France in Table 2, we find that timing differences in family formation between those with different parental education slightly increased in the 1945-64 cohort with respect to the 1925-44 cohort, but that in the 1965-94 cohort the differences have become smaller than in the 1925-44, meaning a general decline in differences in median age of entry between the parental education groups across cohorts. For men the differences even become almost zero in the 1965-94 cohort. However, similar to Sweden, the differences between those with low, middle or high parental education are not

large. For both men and women the maximum difference in median age of entry into family formation between those with high and low educated parents, observed in the 1945-64 cohort, is just under 2 years for both men and women. Contrary to Sweden, in France those with a higher educated parents consistently have a higher median age of entry into family formation compared with those with lower educated parents.

Figure 3 displays the cumulative entry into family formation pathways by birth cohort and parental education group for France. In the 1925-44 cohort, only few differences between the parental educational groups are observed. Among all groups *Marriage and parenthood* is the dominant pathway. The main difference is that young adults with a middle educated parent are more likely to opt for *Slow marriage and parenthood*. In line with the idea that young adults from more educated classes are frontrunners in new family formation pathways, those with high educated parents have a slightly stronger tendency to opt for the *Cohabitation and parenthood* pathway.

In the 1945-64 cohort, similar changes are observed among all parental education groups; the percentage that enter the *Marriage and parenthood* pathway declines, while there is a strong increase in all the other pathways except *Single parenthood*. Although most people still enter opt for *Marriage and parenthood*, the *Slow marriage and parenthood* and *Cohabitation* pathways become increasingly popular. Yet, differences between parental education groups become much more pronounced. Compared to young adults with low educated parents, young adults with highly educated parents become less likely to opt for traditional pathways, such as *Marriage and parenthood, Slow marriage and parenthood* and *Marriage*, but more likely to enter *Cohabitation* and *Cohabitation dissolution* pathways. Finally, young adults with middle educated parents are less likely to enter the *Single parenthood* pathway.

Figure 3 Predicted cumulative entry into family formation pathways by parental education and birth cohort in France



Note: from left to right: cohorts 1925-44, 1945-64 and 1965-90. From top to bottom: low parental education, middle parental education, high parental education

In the 1965-94 cohort, a continuation of the general trend is observed. Only a minority now opts for *Marriage and parenthood*, but at the same time there no clear new dominant family formation pathway emerges. Particularly, there is an increase in the percentage of young adults who enter the *Cohabitation* and *Cohabitation and parenthood* pathways. Nonetheless, differences between parental education groups remain. The rates into pathways involving marriage are all higher for young adults with low educated parents compared to those with higher parental education. On the other hand, having middle or high educated parents is associated with a higher rate into the *Cohabitation dissolution* pathway and with a lower rate of entry into the *Cohabitation and parenthood* pathway. Contrary to the previous birth cohort, all parental education groups are equally likely to enter the *Cohabitation* pathway. Thus,

overall differences by parental education seem to decrease a bit, suggesting a mild process of convergence.

To summarize, in France differences in family formation timing between individuals with different socio-economic background are small and declining. In terms of family pathways, differences between those with low and those with high educated parents have increased, particularly between those born in 1925-44 and 1945-64. Compared to young adults with low educated parents, young adults with high educated parents have increasingly become less likely to opt for pathways including parenthood, and more likely to opt for flexible pathways including cohabitation but not marriage. On the other hand, those with low educated parents are increasingly more likely to enter pathways involving marriage and parenthood (i.e *Marriage*, *Marriage and parenthood*), but also *Single parenthood*.

Italy

The results on differences in timing of family formation between parental education groups in Italy can be found in Table 2. These results show divergence between parental education groups in median entry in family formation across cohorts for both men and women. In the 1925-44 and 1945-64 cohorts, the maximum age difference in median entry into family formation between the parental education groups was 1.6 and 3 years for men and women respectively, but this increased to 4.0 and 5.9 years in the 1965-94 cohort. For both men and women, those with middle educated parents show the least increase over time, resulting for men that those with middle educated parents have the lowest median age of entering family formation in the 1965-94 cohort. There is a gender component, as for men it is mainly those with high educated parents that diverge in terms of their median entry age from those with middle and low educated parents, with the first having a lower median age of entry into family formation than the latter in the youngest cohort. However, for women it is simply the higher educated one's parents are,

the higher the median age of entering family formation, in which the differences between those with low, middle and high educated parents increase across cohorts.

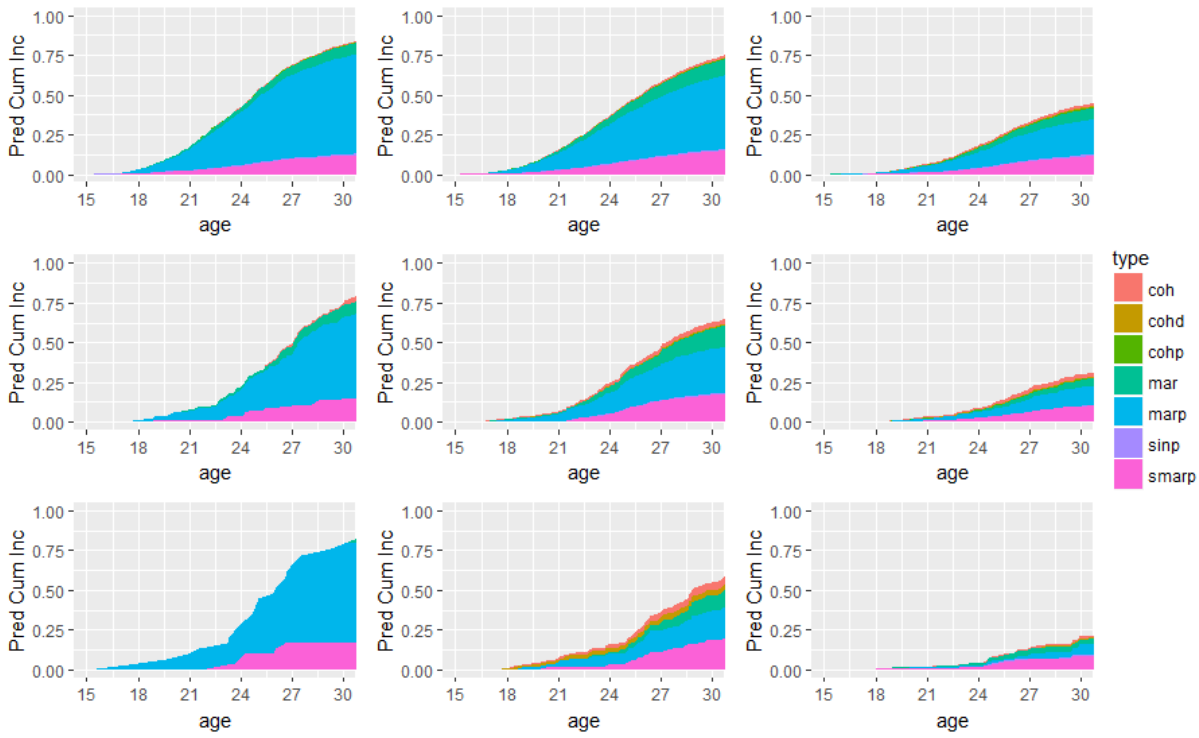
Figure 4 displays the cumulative incidence of family formation pathways by birth cohort and parental education group for Italy. The *Marriage and parenthood* pathway is the dominant pathway in the 1925-44 cohort, and hardly anyone opts for a pathway which does not include marriage. Differences between the parental education groups are small, with two exceptions. Individuals with middle educated parents are least likely to enter the *Marriage and parenthood* pathway, while those with low educated parents enter this pathway fastest and those with high educated parents catch up to some extent. Finally, although few young adults follow the *Cohabitation* pathway, those with middle educated parents are more likely to do so than the others.

In the 1945-64 cohort, the relative popularity of the *Marriage and parenthood* pathway decreases, with people generally more likely to opt for the *Marriage* or the *Slow marriage and parenthood* pathways. Pathways that do not include marriage remain unpopular. The differences between those with low educated parents and the others become more pronounced. As in the 1925-44 cohort, young adults with low educated parents are more likely to enter a traditional pathway. On the other hand, those with middle and high educated parents are more likely to enter the *Slow marriage and parenthood*, *Cohabitation dissolution* and *Cohabitation* pathways. These results are in line with the SDT theory in that those with higher educated parents are more likely to initiate new forms of family formation behavior. In the 1965-94 cohort, the graphs mainly show a general postponement of entering all family pathways, whereas the relative entry into the different pathways is quite similar to that in the 1945-64 cohort. Young adults with middle and high educated parents in particular show a lower entry into particularly the *Marriage and parenthood* pathway. They also are less likely to follow the *Marriage* pathway compared to those with low educated parents. However, Italy remains,

across all birth cohorts, a country in which a family pathway that includes marriage is dominant across all social groups.

To summarize, in Italy there mainly is divergence in the timing of entry into family formation between those with high and low educated parents, with the latter increasingly entering family formation relatively faster than the first. Family formation pathways that emphasized marriage remain dominant across birth cohorts, but young adults with high educated parents are becoming increasingly reluctant to quickly move into parenthood.

Figure 4 Predicted cumulative entry into family formation pathways by parental education and birth cohort in Italy



Note: from left to right: cohorts 1925-44, 1945-64 and 1965-90. From top to bottom: low parental education, middle parental education, high parental education

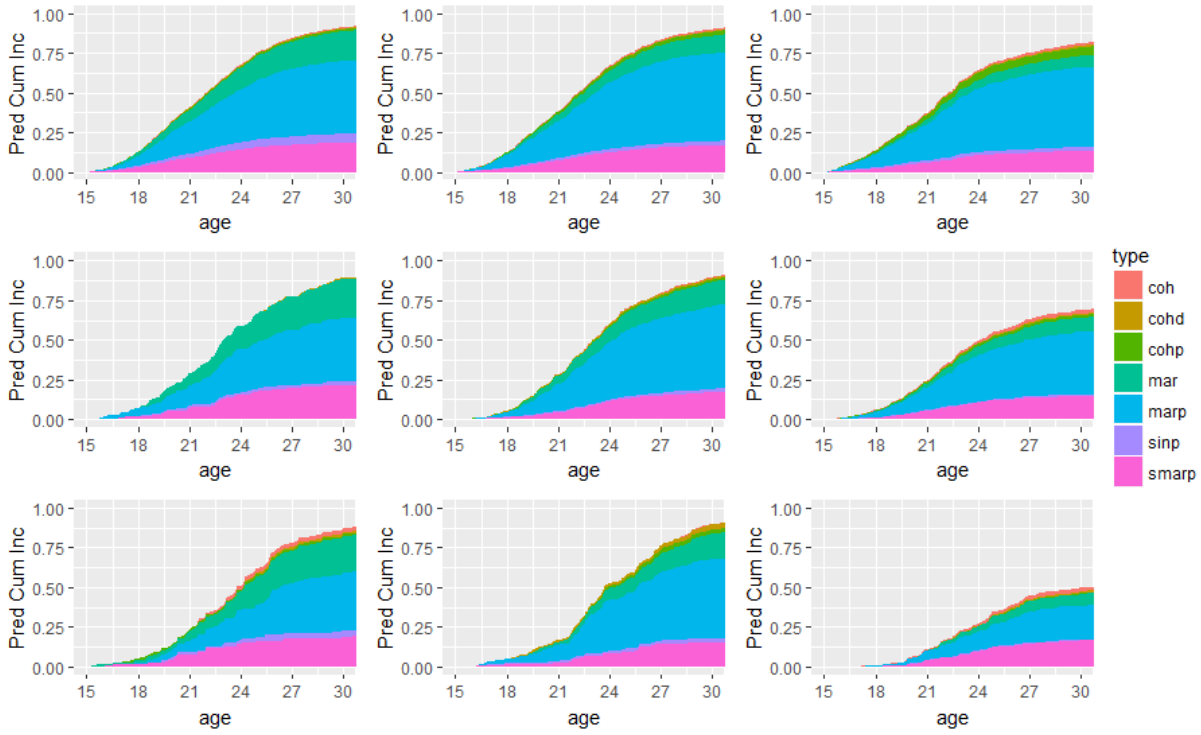
Romania

In Table 2 we can assess the differences between parental education groups in median age of entry into family formation for Romania. Similar to Italy, these results also show an increase in differences between parental education groups in median age at entry into family formation across cohorts for both men and women. In the 1925-44 and 1945-64 cohorts, the age difference in median age at entry into family formation between those with high and low educated parents was 1.6 and 2.0 years for men and women respectively in the 1925-44 cohort, but this increased to 3.0 and 5.0 years in the 1965-94 cohort. The divergence is strongest for women, while for men the divergence only becomes substantial in the 1965-94 cohort. Those with low educated parents have consistently the lowest median age (with the exception of women in the 1925-44 cohort), with low educated women even having a median age under 20 in the 1965-94 and 1945-64 cohorts.

Figure 5 displays the cumulative incidence of family formation pathways by birth cohort and parental education group in Romania. In the 1925-44 cohort, hardly anyone follows a family formation pathway which does not include marriage. Differences between parental education groups are small, with only two exceptions. Higher parental education appears to be associated with a higher rate into the *Marriage* pathway. In addition, those with high educated parents have a slight tendency to enter the *Cohabitation dissolution* pathway, while those with low or middle educated parents do not.

In the 1945-64 cohort, the general picture remains roughly the same. The rates into the *Marriage and parenthood* pathway increase slightly, but less so for those with a high educated parent, leading to a significant difference in entry into this pathway between parental education groups. At the same time, those with a high or middle educated parent are more likely to follow the *Marriage* pathway. Furthermore, having a high educated parent increases the chance of entering the *Cohabitation dissolution* pathway, although in absolute terms only very few do so.

Figure 5 Predicted cumulative entry into family formation pathways by parental education and birth cohort in Romania



Note: from left to right: cohorts 1925-44, 1945-64 and 1965-90. From top to bottom: low parental education, middle parental education, high parental education

Results from the 1965-94 cohort show even more strongly that in particular individuals with higher educated parents refrain from entering the *Marriage and parenthood* pathway. What is also noticeable is that the rates into *Single parenthood* and *Cohabitation and parenthood* are also higher for those with low educated parents compared to those with higher educated parents.

In summary, in Romania an increasing divergence in timing of family formation can be witnessed, with those with higher educated parents entering family formation relatively later in more recent birth cohorts. In terms of the family formation pathways, those with low educated parents increasingly enter *Marriage and parenthood*, *Cohabitation and parenthood* and *Single parenthood* relatively more compared with those with higher educated parents.

Country comparison

The separate country analyses presented above suggest both similarities and differences in the way parental education influences family formation patterns of young adults. In this section, we synthesize these similarities and differences. There are three key points. First, children with high educated parents enter the process of family formation at higher ages than children with low educated parents in all four countries. However, across cohorts, the age difference between both groups becomes slightly smaller Sweden and France, but clearly increases in Italy and Romania. In these last two countries, all young adults increasingly postpone entry into family formation across cohorts, but this is even more true for those with high educated parents than for those with low educated parents. Second, differences between young adults with low, middle and high educated parents in their family formation pathways increase across cohorts in all four countries, although mainly when comparing the oldest (1925-44) with the middle (1945-64) and youngest (1965-94) birth cohorts. Third, the type of socio-economic background divergence in family formation pathways that is witnessed differs between Italy and Romania on the one hand and France and Sweden on the other. In Italy and Romania unmarried cohabitation remains a marginal phenomenon for all three birth cohorts and differences between young adults with low and high educated parents increase mainly because those with high educated parents increasingly postpone all pathways that include parenthood at some moment during the first six years after the start of family formation. In Sweden and France, differences between young adults with low and high educated parents across cohorts partially increase for the same reason (those with high educated parents postpone parenthood), but also because those with higher educated parents are increasingly more likely to enter pathways with cohabitation and less likely to enter the *Single parenthood* pathway. Thus, in Italy and Romania we observe divergence because young adults with high educated parents are increasingly more likely to postpone entry into family formation and entry into parenthood. In France and Sweden

we observe divergence not because young adults with high educated parents are more likely to postpone entry into family formation, but because they are more likely to postpone marriage and parenthood and opt to start with cohabiting as an alternative instead.

3.5 DISCUSSION

In this article, we investigated the role of the family of origin in the family formation process over time and space. While there has been ample research that showed a clear diversification of the family formation landscape across cohorts in European countries (Elzinga and Liefbroer 2007; Van Winkle 2018), relatively little research has acknowledged the role that family background may continue to have. The main result is that differentials in family formation in terms of social origin remain strong and have arguably increased.

A novelty of this study was the separate examination of the timing of the start of family formation and the subsequent family formation pathway. In terms of timing, we found that in most cases those with low parental education entered family formation earlier than those with higher educated parents. Across cohorts, differences between parental educational groups became larger in Italy and to a lesser extent in Romania, while for France and Sweden differences remained rather small. In the youngest Swedish birth cohort, it were even those with a middle educated parent who entered family formation fastest. Perhaps in Sweden, those with low educated parents have increasingly become a selective group with lower desirability on the marriage market, which delays their timing of entry into family formation compared to those with higher educated parents.

Regarding differences between parental education groups in the subsequent family formation pathways, we observed one common trend across all countries. Young adults with

highly educated parents are increasingly less likely to follow what used to be the most traditional way of forming a family, i.e. marrying quickly succeeded by childbirth. While young adults with low parental education have also become less likely to opt for these kinds of pathways, they are still more likely to do so compared to those with high parental education. The family pathways of young adults with middle educated parents were generally slightly more similar to those with high than to those with low educated parents. Another trend is that those with low educated parents were more likely to enter cohabitation and parenthood and single parenthood compared to those with higher educated parents. However, we hardly observed this trend in Italy. It appears that in Italy young adults with high socio-economic background postpone family formation rather than choose for postponement of marriage and childbearing within the family formation process.

Overall, these results indicate that young adults of high socio-economic background are increasingly opting for a slow, more careful, family formation process either by staying longer in cohabitation and marriage before taking on the role of parenthood or by postponing family formation altogether, whereas young adults of low socio-economic are still more likely to enter marriage and parenthood at a high rate, but at the same time are also more likely to follow pathways that includes single childbearing or childbearing within cohabitation. Thus, in terms of the family pathways that are followed, there is clear divergence between individuals of low and high socio-economic background across birth cohorts in all four countries. The only difference is that the specific type of divergence differs across countries. In Italy and Romania, divergence occurs because young adults with high educated parents are increasingly more likely to postpone entry into family formation and entry into parenthood. In France and Sweden, divergence occurs because young adults with educated parents are more likely to postpone marriage and parenthood and opt for cohabitation. In line with the Divergent Destinies literature (Amato et al. 2015; Mclanahan 2004; McLanahan and Percheski 2008), our

study suggests that the impact of socio-economic background on family formation patterns is increasing rather than being stable or declining (Brons et al. 2017; Koops et al. 2017; Wiik 2009).

The general changes in family formation across cohorts and the differences in this process between France and Sweden on the one hand and Italy and Romania on the other hand, are in line with expectations from SDT theory. However, the SDT does not stress the persistent impact of family background. The theory portrays general changes in societies, but neglects permanent divides within societies. In terms of intra-country differences, regional differences and religion are mentioned by SDT theorists (Lesthaeghe 2010; Lesthaeghe and Neidert 2005), but even here it is argued that some regions are slower to adapt and that religious groups resist changes of the SDT, i.e. as if eventually everyone will change. We find that social background differences do not become smaller. To the contrary, they increase. This is where the Pattern of Disadvantage theory can complement the SDT theory. The PoD theory focusses on socio-economic differences, but cannot explain changes in patterns that occur across all social strata. Cultural changes that drove the SDT have facilitated routes to disadvantaged family patterns, including forms of nonmarital childbearing that would previously not have been socially accepted or would have been prevented by institutions, such as the church. Before the SDT more uniformity existed in family formation pathways of young adults from all social class background, as almost everyone entered family formation by marrying and subsequently having children. Hence, one can argue that the cultural processes behind the SDT created more room for diversity on the basis of social class background. The less effective social norms are in forcing people towards one particular family formation pathway, the larger social inequality in terms of family formation pathway patterns will become.

Although research on change in family formation pathways have criticized the lack of attention for educational level (e.g. Zimmermann and Konietzka 2017), most research only

focusses on the impact of young adults' own educational attainment (Mikolai et al. 2018; Perelli-Harris & Lyons-Amos 2016). Our study shows that ascribed characteristics related to young adults' family background also continue to shape their family formation patterns. Although the impact of parents may have declined since the time that the majority of parents arranged marriages for their children (Cherlin 2012), this study demonstrates that in a subtler form the impact of parents on family formation is still salient. It is worth noting that the results from studies investigating the role of own education on family formation show similar results. For instance, Mikolai et al. (2018) find that childbearing within cohabitation is more common among low educated, which is in line with our finding that those with lower educated parents have a higher risk of childbearing outside of marriage. This suggests that the intergenerational transmission of education is an important explanation as to why differences in family formation patterns arise between individuals with different parental education.

Our study is not without limitations. First, we used a single indicator of socio-economic background, i.e. highest parental education. It would be worthwhile to examine the impact of other indicators of socio-economic background, such as parental occupational status, household income and assets. Furthermore, the meaning of parental education may have changed. Whereas in the past the educational level of the father might have mattered most, nowadays that of the mother might matter more or both might be equally important. Future research could try to disentangle the impact of both the father and the mother on the family formation behavior of their children. Second, although we selected four quite distinct European countries, i.e. Sweden, France, Romania and Italy, these may be too specific to generalize the results to the whole of Europe. Therefore, it is important in future research to investigate more in detail how country and regional differences impact the relationship between socio-economic background and family formation.

A strong point of this research was the clear clustering of different family formation pathways. The distinction between (1) timing of the start of family formation and (2) the subsequent pathways allowed us to create clearer clusters. Furthermore, CTA solves a key problem of sequence analysis as the latter often uses a fixed age range in which sequences differ only in the timing of the first event, which makes clustering solutions less clear (Studer et al. 2018). Research using clustering techniques such as sequence analysis have rarely been able to use each other's typology, and therefore start over again with creating their own typology. This leads to a plurality of results, in which it is difficult to tell which typology is best and clusters often suffer from large within-cluster heterogeneity. Our approach has created a clearer typology of family formation, which could be used in future research.

REFERENCES

Abbott, Andrew and Angela Tsay. 2000. "Sequence Analysis and Optimal Matching Methods in Sociology: Review and Prospect." *Sociological Methods & Research* 29(1):3–33.

Amato, Paul R., Alan Booth, Susan M. McHale, and Jennifer Van Hook, eds. 2015. *Families in an Era of Increasing Inequality*. Cham: Springer International Publishing.

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):375–88.

Berrington, Ann and Ian Diamond. 1999. "Marital Dissolution among the 1958 British Birth Cohort: The Role of Cohabitation." *Population Studies* 53(1):19–38.

Billari, Francesco C. 2001. "Sequence Analysis in Demographic Research." *Canadian Studies in Population* 28(2):439–58.

Billari, Francesco C. and Aart C. Liefbroer. 2010. "Towards a New Pattern of Transition to

Adulthood?" *Advances in Life Course Research* 15(2–3):59–75.

Blossfeld, Hans-Peter and Johannes Huinink. 1991. "Human Capital Investments or Norms of Role Transition? How Women's Schooling and Career Affect the Process of Family Formation." *The American Journal of Sociology* 97(1):143–68.

Blossfeld, Hans-Peter and Yossi Shavit. 1993. "Persisting Barriers: Changes in Educational Opportunities in Thirteen Countries." Pp. 1–23 in *Persistent Inequality: Changing Educational Attainment in Thirteen Countries*, vol. 15.

Brons, Anne M. D., Aart C. Liefbroer, and Harry 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):809–22.

Brückner, Hannah and Karl Ulrich 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.

Buchmann, Marlis C. and Irene Kriesi. 2011. "Transition to Adulthood in Europe." *Annual Review of Sociology* 37(1):481–503.

Cavanagh, Shannon E. 2011. "Early Pubertal Timing and the Union Formation Behaviors of Young Women." *Social Forces* 89(4):1217–38.

Cherlin, Andrew J. 2012. "Goode's World Revolution and Family Patterns: A Reconsideration at Fifty Years." *Population and Development Review.*

Chevalier, Arnaud, Colm Harmon, Vincent O' Sullivan, and Ian Walker. 2013. "The Impact of Parental Income and Education on the Schooling of Their Children." *IZA Journal of Labor Economics* 2(1).

Christopher, Karen, Paula England, Timothy M. Smeeding, and Katherin Ross Phillips. 2002. "The Gender Gap in Poverty in Modern Nations: Single Motherhood, the Market, and the State." *Sociological Perspectives* 45(3):219–42.

Coleman, David. 2003. "Why We Don't Have to Believe without Doubting in the 'Second Demographic Transition' — Some Agnostic Comments." *Vienna Yearbook of Population Research* 2(2004):11–24.

Dariotis, Jacinda K., Joseph H. Pleck, Nan M. Astone, and Freya L. Sonenstein. 2011. "Pathways of Early Fatherhood, Marriage, and Employment: A Latent Class Growth Analysis." *Demography* 48(2):593–623.

Dubow, Eric F., Paul Boxer, and L. Rowell Huesmann. "Long-term effects of parents' education on children's educational and occupational success: Mediation by family interactions, child aggression, and teenage aspirations." *Merrill-Palmer quarterly (Wayne State University. Press)* 55.3 (2009): 224.

Easterlin, Richard A. 1980. "Birth and Fortune: The Effects of Generation Size on Personal Welfare." *New York*.

Elzinga, Cees H. and Aart C. Liefbroer. 2007. "De-Standardization of Family-Life Trajectories of Young Adults: A Cross-National Comparison Using Sequence Analysis." *European Journal of Population / Revue européenne de Démographie* 23(3–4):225–50.

Frejka, Thomas. 2008. "Overview Chapter 5: Determinants of Family Formation and Childbearing during the Societal Transition in Central and Eastern Europe." *Demographic Research* 19:139–70.

Gabadinho, Alexis, Gilbert Ritschard, Nicolas Séverin Mueller, and Matthias Studer. 2011. "Analyzing and Visualizing State Sequences in R with TraMineR." *Journal of Statistical*

Software 40(4):1–37.

Gierveld, Jenny De Jong, Aart C. Liefbroer, and Erik Beekink. 1991. "The Effect of Parental Resources on Patterns of Leaving Home among Young Adults in the Netherlands." *European Sociological Review* 7(1):55–71.

Gray, Robert J. (1988). A class of K-sample tests for comparing the cumulative incidence of a competing risk. *The Annals of statistics*, *16*(3), 1141-1154.

Hoem, Jan M., Dora Kostova, Aiva Jasilioniene, and Cornelia Mureşan. 2009. "Traces of the Second Demographic Transition in Four Selected Countries in Central and Eastern Europe: Union Formation as a Demographic Manifestation." *European Journal of Population* 25(3):239–55.

Kalmijn, Matthijs. 1998. "Intermarriage and Homogamy: Causes, Patterns, Trends." *Annual Review of Sociology* 24(1):395–421.

Kohn, Melvin L. 1963. "Social Class and Parent-Child Relationships: An Interpretation." *American Journal of Sociology* 68(4):471–80.

Koops, Judith C., Aart C. Liefbroer, and Anne 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):533–57.

Lesnard, Laurent, Anne-Sophie Cousteaux, Flora Chanvril, and Viviane Le Hay. 2016. "Do Transitions to Adulthood Converge in Europe? An Optimal Matching Analysis of Work–Family Trajectories of Men and Women from 20 European Countries." *European Sociological Review* 32(3):355–69.

Lesthaeghe, R. 1998. "On Theory Development: Applications to the Study of Family Formation." *Population and development review* 24(1):1–14.

Lesthaeghe, R. and L. Neidert. 2005. “The" Second Demographic Transition" in the US: Spatial Patterns and Correlates’.” *Unpublished. Population Studies Center, University of Michigan, Ann Arbor*.

Lesthaeghe, Ron. 2010. “The Unfolding Story of Transition.” *Population and Development Review* 36(2):211–51.

Lesthaeghe, Ron. 2014. “The Second Demographic Transition: A Concise Overview of Its Development: Table 1.” *Proceedings of the National Academy of Sciences* 111(51):18112–15.

Lesthaeghe, Ron and Dirk J. Van de Kaa. 1986. “Twee Demografische Transities.” *Bevolking: groei en krimp* 9–24.

Lyngstad, Torkild Hovde. 2006. “Why Do Couples with Highly Educated Parents Have Higher Divorce Rates?” *European Sociological Review* 22(1):49–60.

Mayer, Karl Ulrich Urlich. 2004. “Whose Lives? How History, Societies, and Institutions Define and Shape Life Courses.” *Research in Human Development* 1(3):161–87.

Mclanahan, Sara. 2004. “Diverging Destinies : How Children Are Faring Under the Second Demographic Transition *.” 41(4):607–27.

McLanahan, Sara and Christine Percheski. 2008. “Family Structure and the Reproduction of Inequalities.” *Annual Review of Sociology* 34(1):257–76.

Mikolai, Julia, Ann Berrington, and Brienna Perelli-Harris. "The role of education in the intersection of partnership transitions and motherhood in Europe and the United States." Demographic Research 39 (2018): 753-794.

Miller, Brent C. 2002. “Family Influences on Adolescent Sexual and Contraceptive Behavior.” *Journal of sex research* 39(1):22–26.

Mills, Melinda and Hans-Peter Blossfeld. 2013. “The Second Demographic Transition Meets Globalization: A Comprehensive Theory to Understand Changes in Family Formation in an Era of Rising Uncertainty.” Pp. 9–33 in *Negotiating the life course. Stability and change in life pathways*.

Oppenheimer, Valerie Kincade. 1988. “A Theory of Marriage Timing.” *American Journal of Sociology* 563–91.

Perelli-Harris, Brienna, Michaela Kreyenfeld, Karolin Kubisch. 2010. “Harmonized Histories: Manual for the Preparation of Comparative Fertility and Union Histories.” *Max Planck Institute for Demographic Research Working Paper* 11(0):0–34.

Perelli-Harris, Brienna et al. 2010. “The Educational Gradient of Childbearing within Cohabitation in Europe.” *Population and Development Review* 36(4):775–801.

Perelli-Harris, Brienna and Theodore P. Gerber. 2011. “Nonmarital Childbearing in Russia: Second Demographic Transition or Pattern of Disadvantage?” *Demography* 48(1):317–42.

Perelli-Harris, Brienna and Mark Lyons-Amos. 2016. “Partnership Patterns in the United States and across Europe: The Role of Education and Country Context.” *Social Forces* 95(1):251–82.

Potârcă, Gina, Melinda Mills, and Laurent Lesnard. 2013. “Family Formation Trajectories in Romania, the Russian Federation and France: Towards the Second Demographic Transition?” *European Journal of Population / Revue européenne de Démographie* 29(1):69–101.

Sassler, Sharon, Fenaba Addo, and Elizabeth Hartmann. 2010. “The Tempo of Relationship Progression among Low-Income Couples☆.” *Social Science Research* 39(5):831–44.

Schröder, Heike and Harry B. G. Ganzeboom. 2013. "Measuring and Modelling Level of Education in European Societies." *European Sociological Review* 30(1):119–36.

Schwanitz, Katrin. 2017. "The Transition to Adulthood and Pathways out of the Parental Home: A Cross-National Analysis." *Advances in Life Course Research* 32:21–34.

Scrucca, L., A. Santucci, and F. Aversa. 2010. "Regression Modeling of Competing Risk Using R: An in Depth Guide for Clinicians." *Bone Marrow Transplantation*.

Sironi, Maria, Nicola Barban, and Roberto Impicciatore. 2015. "Parental Social Class and the Transition to Adulthood in Italy and the United States." *Advances in Life Course Research* 26:89–104.

Sobotka, Tomáš. 2008. "Overview Chapter 6: The Diverse Faces of the Second Demographic Transition in Europe." *Demographic Research* 19:171–224.

Studer, Matthias. 2013. *WeightedCluster Library Manual: A Practical Guide to Creating Typologies of Trajectories in the Social Sciences with R*.

Studer, Matthias, Aart C. Liefbroer, and Jarl E. Mooyaart. 2018. "Understanding Trends in Family Formation Trajectories: An Application of Competing Trajectories Analysis (CTA)." *Advances in Life Course Research* 36:1–12.

Studer, Matthias and Gilbert Ritschard. 2016. "What Matters in Differences between Life Trajectories: A Comparative Review of Sequence Dissimilarity Measures." *Journal of the Royal Statistical Society. Series A: Statistics in Society* 179(2):481–511.

Thornton, Arland, William G. Axinn, and Jay D. Teachman. 1995. "The Influence of School Enrollment and Accumulation on Cohabitation and Marriage in Early Adulthood." *American Sociological Review* 60(5):762.

Vikat, Andres et al. 2007. "Generations and Gender Survey (GGS) Towards a Better

Understanding of Relationships and Processes in the Life Course." *Demographic research* 17:389–440.

Wiik, Kenneth Aarskaug. 2009. "'You'd Better Wait!'- Socio-Economic Background and Timing of First Marriage versus First Cohabitation." *European Sociological Review* 25(2):139–53.

Van Winkle, Zachary. 2018. "Family Trajectories Across Time and Space: Increasing Complexity in Family Life Courses in Europe?" *Demography* 55(1):135–64.

Wood, Robert G., Sarah Avellar, and Brian Goesling. 2008. "Pathways to Adulthood and Marriage : Teenagers ' Attitudes , Expectations , and Relationship Patterns." *Department of Health and human services* (October):1–12.

Zaidi, Batool and S. Philip Morgan. 2017. "The Second Demographic Transition Theory: A Review and Appraisal." *Annual Review of Sociology* 43(1):473–92.

Zimmermann, Okka and Dirk Konietzka. 2017. "Social Disparities in Destandardization—Changing Family Life Course Patterns in Seven European Countries." *European Sociological Review.*

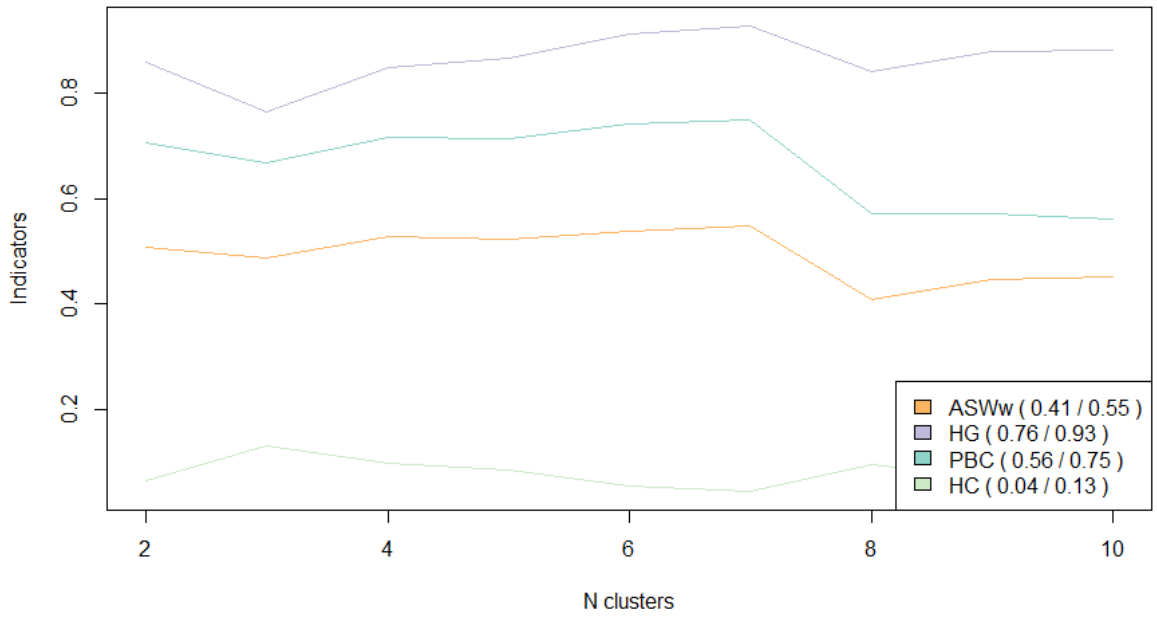
APPENDIX

This Appendix provides additional information on (a) the choice of the number of clusters of family formation pathways that are distinguished, (b) statistical tests for differences in family formation pathways between parental education groups, (c) survival curves for entry into family formation for different parental education groups, and (d) competing risk hazard models for three different birth cohorts.

Choice of number of family formation clusters

The choice of the number of different types of family formation pathway clusters is based on statistical partitioning indicators, including ASW (weighted), HG, PBC and HC (Studer and Ritschard 2016), but also on whether the cluster solution provides clearly distinct clusters which are in accordance with the literature on family formation. The optimal number of clusters according to this procedure is seven clusters. Figure A displays the values of statistical partitioning indicators for each cluster solution. One can clearly see an optimum at 7 (all indicators need to be as high as possible, with the exception of HC for which a lower value indicates a better cluster solution). Furthermore, when the distributions of states within the clusters in Figure 1 is examined, clearly distinct clusters are observed. With the 6-cluster solution one loses the distinction between those who cohabit and mostly stay together and those who cohabit but separate soon afterwards. The 8-cluster solution splits up the second cluster into those who do and those who do not experience unmarried cohabitation before having children within marriage. While one could argue that this is an interesting distinction, the statistical indicators clearly indicate a much weaker structure in this clustering. Therefore, we opt for the 7-cluster solution.

Figure A Partitioning statistics on different cluster solutions (2-10)



Statistical tests for differences in family formation pathways between parental education groups

Table B1 *Gray's tests (df=2) on differences between parental education groups in the rate of entry into different family formation pathways, by birth cohort in Sweden*

	1925-1944	1945-1964	1965-1994
Marriage and parenthood	2.07	19.48**	26.97**
Slow marriage and parenthood	3.62	9.10*	2.76
Cohabitation dissolution	0.21	22.74**	5.42
Marriage	0.48	0.43	7.47*
Single Parenthood	0.58	13.46**	11.90**
Cohabitation	2.02	3.44	1.90
Cohabitation and parenthood	1.70	16.47**	25.33**

Note: ** p<0.01, * p<0.05

Table B2 *Gray's tests (df=2) on differences between parental education groups in the rate of entry into different family formation pathways, by birth cohort in France*

	1925-1944	1945-1964	1965-1994
Marriage and parenthood	4.44	39.03**	19.39**
Slow marriage and parenthood	13.25**	3.38	8.89*
Cohabitation dissolution	2.67	13.66**	11.65**
Marriage	3.99	8.69*	11.53**
Single Parenthood	2.93	6.18*	16.50**
Cohabitation	4.90	53.46**	0.94
Cohabitation and parenthood	8.82*	1.10	37.58**

Note: ** p<0.01, * p<0.05

Table B3 *Gray's tests (df=2) on differences of rate into family formation pathways per birth cohort in Italy*

	1925-1944	1945-1964	1965-1994
Marriage and parenthood	7.22*	63.69**	53.37**
Slow marriage and parenthood	1.48	9.66*	2.99
Cohabitation dissolution	0.41	25.71**	0.01
Marriage	1.12	5.82	8.00*
Single Parenthood	0.41	0.33	2.13
Cohabitation	7.47*	22.13**	2.52
Cohabitation and parenthood	1.30	0.48	1.46

Note: ** p<0.01, * p<0.05

Table B4 *Gray's tests (df=2) on differences between parental education groups in the rate of entry into different family formation pathways, by birth cohort in Romania*

	1925-1944	1945-1964	1965-1994
Marriage and parenthood	7.03*	9.50**	156.76**
Slow marriage and parenthood	0.76	1.10	1.211
Cohabitation dissolution	10.31**	23.26**	0.00
Marriage	7.36*	11.31**	2.40
Single Parenthood	4.08	0.36	14.39**
Cohabitation	3.99	3.91	1.11
Cohabitation and parenthood	2.84	4.67	43.94**

Note: ** $p<0.01$, * $p<0.05$

4. Born to be Rich? The Influence of Family Background and Life-course Pathways on the Income Trajectories of Young Adults[1]

Jarl E. Mooyaart; Aart C. Liefbroer; Francesco C. Billari

Abstract *Income inequalities in young adulthood strongly depend on young adults' family background. This study examines the role played by career and family pathways during emerging adulthood in exacerbating or alleviating this intergenerational transmission of inequality. Using panel data from the NSLY97 (N=4,966) we examine the influence of family background and of career and family pathways during emerging adulthood (i.e., ages 17-25), on income trajectories in young adulthood (i.e., ages 25-32). We make innovative use of Optimal Matching Analysis, defining typical career (education and employment) and family (household, relationship and parenthood status) pathways during emerging adulthood and subsequently create independent variables indicating similarity to typical career and family sequences, separately for men and women. These variables and variables on family background (including parental income, parental education, childhood family structure and race) are included in a growth curve model to predict annual income growth in young adulthood. Both career and family pathways impact income, with attending 4-year college and postponing family formation being key ingredients for higher income. Our results indicate that family background has a direct effect on the income trajectories of young adults even when career and family pathways during emerging adulthood are taken into account.*

[1] A similar, but somewhat different version of this chapter is currently under review at an international peer-reviewed journal.

4.1 INTRODUCTION

There is growing concern that the increasing gap in parental resources between children growing up in advantaged and disadvantaged homes reduces the opportunities for those from disadvantaged backgrounds to earn a decent living later on (Amato et al. 2015; Mclanahan 2004; Putnam 2015). Researchers have identified the United States as a country with high income inequality and relatively little intergenerational social mobility compared with other Western countries (Piketty and Saez 2003; Bjorklund and Jantti 1997; Corak, Lindquist, and Mazumder 2014; Ermisch et al. 2012). The aim of the present study is to contribute to the debate and add to the evidence regarding how social inequality is shaped in the contemporary United States.

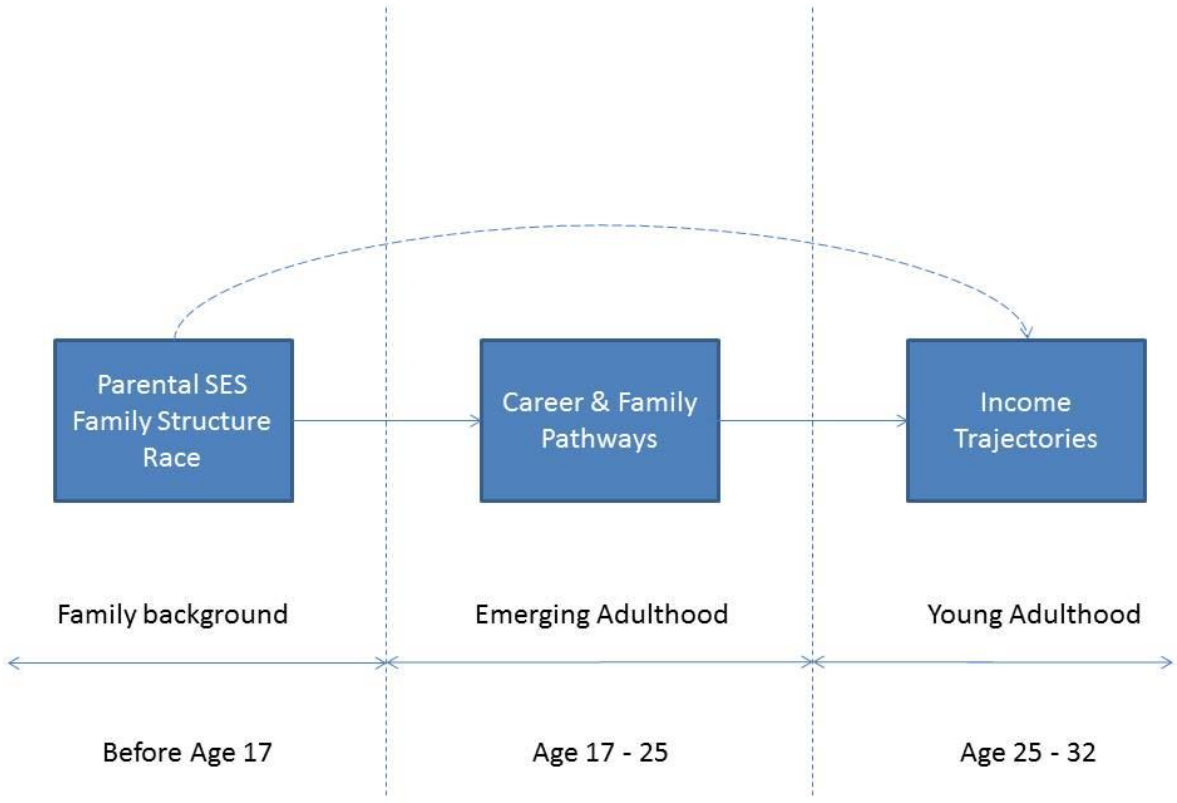
An assessment of income differences in young adulthood, which we define in this study as the period between the ages 25 and 32, is a starting-point for a study that seeks to improve our understanding of how family background affects income inequality. Young adulthood is the life-stage in which individuals are expected to become independent from their parents (Sironi and Furstenberg 2012), and developments at this stage have far-reaching consequences for a person's financial status in later phases of life. It is imperative to examine income development longitudinally (Cheng 2014; Gangl 2005); studying income development at one point in time gives relatively little indication of income stability and therefore of inequality and stratification (Cheng 2014; Erikson and Goldthorpe 2002). Moreover, in order to understand how income trajectories are stratified, it is important to adopt a life-course perspective (Elder 1998) by examining how income differences are shaped both by young adults' family background and by their own life-course pathways in the professional and family life domains during emerging adulthood, i.e., between the ages of 17 and 25.

For family background, we consider parental socioeconomic status (SES), family structure, and race. The literature on 'diverging destinies' has demonstrated that over the last few decades, children of parents with lower levels of education are more likely to have been raised by a single parent or to have experienced divorce during childhood, compared with those raised by parents with higher levels of education (Amato et al. 2015; Mclanahan 2004; McLanahan and Percheski 2008). This divergence has been identified as an important cause of increasing inequality in the United States (McLanahan and Percheski 2008; Putnam 2015). Furthermore, young African-Americans and Hispanics have, on average, lower-educated parents and are more likely to be raised in a non-intact family (McLanahan and Percheski 2008). Yet there may also be racial differences in income attainment that go beyond differences in parental SES and childhood family structure (Hardaway and McLoyd 2009). We explore the extent to which each of these aspects of family background matters in terms of income development in young adulthood.

Although family background may have an important impact in shaping one's life course, the transition to adulthood is the life-phase in which individuals start to shape their own life-course and success. The transition to adulthood is now considered to be a distinct life-phase, which for some lasts until one's early 30s (Furstenberg 2010). Its first stage has been described as "emerging adulthood" (Arnett 2000). Although the notion of emerging adulthood has mainly been used to depict the psychological development of those going to college (Bynner 2005; Mitchell and Syed 2015), we herein use this term to refer to life-course events taking place in the professional and family domain between the ages of 17 and 25. In this study we adopt a holistic approach given that an increasing number of studies demonstrate that focusing on individual events in emerging adulthood does not acknowledge the complexity and inter-relatedness of such events during this period (Aassve et al. 2007; Amato et al. 2008; Brzinsky-Fay 2014; Sironi et al. 2015). Rather than examining the impact of separate indicators

of the transition to adulthood, such as educational attainment and marital status, we examine pathways into adulthood using sequence analysis. By examining pathways, one can assess not only the effect of specific events, but also the effect of their timing and ordering (Billari 2001). This study distinguishes two pathways: career and family. The first is based on information about educational trajectories and hours of employment, while the latter is based on information on leaving the parental home, union formation, and parenthood. In sum, we are interested in the effect of both family background and pathways in emerging adulthood in explaining income inequality in young adulthood, leading to our first research question: 1) *How do both family background and career and family pathways in emerging adulthood shape income trajectories in young adulthood?*

Figure 1 Model on income inequality in the transition to adulthood



As shown in Figure 1, we assume family background and emerging adulthood to be interrelated, i.e., that children from advantaged backgrounds are more likely than children from disadvantaged backgrounds to choose pathways during emerging adulthood associated with higher income in young adulthood. This leads to our second research question: 2) *To what extent are family background differences in income trajectories explained by pathways in emerging adulthood?* By holistically examining the influence of emerging adulthood we can assess the extent to which disadvantaged youths can climb to a position of advantage during this life phase.

This study contributes to the literature on the intergenerational transmission of advantage in several ways. First, our inclusion of both family background factors and pathways during emerging adulthood provides a comprehensive picture of how income attainment during young adulthood can be explained. There is much research on how parental SES and human capital influences income, but relatively little on the role played by family and living arrangements, even though they form an important part of people's daily lives. Even fewer studies examine the impact of both SES and family events on income inequality. Our approach allows us to assess the influence of both resource-related and socialization-related factors in the intergenerational transmission of advantage.

Second, the present study investigates the income trajectories of a recent cohort of young adults, thereby portraying the income differences currently arising among American adults. We examine whether advantages in family background and emerging adulthood lead to a sharper increase in income, as predicted by cumulative advantage theory (Buchmann and DiPrete 2006; Cheng 2014, 2015; Elman and O'Rand 2004). We focus on personal rather than on household income, because personal income is a key indicator of individual independence. Thus, this research can improve our understanding on which young adults are able to provide a decent living for themselves.

Finally, in methodological terms we make innovative use of sequence analysis, combining it with other approaches. While most research uses sequences as an outcome (Lui et al. 2014; Oesterle et al. 2010; Osgood et al. 2005; Salmela-Aro et al. 2011; Sironi et al. 2015), we use sequence analysis to construct independent variables for career and family pathways that can then be used to predict income trajectories.

4.2 BACKGROUND

4.2.1 Family background

Much of the literature on the intergenerational transmission of (dis)advantage has focused on social class background and the role of intergenerational educational transmission in shaping inequality (e.g., Blau and Duncan 1967; Blossfeld and Shavit 1993; Breen and Goldthorpe 1997). These studies indicate that children from higher social classes are more likely to become more highly educated and therefore generally earn more than children from lower-social backgrounds. Other scholars have focused on the process of socialization. In Bourdieu's framework, children of higher-SES parents are socialized to adopt certain attitudes, preferences, and behaviors, which constitute cultural capital that helps them to be more successful in their educational and occupational careers (Bourdieu and Passeron 1990). Lareau's ethnographic research (Lareau 2006, 2011) shows how childrearing practices differ between middle- and lower-class parents, the former being more active in structuring the daily activities of their children to help develop their talents, language, and manner of interaction with officials in institutions, the latter being more inclined to take a hands-off approach to their children's schooling and development.

More recently, there has been an increasing focus on the role of family structure in the intergenerational transmission of advantage. Children raised in non-intact families have lower educational and occupational attainment and income compared with those raised in intact families (Amato et al. 2015; Bernardi and Boertien 2017; Bloome 2017; McLanahan and Percheski 2008). Parental divorce and single parenthood decrease economic resources and parental supervision and support, which may lead to behavioral problems and academic failure, which can in turn lay the foundation for disadvantage in adulthood (Amato 2000; Biblarz and Raftery 1999). However, other studies indicate that the influence of family structure beyond parental SES may be small, because those parents who are likely to divorce are also the ones with lower socio-economic status (Bernardi and Boertien 2017; Lopoo and DeLeire 2014).

The United States continues to have a racial divide in terms of incomes. White households generally still have higher incomes and lower poverty rates than Black and Hispanic households (Proctor, Semega, and Kollar 2016). Much of this difference may be explained by the over-representation of minorities in socially disadvantaged groups. Blacks and Hispanics are more likely to experience childhood poverty (Corcoran 1995; Heflin and Pattillo 2006; Lopez and Velasco 2011) and less likely to be raised by both parents (Kennedy and Bumpass 2008; McLanahan and Percheski 2008). However, the influence of race on income is likely to be not be only based on selection. Discrimination may negatively affect academic performance and chances of employment (Hardaway and McLoyd 2009; Pager and Shepherd 2008). Finally, the cultural capital that minorities acquire within their communities may not always be valued by mainstream society (Hardaway and McLoyd 2009).

While the literature focusing on the role of family background acknowledges that events in emerging adulthood matter, it is generally focused on one aspect, educational attainment. In the next section we argue that a more holistic focus on emerging adulthood could benefit our understanding of the intergenerational transmission of (dis)advantage.

4.2.2 Emerging adulthood

The transition to adulthood is a demographically dense life phase (Rindfuss 1991). It is the stage in which people leave the parental home, start their professional careers, become financially independent, and form families of their own. Over the last few decades, the transition to adulthood has diversified and been prolonged (Côté 2002; Furstenberg 2010; Shanahan 2000). The first stage in the transition to adulthood can be described as emerging adulthood. Arnett (2000) argues that the period between the ages of 18 and 25 should be considered a new developmental period. During emerging adulthood, individuals do not generally consider themselves adults, and tend to explore their identity. A particular characteristic of this period is its high demographic volatility, meaning that there is a wide variation in the type and number of transitions experienced by emerging adults (Arnett 2000).

There is already a wide variation among those entering college. Some focus merely on their studies, but for many emerging adults it is necessary to find a job to cover the costs of living and education. Youths may also work after high school and only later enter college, or temporarily leave college and return to education later. Thus, for many youths there is no single transition from school to work and therefore the school-to-work transition may be better understood as a process that may entail multiple switches from education to work (Brzinsky-Fay 2014; Dorsett and Lucchino 2014; Vuolo, Mortimer, and Staff 2014). This increasing variation in the school-to-work transition notwithstanding, Elman and O'Rand (2004) show that, among college graduates, those who finish their education earlier also tend to have higher earnings in the years after graduation.

For those not attending college it is important to find stable employment. It has become increasingly difficult for high school graduates to find employment, let alone to find work with a decent salary (Baum, Ma, and Payea 2013), for whom unemployment is a major risk. The

longer they spend time outside of employment or education, the more detrimental this is to their future career (Dorsett and Lucchino 2014; Mroz and Savage 2006). This effect of unemployment on career is also referred to as 'scarring' (Gangl 2006). On the other hand, emerging adults who do manage to find stable employment after high school may accumulate valuable job experience that helps them advance within their sector, increasing their income. Compared to those youths that attended college without obtaining a degree, they have the advantage of having more work experience. Yet many may fall between these two positions, having temporary jobs interspersed with spells of unemployment. By comparing complete pathways it may be more possible to assess the consequences of unemployment for income inequality in adulthood.

Emerging adulthood is not only characterized by the school-to-work transition, but also by major changes in the family domain, such as leaving the parental home and family formation. Patterns of leaving home provide an indication of how emerging adults are reaching their independence. Early family transitions may provide them with less time to explore their identities, which is considered an important developmental process in emerging adulthood (Arnett 2000). On the other hand, some youths may stay in the parental home and remain single for most or all of their twenties. One way in which family events in emerging adulthood may be related to income is through the consequences of these events for well-being, which may in turn influence income attainment. For instance, Galambos et al. (2008) find that both early and late home-leaving are associated with higher depression, and depression in turn is associated with higher unemployment and lower income (Dismuke and Egede 2010; Zimmerman and Katon 2005). In a similar vein, early union formation (cohabitation or marriage) and parenthood may be associated with lower well-being during emerging adulthood, because these relationships are found to be less stable than unions formed later in young adulthood

(Berrington and Diamond 2000), and those who enter parenthood at an early age are often unmarried (Schoen, Landale, and Daniels 2007).

Another link between family formation and income is through the potential (in)compatibility of career and family life. Family formation and career are often considered to be in competition. For instance, college enrollment delays union formation and parenthood (Blossfeld and Huinink 1991a; Mills et al. 2011; Thornton et al. 1995), while early marriage and parenthood are associated with a lower likelihood of attending college and lower income (Dariotis et al. 2011; Teachman and Polonko 1988). Thus, early family formation hinders career development and may negatively affect income. On the other hand, there is literature that indicates that there is a marriage premium for income, although mainly for men (e.g., Ahituv and Lerman 2007; Cheng 2016; de Linde Leonard and Stanley 2015). This premium is found for marriage and not for unmarried cohabitation (Cheng 2016; Light 2004). However, cohabitation can have many different meanings; for some it is a prelude to marriage, while for others it is an alternative to it either by choice or financial constraint (Hiekel et al. 2014; Oppenheimer 2003; Sassler and Miller 2011). An analysis of pathways can provide more detailed information on relationship histories and parenthood, e.g. whether or not cohabitation is followed by marriage, or whether children are born within marriage or within a cohabiting relationship. Parenthood outside of marriage is associated with disadvantage (Perelli-Harris et al. 2010; Smock 2000). Using information on pathways, different types of relationship episodes can be identified and may lead to a more nuanced view of the impact of cohabitation and marriage on income. In sum, there may be complex relationships between leaving home and family formation patterns and income attainment that cannot be captured by examining single indicators such as marriage and parenthood.

Given the disadvantages suffered by children from lower social classes, non-intact families, and racial minorities, it is no surprise that they are often less able to accomplish key

markers in emerging adulthood such as college attainment, stable employment, and marriage (Fomby and Bosick 2013; Furstenberg 2008; Osgood et al. 2005). Disadvantaged youths are more likely to drop out of high school (Tyler and Lofstrom 2009), but even among high school graduates, disadvantaged youths are less likely to attend or stay in college (Bozick 2007; Putnam 2015). Disadvantaged youths view college as a means to obtain a higher income, but may also perceive the cost of college education as a risk, and therefore entering the labor market without college education may seem a more viable option for them (Breen and Goldthorpe 1997). There is also a strong relationship between family background and family formation behavior. Children of lower class non-intact households are more likely to leave the parental home early, enter relationships and parenthood early, and are less likely to marry (Berzin and De Marco 2010; Fomby and Bosick 2013; Hofferth and Goldscheider 2010).

In sum, there is a strong relationship between family background and pathways through emerging adulthood, with youths from disadvantaged backgrounds less likely to follow pathways that position them for future high-income trajectories. However, even though disadvantaged youths may be less likely to follow similar pathways into adulthood compared to more advantaged youths, those who do should also have more similar life outcomes in adulthood. In other words, in a meritocratic society, outcomes such as income attainment should be based on achievements during emerging adulthood rather than the ascribed features of family background. In the next section, we discuss the possible income trajectories that may follow from emerging adulthood in more detail.

4.2.3 Income development in young adulthood

At the end of young adulthood many may not have achieved job stability and thus income may vary between and within individuals quite substantially over these years. However, young adulthood is a period in which differences between socio-economic classes become more marked. By examining income over the life-course one obtains insight into the process of status attainment (Cheng 2014). It is important, therefore, to examine income over a period of time rather than at a single point, in order to provide a comprehensive picture of income inequality in young adulthood.

When examining income trajectories, the question is not only who has the highest income, but also who has the highest increment in income. As mentioned above, young adults who have attended a 4-year college course after high school and graduated on time, may be those with the sharpest increase in income. On the other hand, those who spent most of their time in unemployment are likely not only to have a lower income, but also a lower or zero positive gradient. Young adults who have had a successful transition to adulthood are likely to diverge from those with a less successful transition in this sense. This is the well-known cumulative (dis)advantage or "Matthew effect" (Merton 1968). Indeed, research has indicated that between educational level groups there is cumulative (dis)advantage in wages (DiPrete and Eirich 2006; Elman and O'Rand 2004; Taylor et al. 2011). Other studies indicate that those who start with a higher income may also be more likely to have a higher rise in income during their career (Cheng 2014; Gangl 2005). In other words, the rich get richer.

A strong aspect of cumulative (dis)advantage theory is that it focuses on social inequality at different stages of the life-course. Family background factors such as parental education, income, family structure, and race can be considered to provide individuals with either advantage or disadvantage. As mentioned above, family background is related to

emerging adulthood in that children from advantaged backgrounds are more likely to choose career and family pathways associated with higher income. A long period spent in unemployment during emerging adulthood not only has repercussions for that particular life-phase, but also has a lasting impact on future income (Mroz and Savage 2006). Furthermore, events such as early parenthood can have a lasting negative impact on income (Dariotis et al. 2011). Within the cumulative (dis)advantage framework, this means that specific career and family pathways may not only lead to a lower income in the short term, but also to a lower growth in income in the long term.

Emerging adulthood can also be viewed as a phase in which those from a disadvantaged background can make up for their disadvantage by following pathways that increase their likelihood of obtaining a high income. The question is whether these youths can catch up with those from advantaged backgrounds on similar pathways in emerging adulthood, or whether early life advantage continues to play a role in obtaining higher income. In other words, does family background only direct youths toward successful pathways, or do advantages during childhood and emerging adulthood 'stack up'?

4.2.4 Gender

While there continues to be a wage gap between men and women (Blau and Kahn 2006; Lips 2003), women have overtaken men in rates of both college enrollment and graduation (Buchmann and DiPrete 2006). In addition, differences in family formation patterns between men and women exist. Generally, women enter unions and parenthood earlier (Uecker and Stokes 2008; Winkler-Dworak and Toulemon 2007). Furthermore, when they enter parenthood, women are often expected to be the main caregiver (Barber 2001; Wiik 2009).

This may imply that for women childbearing increases the difficulty of focusing on a career, whereas men may retract themselves from parental responsibilities (Oesterle et al. 2010). Research indicates that an important explanation for why wage growth is faster for men than for women is because short delays in career due to motherhood can have a substantial impact on income growth (Cheng 2016). Thus, particular pathways may differently affect income on the basis of gender. We therefore consider men and women separately in the following sections.

4.3 DATA AND METHODS

4.3.1 Data

This study uses data from the 1997 National Longitudinal Survey of Youth (NLSY97), a panel study conducted by the U.S. Bureau of Labor Statistics. Respondents were selected in 1997 at ages 12 to 17 (born 1980-1984), using a multi-stage stratified random sampling design, and have been interviewed annually until 2011, with the last wave of interviews in 2013. The NLSY97 contains an oversample of respondents of Afro-American and Latino descent. However, when weighted the NLSY97 provides a nationally representative sample of youths. The total sample consists of 8,984 respondents. However, we only select those respondents who have participated in all waves and on whom we have at least some information on personal income between ages 25 to 32, leading to a selection of N=4,946[2] respondents of which 2,288

[2] In sequence analysis 4,966 cases (2,301 male, 2,665 female) are used to construct clusters. 18 cases are dropped in the growth curve analysis, because they have no valid family structure information and two because they have no valid reported income between the ages of 25 and 32

are male and 2,658 are female. To counter for possible selectivity we used the NLSY97 sample panel weights (For more information see: https://www.nlsinfo.org/content/cohorts/nlsy97/using-and-understanding-the-data/sample-weights-design-effects). In each wave, respondents were asked to report all income they received from salaries, wages, and commissions in the previous year. Not all individuals have yet reached the age of 32. Thus, at higher ages there are a lower number of observations (see Table 1). Since an income of zero is an outcome in which we are interested, we use income rather than its log transformation. As shown in Table 1, the large standard deviations suggest skewness. Even though the top 2% incomes are topcoded, meaning that the income of this group is averaged, these maximum incomes do range between approximately $130,000 and $188,000 (with the maxima increasing in later waves of the survey), leading to a positive skewness.

4.3.2 Family background measures

The NLSY contains detailed information on family background, from which the following variables are constructed: *parental education* is coded as the highest education of mother or father using five categories: less than high school (15.6%); high school (31.7%); some college (23.3%); 4-year college or more (24.9%); and missing (4.5%) if the education for both the father and mother was missing; *parental income* is the household income reported by one of the parents when the youth was 12 to 16 years old and is coded in quartiles, including also a missing category (23.6% = missing); *family structure* is derived from a question on household composition in 1997 and has four categories: 1) Both biological parents (51.4%); 2) 1 biological, 1 step-parent (12.3%); 3) single parent (31.0%); 4) other (no biological parents,

5.3%). Finally, *race* is coded as: 1) white (non-Hispanic, 51.5%); 2) black (non-Hispanic, 27.2%); 3) Hispanic (20.3%); other (1.0%).

Table 1 *Descriptive income information for men and women*

	men			*women*		
age	*obs*	*mean*	*sd*	*obs*	*mean*	*sd*
25	2,286	26,164.60	21,424.49	2,650	18,795.86	17,447.63
26	2,292	28,672.47	23,797.62	2,652	20,666.58	19,259.22
27	1,795	30,997.36	25,789.04	2,086	21,857.94	20,831.07
28	1,795	33,982.61	29,633.67	2,099	23,408.20	23,052.33
29	1,323	35,811.13	31,639.28	1,531	22,894.44	22,871.36
30	845	39,142.83	33,504.50	1,013	24,991.20	24,947.67
31	454	41,412.72	37,822.61	526	27,242.62	28,995.94
32	380	46,841.88	44,709.98	458	26,096.06	27,843.52

4.3.3 Pathways during emerging adulthood: sequences, distance, and clustering

In the NLSY97, youths reported the year and month in which specific life-course events occurred. This information was used to construct a sequence-type life-course dataset for both career and family pathways, which was then used as input for sequence analysis (Abbott and Tsay 2000). In order to create such a dataset it is necessary to define the state space consisting of the different states that individuals can occupy at each time-point. For the career sequence, states can differ in two dimensions: education and employment. In terms of education, youths were classified as being enrolled in high school, in 2-year college education, 4-year college education (including post-graduates), or not enrolled. We considered someone to be

continuously enrolled if there was a gap of 2 months or less between programs with the same level of education. For example, someone in high school having a 2-month gap between two high school episodes of length x and y was recoded as a single episode in high school of length x+y+2. Three employment states were distinguished: individuals were employed for 20 hours per week or more[3], employed for less than 20 hours per week, or not employed (including people who were unemployed, but also, for instance, stay-at-home parents). The cut-off of 20 hours was chosen because working 20 hours or more has been defined as a moderate-to-high level of work intensity for those enrolled in college (Roksa and Velez 2012). Combining these educational and occupational states led to twelve (4 x 3) possible different career states.

Family pathways were also defined along two dimensions: living arrangement and parenthood. For the first dimension we distinguished four options: living with parents, living alone/independent[4], living with partner (cohabiting), living with spouse (marriage). The second dimension is parenthood, indicating whether someone has become a parent at some point or not. Entering parenthood was considered irreversible, because once people become a parent they stay one for the rest of the sequence, independently of whether they co-reside with their child. This led to a total of eight (4 x 2) possible family states.

Each sequence therefore contains 96 spells because respondents' pathways are recorded monthly between the ages of 17 and 25. This particular age range was chosen for several reasons. First, it covers the range proposed by Arnett (2000) in describing emerging adulthood (18-25). The sequence starts from age 17 because at this point most people are still in high school and the transition to college (for those who go there) has yet to take place. Second,

[3] The NLSY97 reports weekly job status. We recoded this to monthly status using the conversion recommended by the NLS. If someone is employed for at least one week during a month, this person is considered employed for that month.

[4] In some cases, where individuals leave the parental home to live independently, there is only yearly information about leaving home. Specific questions about leaving and returning home were included from 2003 onwards

Schulenberg and Schoon (2012) state that differences in pathways become most visible during one's mid-twenties. In order to establish the level of dissimilarity of sequences (referred to as distance), we used Optimal Matching (OMA) (Abbott 1983). This method establishes how many substitutions, deletions, or insertions are required to transform one sequence into another. The more operations are required, the more distant sequences are from one another. However, some transitions may occur more often than others. For instance, those who recorded that they live with their parents may be less likely to become parents the following month compared with those who reported being married. Therefore, we assigned costs of substitutions based on the transition rates between different states (Studer & Ritschard 2014). Some operations are therefore more costly than others. If there is low rate of transition from one state to another in the data, the substitution costs for these states are high, leading to a greater distance between sequences.

In order to create clusters of similar pathways, we used the TraMineR package in R (Gabadinho et al. 2011). Based on the distance defined by the OMA procedure, different clusters can be defined. A weighted (using NLSY97 weights) hierarchical clustering procedure using the Ward method was chosen to produce clusters. This procedure was undertaken separately for men and women.

4.3.4 Grade of Membership

In this paper, we introduce an innovative way of examining the strength of the link between pathways and our outcome variable, income. Whereas in earlier research using sequence analysis and OMA, cluster membership is considered as a categorical variable, we opted to include a set of continuous variables that indicate how similar a sequence is to the medoid of a

particular cluster. The medoid is the sequence within a cluster that has the lowest average distance to all the other sequences in that cluster (Aassve et al. 2007). We have two reasons for using this approach. First, binary cluster membership overemphasizes the homogeneity of clusters and it disregards variations in the distance between clusters. Individuals may be relatively close to some clusters, while very far from others. Using simple cluster membership this effect is not captured. Second, by simply assigning individuals to one career and family cluster, one loses the information on distance that is obtained from the Optimal Matching Analysis. Thus, by using a continuous variable indicating distance to a cluster, one allows more variation in terms of similarity to particular sequences, leading to a more efficient use of the available information.

The medoid can be viewed as the center of a cluster and pathways that are very close to this center therefore can be viewed as the most representative examples of the pathways that constitute a particular cluster (Aassve et al. 2007). This way, we allow for more variation between those within the same cluster, i.e., some individuals within a particular cluster may be closer to the medoid than others within that cluster, but we also allow for variation between individuals that are not part of that cluster, with some individuals being further away from that medoid than others. Instead of being defined by membership in one particular cluster, individuals are now defined by their distance to all cluster medoids. The distance to each medoid is recoded to a range from 0 to 1, with the following transformation

$$GoM_{ij} = 1 - (dm_{ij}/dm_{ij\max})$$

in which dm_{ij}, stands for distance to the medoid for a sequence i to a medoid j, and $dm_{ij\max}$ for the maximum distance to medoid j, resulting in GoM_{ij}, a relative measure indicating how similar/proximate a sequence i is to medoid j, thus indicating a grade of membership. A

sequence very close to the medoid of a cluster has a score close to 1, whereas a sequence that is very far removed from that medoid has a score close to 0. For descriptive information on all the GoM variables created from the clustering, see Tables A1, A2, A3, and A4 (in the Appendix).

The number of clusters was chosen by selecting the model with the best AIC, using STATA 14. The maximum number of career and family GoM variables to be included was capped at 6 for both career and family to keep the number of GoM variables manageable[5]. The optimal solution was six career and five family clusters for men, and four career and five family clusters for women. The AIC scores can be found in the Appendix in Tables B1 and B2.

4.3.5 Income trajectories during young adulthood: growth-curve modeling

Growth curve models were used to estimate the effects of family background and emerging adulthood on income trajectories between ages 25 and 32. Even though not all respondents were observed until the age of 32, growth curve models can include observations with as little as one valid reported income. We use a linear specification in which both the intercept and the slope are allowed to vary between individuals. The growth curve model also allows an unconstrained correlation between the intercept and the slope. In the result section, two models are presented. Model 1 contains only the family background variables, i.e., parental income, parental education, family structure, and race. In Model 2, the career and family pathway variables are included as well. In order to visualize income differences, we used the margins

[5] Including more than six GoM variables in either the family or career category also led to the exclusion of one GoM variable as the result of multicollinearity. This most likely indicates that the next GoM medoid would not be very different from an already existing medoid, meaning that this additional benchmark is not needed to improve the model.

command in STATA 14 to create predicted income trajectories. The results of Model 1 are visualized by contrasting average income trajectories of young adults from advantaged and disadvantaged backgrounds. The results of Model 2 are used to create average predicted annual income trajectories for each career and family cluster, containing the incomes of those who are closest to the medoid of that career or family cluster. Each respondent is closest to one of the medoids, in which the average is taken for all the respondents for whom the sequence is most similar to that particular medoid. Finally, we visualized remaining family background effects by showing how much the difference in income decreases between those from advantaged and disadvantaged backgrounds once emerging adulthood is fixed to the average GoM values.

4.4 RESULTS

4.4.1 Family background

We first examine the overall differences in income trajectories according to family background. Table 2 shows the results of the model including only family background indicators. Statistically significant effects of parental income, parental educational level, family structure, and race are found for both men and women. Individuals raised in wealthier homes generally have a higher income themselves. Men and women raised in households with incomes in the highest quartile have an income higher by $8,700 and $7,700 respectively at age 25 than men and women raised in households in the bottom quartile. Furthermore, this difference increases by $1,600 for men and $1,100 for women with each year after 25. There is no significant divergence of the middle quartiles compared to the bottom quartile. The effects for parental education are similar. Young adults who have at least one parent with (at least) a 4-year college

degree have a higher income than young adults whose parents have no formal education. For men these differences become more pronounced with age (slope effect = $1,300 for men, $670 for women), whereas for women the difference at age 25 is larger (intercept difference = $9,700 for women and $4,200 for men).

Table 2 *Estimates from growth curve models relating family background to income (Model 1) for men and women*

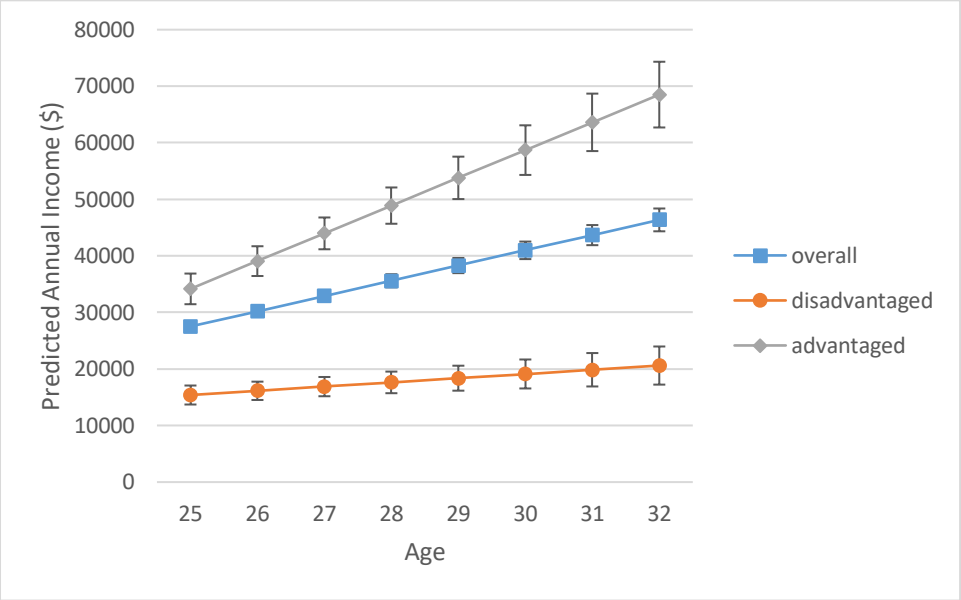
	Men		*Women*	
	Coefficient	SE	Coefficient	SE
Fixed part				
Intercept	21157.7***	1408.2	13686.7***	1113.9
Age	1917.0***	392.9	803.5**	294.6
Parental income				
Quartile 1	ref.		ref.	
Quartile 2	2433.3*	1182.3	1670.5	986.0
Quartile 3	5972.5***	1401.6	3355.4**	1154.0
Quartile 4	8737.7***	1621.4	7717.9***	1307.5
Missing	5927.3***	1215.1	2855.0**	945.0
Parental education				
Less than high school	ref.		ref.	
High school diploma	3607.5**	1193.9	3036.5***	839.1
some college	4674.9***	1331.7	4487.8***	990.7
4 year college or more	4269.1**	1512.5	9733.0***	1129.8
Missing	4158.4	2165.8	2865.4	1829.4
Family structure				
Both bio parents	ref.		ref.	
1 bio 1 step-parent	-2811.0*	1311.4	-3081.7**	961.6
Single parent	-2692.4**	1027.5	-3165.5***	806.2
Other	-2875.0	1992.1	-3411.2*	1378.3
Race				
White	ref.		ref.	
Black	-7573.2***	987.6	-1601.3*	797.6
Hispanic	-917.7	1102.5	59.68	835.2
Mixed	-704.6	4395.1	-1005.9	3789.7
*Int. par. income * age*				
Quartile 1 * age	ref.		ref.	
Quartile 2 * age	159.6	344.8	333.5	242.6
Quartile 3 * age	759.1	419.2	558.7	287.4
Quartile 4 * age	1688.2***	485.1	1112.1**	368.0

Missing * age	613.8	334.1	969.9***	238.5
*Int. par. education * age*				
<high school * age	ref.		ref.	
High school dipl. * age	106.9	294.0	-160.3	215.4
Some college * age	518.6	372.8	-67.62	254.2
4 year college * age	1302.2**	417.8	637.3*	321.2
Missing * age	-287.4	540.5	-100.9	490.2
*Int. fam. structure * age*				
Both bio parents * age	ref.		ref.	
1 bio 1 step-parent * age	-1279.4***	360.8	-608.4*	284.5
Single parent * age	-443.4	307.1	-133.2	224.5
Other * age	-915.0	643.8	-674.1	359.5
*Int. race * age*				
White * age	ref.		ref.	
Black * age	-895.7**	298.3	-33.35	209.4
Hispanic * age	-331.7	336.8	-246.2	226.5
Mixed * age	-113.4	1183.5	539.6	782.4
Random part				
σ_{age}	4927.7***	226.7	3493.3***	209.3
σ_{int}	18317.7***	520.9	14765.1***	429.7
$r_{int*age}$	0.0	0.0	-0.0	0.1
σ_e	12660.6***	426.5	10317.1***	282.5
Observations	11112		12985	
AIC	281931.1		264913.8	
BIC	282179.8		265167.9	

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, two-tailed tests

Young adults raised in an intact family have around a $3,000 higher annual income at age 25 than young adults who experienced divorce or were raised by a single parent. Having lived in a household composed of a biological parent and a step-parent is associated with a lower increase in income, whereas the income trajectory of those raised by a single parent do not differ from those growing up with both biological parents. Finally, black respondents have lower incomes than white respondents, particularly among men. At age 25, black people have a $7,500 lower income and this difference increases with about $900 with each year that passes. Women have only a $1,600 lower income at age 25.

Figure 2.1 Predicted income trajectories for men from "advantaged" and "disadvantaged" family backgrounds

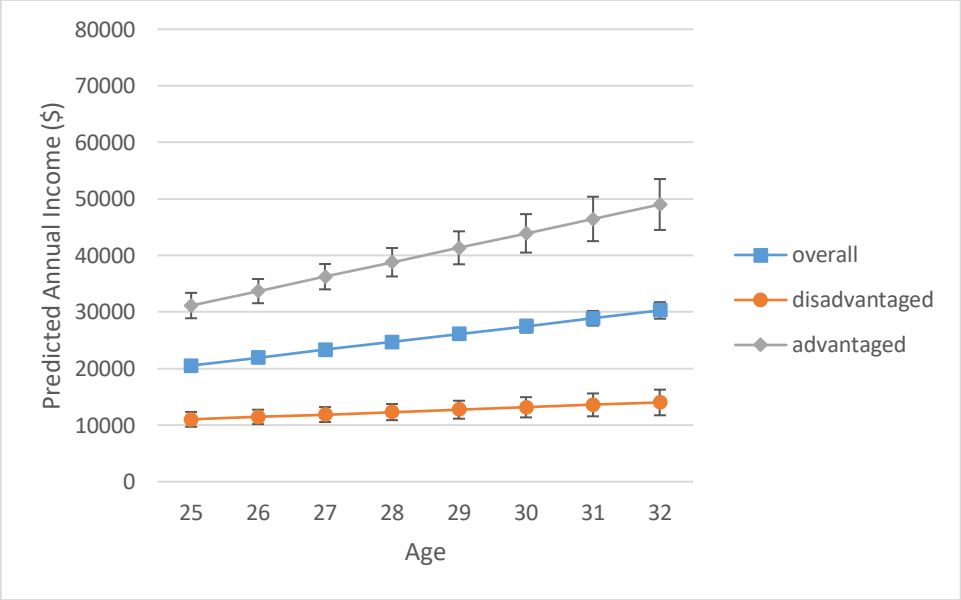


To visualize the influence of family background on income trajectories, we contrast two groups composed of advantaged and disadvantaged youths, respectively. The *advantaged* background group is defined as white young adults from intact households, with parents from the highest income quartile and at least one parent with a 4-year college education (N=187 Men, N=179 Women). The *disadvantaged* background group consists of young adults from non-intact and non-white homes, whose parents are in the lowest income quartile, with neither parent having more than high-school education, (N=172 Men, N=237 Women). Figure 2.1 displays the predicted income trajectories of men from advantaged and disadvantaged backgrounds. The intermediate line represents the overall predicted income for the whole sample. The model predicts that on average men will earn around $27,500[6] per year at age 25, and this increases to around $46,500 at age 32. For men in the advantaged background group, predicted income

[6] Numbers for average predicted income are rounded to the nearest 0.5k dollars throughout the paper to improve readability

is roughly $34,000 at age 25 and $68,500 at age 32, whereas for men in the disadvantaged background group these numbers are respectively $15,500 and $20,500. Not only does this show that there are very large differences in income between young adults with advantaged and disadvantaged backgrounds, but also that these differences increase sharply as young adults age.

Figure 2.2 Predicted income trajectories for women from "advantaged" and "disadvantaged" family backgrounds



At age 25, a man from an advantaged background is expected to have twice as much income than a man from a disadvantaged background, at age 32 this difference has become more than three times as much. For women, as shown in Figure 2.2, the initial differences at age 25 are somewhat larger, but the divergence between ages 25 and 32 is somewhat smaller than that for men. At age 25, women from advantaged backgrounds have an income ($30,500) about three times as high as that of women from disadvantaged backgrounds ($11,000). Furthermore, comparing Figure 2.1 and Figure 2.2 shows a substantial income gap between men and women.

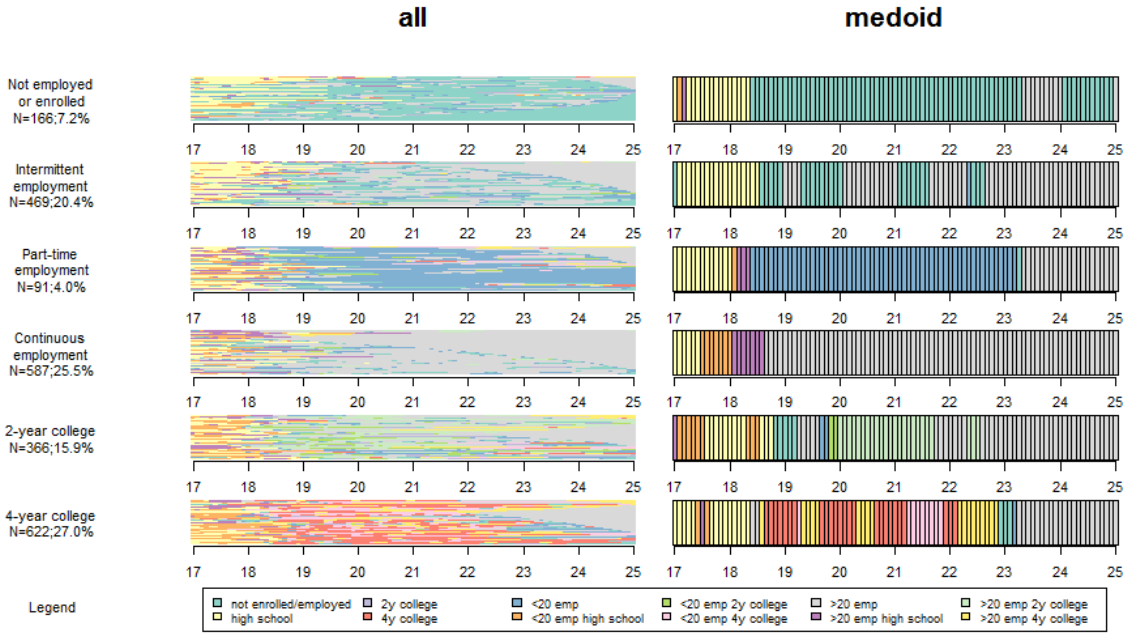
Overall at age 32 men are predicted to have an income of $46,500 compared to $30,000 for women.

4.4.2 Men

Next, we examine the different career and family pathways of men into adulthood and how these influence subsequent income trajectories. Figure 3 shows the six-cluster solution for men's career pathways. Sequence index plots for all clusters are displayed on the left side of Figure 3, sorted by the state they are in at age 25. This plot shows all sequences classified within a specific cluster. Sequence medoid plots are displayed on the right-hand side of Figure 3, showing the most typical sequence, i.e., the medoid, for each cluster. All the clusters are labeled based on the most prevalent states in the cluster. Starting from the top, the *no employment or enrollment* cluster is characterized by inactivity. Men in this cluster spend most of their time not being employed or enrolled in post-secondary education. The medoid sequence in this cluster has a relatively short high-school track, meaning that this cluster may contain high school drop-outs. It is the second smallest cluster containing 7.2% of the men. In the *intermittent employment* cluster more time is spent in employment compared to the first cluster. However, there is still quite some time spent in inactivity. As displayed by the medoid, this cluster contains individuals who are unable to find stable employment at the start of emerging adulthood, but spells of employment become longer later in emerging adulthood. The majority of men in this cluster are employed for 20 hours or more at age 25. It is the third largest cluster containing 20.4% of all men. The lowest number of men belong to the *part-time employment* cluster (4.0%). This cluster consists of men who are mostly continuously employed until age 25, but who are generally employed for less than 20 hours per week and do

not attend college. Towards age 25, as visualized by the medoid, more men start working over 20 hours per week. The *continuous employment* cluster contains individuals who are mostly employed between the ages of 17 and 25. Similar to the first two clusters, men in this cluster do not attend post-secondary education. However, contrary to the previous two clusters, this sequence is dominated by time spent in 20-hours or more employment, even early on in the sequence. As displayed in the medoid, many men in this cluster have already started work during high school. This is the second largest group with 25.6% of all men belonging to this cluster. In the *2-year college* cluster most men enter 2-year college education. In addition, much time is spent in employment, mainly for 20 hours or more. The medoid confirms this picture in its depiction of a sequence of someone attending a 2-year college, but simultaneously working for 20 hours or more for most of the time. This cluster is the fourth largest group (15.9%). The largest cluster is the *4-year college* cluster (27.0%). After high school, men in this cluster enter a 4-year college course usually ending at around age 23. Some of these men also work during high school and college, but usually for less than 20 hours. At the end of the sequence, most of the men in this cluster have left college and work 20 hours per week or more.

Figure 3 Sequence index plots and sequence medoid plots for the career pathway clusters of men



How are income trajectories from age 25 onwards affected by these career pathways? To examine this issue, Figure 4 shows the predicted incomes for the career pathways based on the growth curve model as estimated and presented in Table 3. As mentioned above, these predicted values are based on the mean values of all men that are closest to the cluster medoid based on their GoM score. The predicted income trajectories of the different career pathways show huge variation. At the bottom is the predicted income of the *no employment or enrollment* pathway, with an average predicted income that starts at $4000 at age 25 and only reaches $10,000 at age 32. The income trajectory of the *intermittent employment* pathway starts at $20,500 at age 25 and reaches $29,500 at age 32. Three career pathways show a similar trajectory and form a middle group. The *continuous employment*, *part-time employment*, and *2-year college* pathways have an annual predicted income that starts around $30,000 at age 25 and increases to about $45,000 at age 32. Still, some small differences between these groups are visible. The *continuous employment* pathway starts highest at age 25, but the *2-year college*

pathway ends highest at age 32, while the small gap between the *part-time employment* and the *continuous employment* pathways decreases. However, the average predicted incomes are not significantly different between these pathways. The highest income trajectory, both in terms of intercept and slope, is the *4-year college* pathway. The predicted income for this pathway is $32,500 at age 25 and rises to $64,500 at age 32. This shows that incomes of the college-educated particularly diverge from those of the other groups between ages 25 and 32.

Figure 4 Predicted income trajectories for career pathways of men

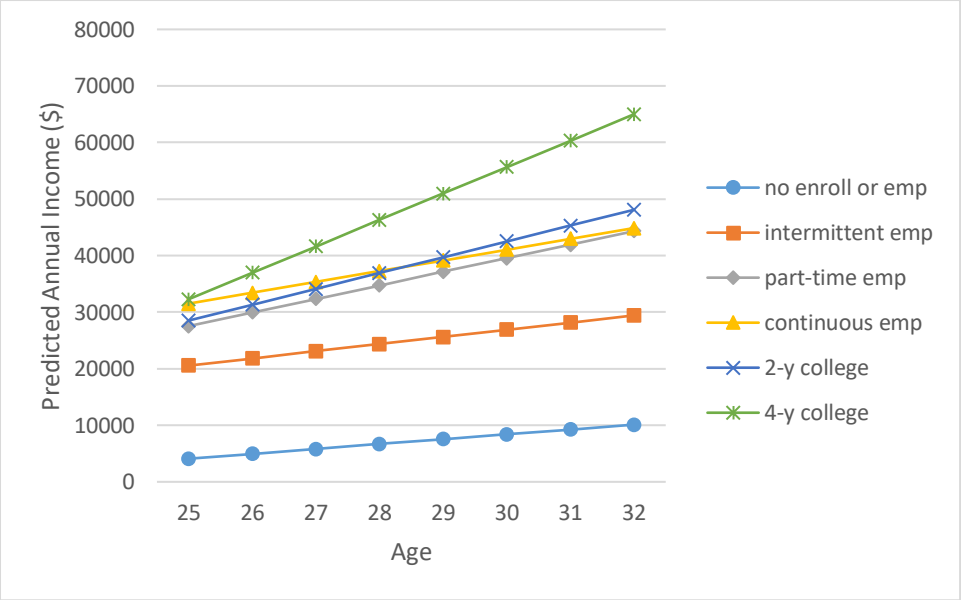
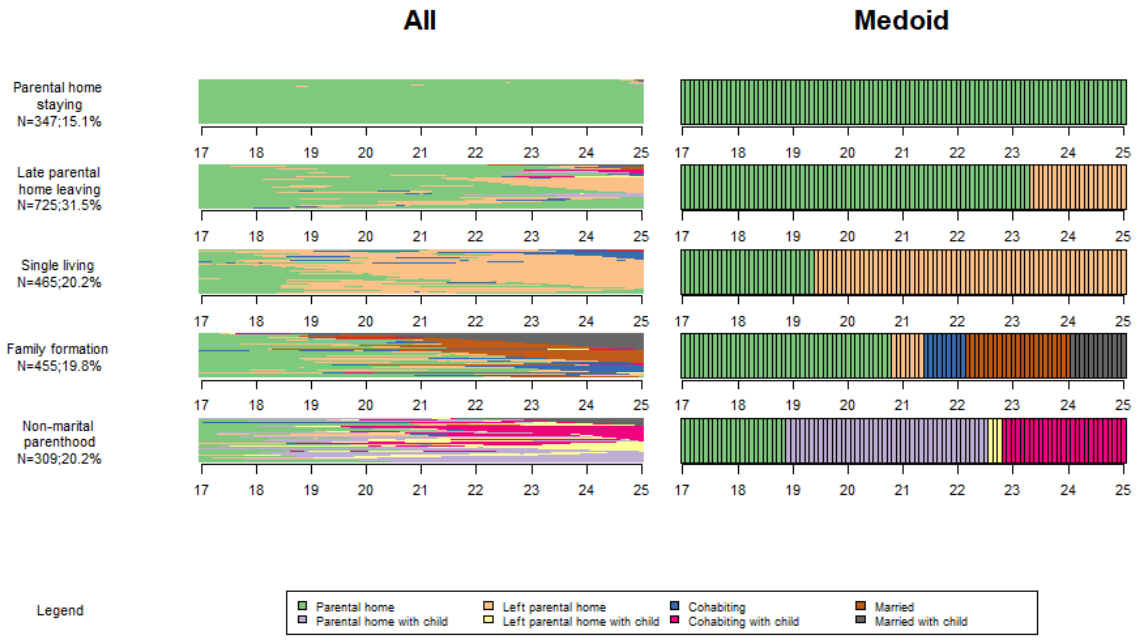


Figure 5 Sequence index plots and sequence medoid plots for the family pathway clusters of men



Next, we examine men's family pathways into adulthood. The clusters that result from the sequence analyses are presented in Figure 5. The first cluster is labeled *parental home staying*. As displayed by the medoid sequence, men in this cluster mostly stay in the parental home between ages 17 and 25 and do not experience any family event. The cluster contains 15.1% of all men. In the *late parental home leaving* cluster, men also spend most of their time in the parental home, but most have left the parental home by age 25. Most leave the parental home to live on their own, but some sequences also contain cohabitation, marriage, and parenthood. The *late parental home leaving* cluster forms the largest family pathway cluster for men (31.5%). In the *single living* cluster men leave the parental home mostly at ages 19 and 20 in order to live on their own. The vast majority continue to remain in this state until (at least) age 25. There are some who return to the parental home and some who start to cohabit, but only very few sequences contain marriage or parenthood. About one-fifth (20.2%) of the men are included in this cluster. Similarly, about one-fifth of the men are in the *family formation* cluster

(19.8%). These men follow a path of increasing family commitment. The medoid clearly displays this; in chronological order the man leaves the parental home, then cohabits, marries, and becomes a father. Overall, at age 25 the majority of these men have married and about a third have become fathers. Finally, the smallest cluster is the *non-marital parenthood* (13.4%) cluster. This contains men who become fathers early on in their late teens or early twenties (see medoid), but almost everyone in this cluster enters parenthood outside of marriage. The medoid shows a sequence of someone who becomes a father while still living in the parental home at age 19, leaves the parental home just before 23, and starts cohabiting with a partner three months later. Examining the cluster as a whole, there is some variation in the context of parenthood. Some become parents while living in the parental home similar to the medoid, but others do so while living on their own or in a cohabiting relationship. Furthermore, this variation in states is still present at age 25, although there is a small proportion of men in this cluster who have married by then.

Figure 6 Predicted income trajectories for family pathways of men

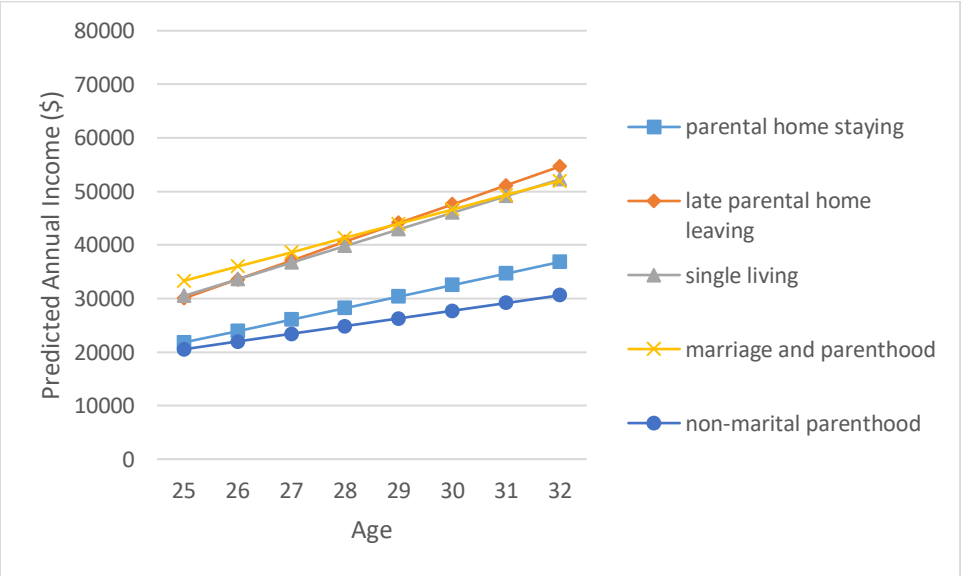


Figure 6 shows the average predicted annual income trajectories based on the growth curve model for the different family pathways. Compared to the income trajectories of the career pathways, differences are less pronounced both with regard to the intercept and the slope. The lowest income trajectories are for the *non-marital parenthood* and *parental home staying* pathways. For the first the income develops from $20,500 at age 25 to an average income of $30,500 at age 32, while for the latter the predicted income is slightly higher at the start ($21,500) and rises to $37,000, indicating some divergence between these groups. The other family pathways show higher income trajectories both in terms of slope and intercept. The *single living*, *family formation* and *late parental home leaving* pathways all have an average predicted income of around $30,000 at age 25, and this increases to over $50,000. The *family formation* pathway has a slightly higher income at age 25, but at age 32 the *late parental home leaving* pathway has the highest average predicted income. However, differences in predicted average income are not significant among these three pathways.

Table 3 *Estimates from a growth curve model relating family background and career and family pathways to income (Model 2) for men*

	Coefficient	SE
Fixed part		
Intercept	11075.8***	3305.1
Age	6344.4***	1144.6
Parental income		
Quartile 1	ref.	
Quartile 2	1305.3	1060.7
Quartile 3	3668.8**	1245.0
Quartile 4	5601.1***	1485.8
Missing	4488.1***	1101.3
Parental education		
Less than high school	ref.	
High school diploma	1197.1	1060.9
Some college	1474.5	1235.4

4 year college or more	912.3	1441.8
Missing	1981.2	1921.9
Family structure		
Both bio parents	ref.	
1 bio 1 step-parent	-1511.8	1204.6
Single parent	-1865.6*	930.5
Other	-1159.0	1730.7
Race		
White	ref.	
Black	-1811.4*	919.0
Hispanic	357.7	994.7
Mixed	989.0	4086.3
Career pathways (GoM)		
No employment/enrollment	-20232.2***	4425.4
Intermittent employment	-29712.8***	7236.3
Part-time employment	14351.8***	3861.4
Continuous employment	23321.8***	4492.1
2-year college	14845.3**	4955.7
4-year college	31856.7***	3790.7
Family pathways (GoM)		
Parental home stay	-13788.3**	4636.9
Late parental home leaving	5400.4	6881.2
Single living	-4711.8	3283.0
Family formation	13992.1***	3496.4
Non-marital parenthood	-8091.3*	3145.7
*Int. parental income * age*		
Quartile 1 * age	ref.	
Quartile 2 * age	83.76	342.0
Quartile 3 * age	430.7	408.2
Quartile 4 * age	1184.5*	480.9
Missing * age	400.6	330.0
*Int. parental education * age*		
<high school * age	ref.	
High school diploma * age	22.3	292.4
some college * age	53.6	367.5
4 year college or more * age	48.7	414.2
Missing * age	-684.1	532.8
*Int. family structure * age*		
Both bio parents * age	ref.	
1 bio 1 step-parent * age	-874.0*	362.2
Single parent * age	-274.2	302.1
Other * age	-877.5	630.1

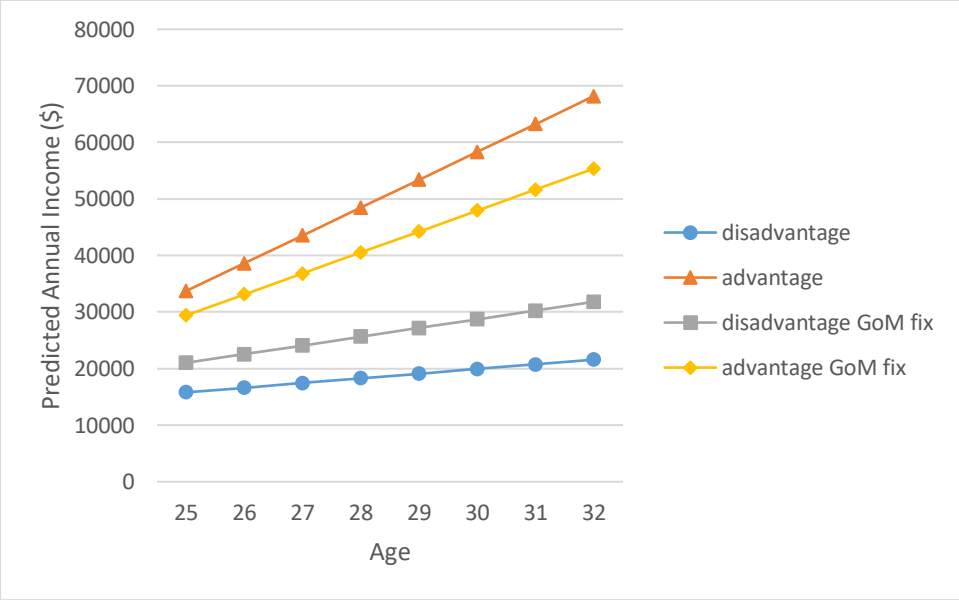
*Interaction race * age*		
White * age	ref.	
Black * age	-632.3*	313.1
Hispanic * age	-187.2	335.5
Mixed * age	-316.8	1181.4
*Int. career pathways (GoM) * age*		
Intermittent empl. * age	3001.1	2372.8
4-year college * age	2189.5	1242.8
2-year college * age	-2319.8	1619.1
Not employed/enrolled * age	-5747.7***	1409.7
Continuous employment * age	-3876.1**	1445.0
Part-time empl. * age	-3357.4*	1314.8
*Int. family pathways (GoM) * age*		
Parental home stay * age	-3379.2*	1454.3
Late parental home leaving * age	3120.7	2078.7
Single living * age	-1330.5	1071.6
Family formation * age	357.9	1152.3
Non-marital parenthood * age	-523.3	1130.0
Random part		
σ_{age}	4768.1***	225.9
σ_{int}	16224.2***	533.5
$r_{int*age}$	-0.0	0.1
σ_{e}	12658.3***	425.6
Observations	11112	
AIC	281401.7	
BIC	281811.3	

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, two-tailed tests

In Table 3, the results of the full model (Model 2) for men are shown. The career variables (primarily), but also the family Grade of Membership (GoM) variables show strong effects on income. On the intercept, i.e., at age 25, those close to the *intermittent employment* and *no employment or enrollment* medoids have substantially lower incomes. Examining the slope (i.e., the GoM measures interacting with age), the divergence between career pathways is visible from the negative effects of the *continuous employment, no employment or enrollment,* and *part-time employment* GoM variables. This indicates that those foregoing college have a lower growth in income. Regarding the family pathways, those close to the *family formation*

medoid have a substantially higher income at age 25. Only the *staying in the parental home* variable shows a statistically significant effect on the slope, indicating that particularly for those staying in the parental home for a long time, income growth is lower. Family background effects in many instances show a clearly diminished effect compared to those reported in Table 2, and in many instances the effects become statistically insignificant. However, several substantial family background effects remain. There remains an effect of parental income, particularly if one compares the fourth quartile to the first. At age 25, men raised by a single parent have a lower income, but for those who lived with a step-parent the increase in income is lower. Finally, although much lower than in Model 1, black men have a lower income in both the intercept and the slope compared to white men. The differences in income between advantaged and disadvantaged young adults based on Model 2 are seen in Figure 7. It also shows how much the impact of family background decreases when controlling for transition to adulthood, by fixing the career and family GoM variables to the mean for both the advantaged and disadvantaged group. Although there is a large decrease in the difference in predicted income between the advantaged and disadvantaged group, a substantial gap remains. Moreover, this gap still increases with age. At age 25, a man of disadvantaged background is expected to have an income of $21,000 compared to $29,500 for a man of advantaged background. This increases to $32,000 at age 32 for a man with a disadvantaged background and to $55,500 for a man from an advantaged background. While at age 25 a man from an advantaged background is expected to have a 30% higher income, this increases to a more than 60% higher income at age 32, based on family background factors alone. Thus it appears that for disadvantaged men, obtaining the same income as advantaged men is unattainable even when they follow the same pathways into adulthood.

Figure 7 Predicted income trajectories for men from "advantaged" and "disadvantaged" family backgrounds, with and without fixing pathways in emerging adulthood to the average GoM values



4.4.3 Women

Next, we turn our attention to the career and family pathways of women, and to how these are related to their income trajectories. In Figure 8, the career pathway clusters of women are presented, and four career clusters are distinguished. The first cluster is *intermittent employment*, with women being in and out of employment, but not attending education. Compared to men in the same-titled cluster it appears that women in this cluster spend more time in inactivity, which is also represented in the medoid sequence. About a quarter (26.8%) of women are in this cluster. The *continuous employment* cluster (22.0%) consists of women who mainly work for more than 20 hours per week, with little time spent in inactivity or in pursuing any type of tertiary education. The *2-year college* cluster (19.7%) may be considered the most diverse, but almost all women in this cluster spend at least some time in 2-year college

education. There is little inactivity here, because most work at least up to 20 hours per week when not in college. There is also back-and-forth movement in attending college (see also the medoid) and a small group also attends a 4-year college course for some time. Finally, there is the *4-year college* cluster (31.6%), which is characterized by women attending 4-year college courses, who vary in the number of hours they work in addition to college, with many ending up in employment for 20 hours or more.

Figure 8 Sequence index plots and sequence medoid plots for the career pathway clusters of women

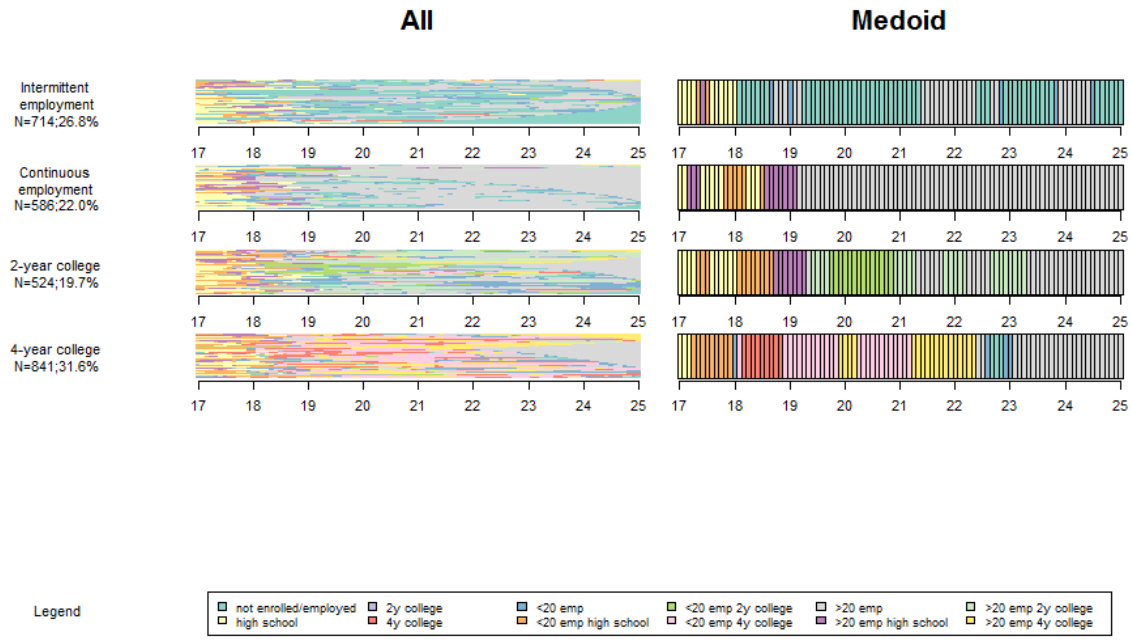
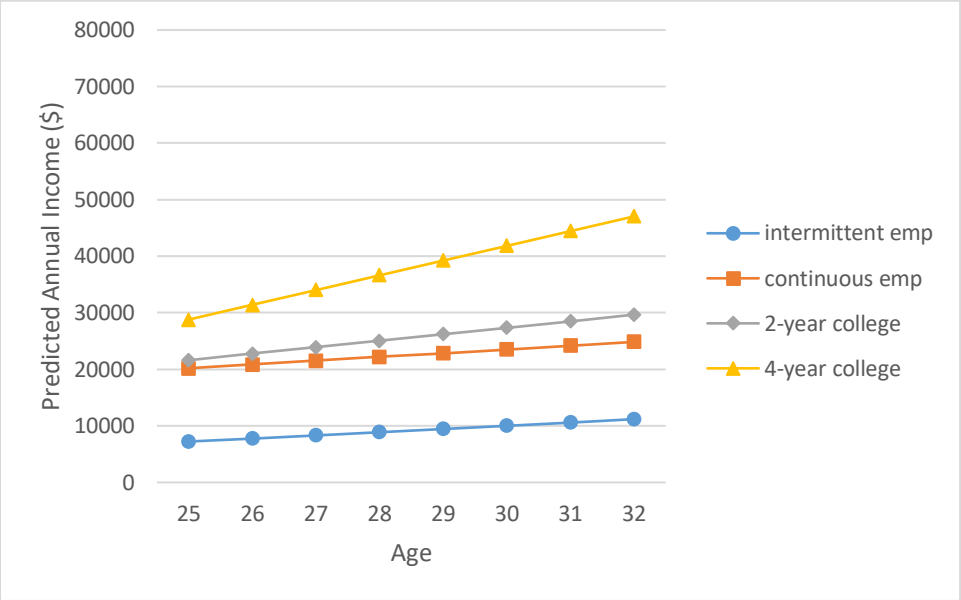
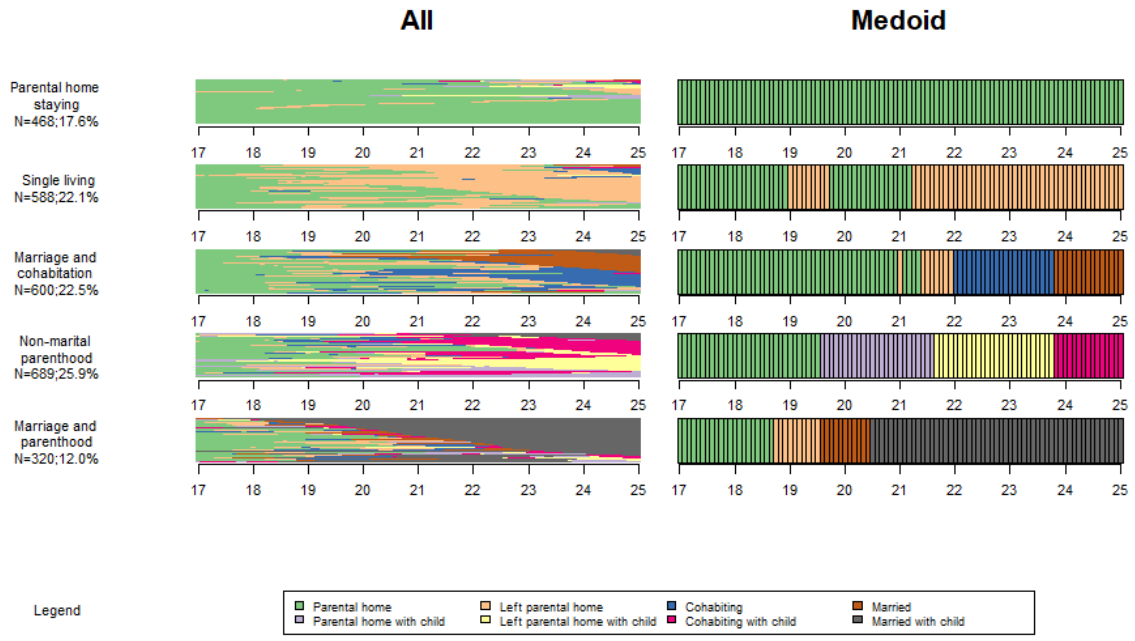


Figure 9 Predicted income trajectories for career pathways of women



Predicted income trajectories, based on the growth curve model presented in Table 4 for women with different career pathways, are presented in Figure 9. Incomes are highest for those whose career pathway is characterized by 4-year college education and lowest for those who only have intermittent employment, while those with stable employment and those who attended two-year college courses hold an intermediate position in terms of income development. The average predicted income for those closest to the *4-year college* medoid starts at $29,000 at age 25 and rises to $47,000 at age 32. The average incomes of the *2-year college* and *continuous employment* pathways are already substantially lower. Those closest to the 2-*year college* medoid have a trajectory from $21,500 to $29,500, while those closest to the *continuous employment* medoid have a slightly lower trajectory from $20,000 to $25,000. Finally, for those women whose career pathway is characterized by *intermittent employment* and no tertiary education, the predicted average annual income is only $7000 at age 25 and $11,000 at age 32.

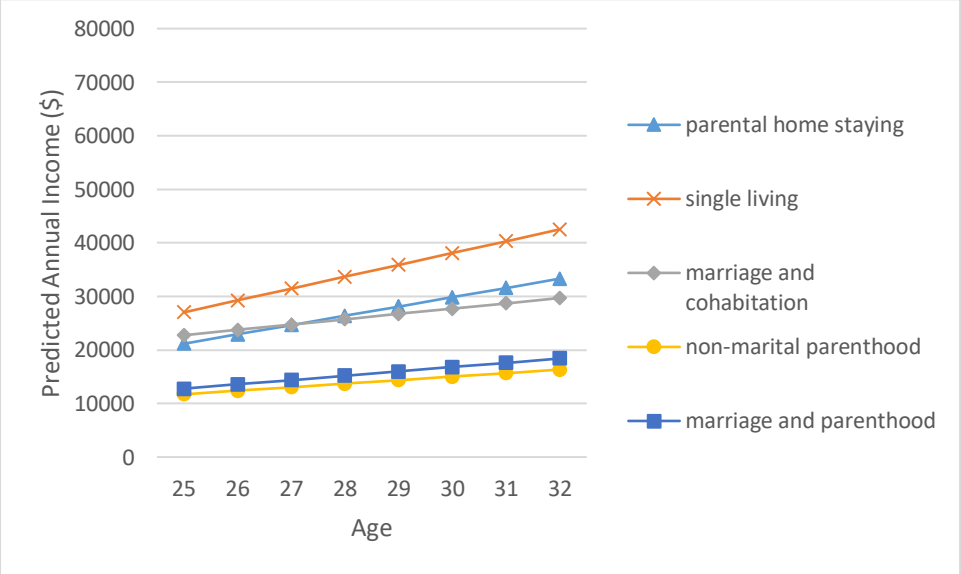
Figure 10 Sequence index plots and sequence medoid plots for the family pathway clusters of women



In Figure 10, the family pathway clusters for women are presented. The *parental home staying* cluster shows women who mostly stay in the parental home until age 25. There is, however, contrary to men, a small group who have left the parental home before age 25, including some women who have returned to the parental home. Nevertheless, the 17.6% of women who are part of the parental home-staying cluster, spend most of their time in the parental home. The second cluster is the *single living* cluster, containing women who leave the parental home in their late teens and early twenties in order to live independently form their parents. The medoid indicates that this cluster also contains sequences of women returning to the parental home in between, but the vast majority are living independently at age 25, with a small portion cohabiting, but almost none having become a parent. This cluster contains 22.1% of women. The third cluster is labeled *marriage and cohabitation*, and contains 22.5% of the women. In this cluster, women leave the parental home at about a similar age to the previous cluster, but

they then make the transitions to cohabitation and sometimes marriage. Similarly to the single living cluster they rarely make the transition to parenthood before age 25. The largest cluster is the *non-marital parenthood* cluster, with 25.9% of the women being part of this cluster. Although at age 25 there is a small group that is married, births take place almost exclusively outside of wedlock. There is some variation in women having a child in the parental home, living single, or within cohabitation. The medoid shows a pathway transitioning to each of these states. Finally, 12% of the women are part of the *marriage and parenthood* cluster, in which women leave the parental home early in order to marry and have children.

Figure 11 Predicted income trajectories for family pathways of women



The average predicted incomes regarding the family pathways are displayed in Figure 11. Women close to the *single living* medoid pathway show, on average, the highest income and appear to diverge slightly from the other groups of women. At age 25, these women earn on average $27,000, which increases to $42,500 at age 32. At the bottom, we find women whose pathway is characterized by early parenthood either within or outside of marriage, with the trajectory of *marriage and parenthood* ($13,000 to $18,500) being slightly higher

compared with that of *non-marital parenthood* ($12,000 to $16,500). In between are women who either spend much time in the parental home or those who enter cohabitation and marriage before age 25. At age 25 the average income of the latter group is higher at $22,500 compared to $21,000, but the marriage and cohabitation group are at $29,500 at age 32, whereas for the *parental home staying* group the figure has increased to $33,500. Thus, for women, incomes appear to be highest among those who postpone serious relationships and parenthood until after 25, particularly for those who are single during emerging adulthood.

Table 4 *Estimates from a growth curve model relating family background and career and family pathways to income (Model 2) for women*

	Coefficient	SE
Fixed part		
Intercept	12192.6***	2074.1
Age	4980.3***	679.8
Parental income		
Quartile 1	ref.	
Quartile 2	-398.8	869.6
Quartile 3	-1272.8	1009.6
Quartile 4	1740.2	1209.7
Missing	1.8	830.5
Parental education		
Less than high school	ref.	
High school diploma	249.0	720.2
Some college	61.2	852.3
4 year college or more	2528.1*	1009.1
Missing	1371.6	1602.6
Family structure		
Both bio parents	ref.	
1 bio 1 step-parent	-1569.9	871.9
Single parent	-1802.8*	716.0
Other	-1095.9	1175.1
Race		
White	ref.	
Black	566.4	742.0

Hispanic	1627.3*	728.0
Mixed	2728.1	3409.1
Career pathways (GoM)		
Intermittent employment	-27758.8***	2145.2
Continuous employment	5430.5**	1891.0
2-year college	13767.0***	3186.5
4-year college	31575.9***	2658.9
Family pathways (GoM)		
Parental home staying	-4028.3**	1432.7
Single living	5606.3**	2036.5
Marriage and cohabitation	1163.6	2594.4
Non-marital parenthood	-4946.5*	1938.9
Marriage and parenthood	-3799.9*	1663.7
*Interaction parental income * age*		
Quartile 1 * age	ref.	
Quartile 2 * age	167.9	233.7
Quartile 3 * age	241.6	282.9
Quartile 4 * age	749.3*	360.5
Missing * age	703.9**	234.1
*Int. parental education * age*		
<high school * age	ref.	
High school diploma * age	-306.8	218.0
Some college * age	-453.2	255.4
4 year college or more * age	-322.3	327.3
Missing * age	-440.3	462.1
*Int. family structure * age*		
Both bio parent * age	ref.	
1 bio 1 step-parent * age	-246.2	275.1
Single parent * age	110.8	225.0
Other * age	-440.1	358.6
*Interaction race * age*		
White * age	ref.	
Black * age	-109.8	215.5
Hispanic * age	-111.2	223.1
Mixed * age	471.4	667.6
*Int. career pathways (GoM) * age*		
Intermittent employment * age	-5463.2***	695.7
Continuous employment * age	-227.8	588.0
2-year college * age	-4775.0***	1006.8
4-year college * age	-434.9	831.0
*Int. family pathways (GoM) * age*		
Parental home staying * age	558.3	441.1

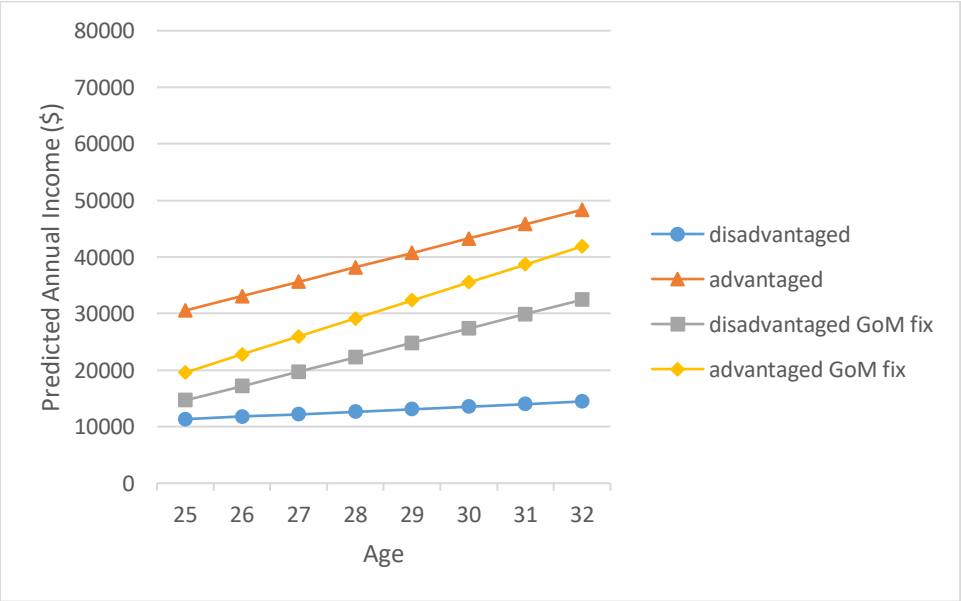
Single living * age	1655.4*	676.9
Marriage and cohabitation * age	-1894.3*	767.6
Non-marital parenthood * age	487.0	518.8
Marriage and parenthood * age	726.7	439.0
Random part		
σ_{age}	3315.7***	198.3
σ_{int}	12633.5***	439.9
$r_{int*age}$	-0.1*	0.1
σ_{e}	10283.9***	280.9
Observations	12985	
AIC	264009.5	
BIC	264398.0	

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, two-tailed tests

Table 4 displays the growth curve model results of Model 2 for women. In general, the results are similar to those of men. The strongest effects are for the career and family pathway GoM measures, but most family background indicators remain significant. However, there are some notable differences. At the intercept, only two career pathway GoM variables are significant. Following the *intermittent employment* medoid is associated with a $27,800 lower income, whereas following the *continuous employment*, *2-year college,* and *4-year college* medoid is associated with respectively $5400, $13,700, and $31,500 higher incomes at age 25. At the slope, there are three effects of career pathways. The largest is for being close to the 2-year college medoid, followed by the intermittent employment medoid, indicating respectively a $4800 and $5500 lower increase in slope compared with those furthest away from this medoid. Together the results seem to suggest a divergence for those attending 4-year college, not only compared to those foregoing college, but also compared to those attending 2-year college. Regarding family pathways, at age 25 *non-marital parenthood, marriage and parenthood,* and *parental home staying* are associated with respectively $5000, $3800, and $4000 lower incomes, while *single living* is associated with a $5600 higher annual income. There are also two significant family pathway slope effects. Those with a family pathway close to the

marriage and cohabitation medoid have a $1900 lower income growth compared to those whose pathway is very unlike this, while following the *single living* medoid is associated with a $1700 higher income growth. Examining the remaining family background effects, for women the effect of parental income appears to have weakened compared to Model 1, in that there are no significant intercept effects, but there remains a $700 dollar divergence in income comparing quartile 4 to quartile 1. Contrary to men, there is a significant parental education effect at age 25. Women with at least one parent with a 4-year college degree have a $2500 higher income at age 25 than women whose parents did not have a high school degree. Regarding family structure, women raised by a single parent have about a $1900 lower income at age 25. Finally, there are no race effects apart from one surprising positive effect of being Hispanic ($1600 higher income at age 25 compared to whites).

Figure 12 Predicted income trajectories for women from "advantaged" and "disadvantaged" family backgrounds, with and without fixing pathways in emerging adulthood to the average GoM values



The impact of family (dis)advantage, with and without taking differences in career and family pathways into account, is shown in Figure 12. Similar to men, the gap between the advantaged and disadvantaged groups in predicted income decreases if the career and family pathway GoM variables are fixed. Not only the gap, but also the divergence is lower than among men. At age 25, the predicted income of a woman from a disadvantaged background is around $14,500; the equivalent figure is $19,500 for a woman from an advantaged family background. Reaching age 32, these numbers increase to $32,000 and $41,500, respectively. Thus, while the gap does increase, relative differences (about 30%) remain about the same for women, whereas for men the role of family advantage appears to have a greater impact on income trajectories at the end of young adulthood.

4.4.4 Comparisons with categorical indicators of pathways

We herein introduced a new kind of variable, i.e., GoM measures, to measure how career and family pathways into adulthood influence income trajectories for young adults. However, the interpretation of GoM variables is a little less straightforward compared to the interpretation of categorical membership variables, which raises the question of whether going to the length of creating GoM variables is really necessary for the accurate prediction of income in young adulthood. Additional analyses reveal that models with GoM variables show a better model fit than those using categorical membership dummies (See the Appendix Table C1 and C2).

4.5 SUMMARY AND DISCUSSION

In this study, our aim was to provide a comprehensive picture of what drives income inequality among today's young adults. Previous research has provided some evidence that family background plays a major role in shaping the lives of young adults (e.g., Putnam 2016; Amato et al. 2015). Results from our study show the multifaceted and lasting effects of family background on income inequality over the life-course. Although previous research has shown the increase of wage inequality over the life-course (Cheng 2014), this study has demonstrated that this divergence starts in young adulthood.

Our first research question was: 1) *How do both family background and life-course pathways in emerging adulthood shape income trajectories in young adulthood?* The results clearly underline the multi-faceted impact of family background on income. Not only parental socio-economic status, i.e., parental income and education, but also, although to a lesser extent, family structure and race affect income in young adulthood. Being raised in a non-intact family was associated with a lower income at age 25 and a lower income growth was observed for those raised by a biological and a step-parent. This is in line with the diverging destinies literature (e.g., Amato et al. 2015; Mclanahan 2004; McLanahan and Percheski 2008), which suggests that increasing income inequality can be attributed to increasing rates of divorce and single parenthood. However, our results also indicate that being raised in a non-intact family has a negative impact on income on top of the economic deprivation associated with single parenthood and divorce, meaning that the more psychological consequences of family disruption or a missing parent may also have a lasting impact on income generation over the life-course. Regarding racial differences, black people have a much lower income and a lower income gradient than white people, with the effect being particularly strong for men. These differences could be due to discrimination (Hardaway and McLoyd 2009) and the relatively high incarceration rate of black men (Pettit and Western 2004).

The results in this study also underline that income inequality is strongly shaped by differences in life-course pathways during emerging adulthood. Career pathways between ages 17 and 25 had a large influence on income trajectories between ages 25 and 32. The true winners, in terms of income, are those attending and completing university. For those with a career pathway characterized by being in a 4-year college program up to about age 23, incomes strongly diverged from those with little to no university enrollment in their career pathway. At the bottom are those foregoing college and having no or intermittent employment during emerging adulthood. Not only were their incomes lowest at age 25, they also failed to catch up at age 32. In the middle were emerging adults attending 2-year college programs (most working 20 hours in addition to and after attending 2-year college) and those in continuous employment, in which there appeared to be little evidence of a 2-year college premium over those with steady employment.

Not only career but also family pathways had a substantial influence on income in young adulthood. Early non-marital parenthood was associated with lower income, which is in line with the results of previous research (Dariotis et al. 2011). Family pathways characterized by leaving the parental home before 25, but little activity otherwise, are associated with higher income. Thus it appears that those who live a more independent, autonomous life-style in emerging adulthood benefit from this in terms of income in young adulthood. Possibly this is due to selection, in that those who are able to live independently in emerging adulthood, may also be able to shape other aspects of their life, such as their subsequent career. Other effects appear to be more gender-specific. Whereas for men marriage and parenthood before age 25 are associated with a high income, for women it is the opposite. Women who marry before age 25 do not only start with a lower income, their incomes also increase less compared to women who marry later. This highlights that the marriage premium occurs for men but not for women (Ahituv and Lerman 2007; Dougherty 2006; Killewald and Gough 2013), while on the other

hand women who marry early are more likely to be housewives and thus have a lower income. Staying in the parental home until age 25 appears to be detrimental in terms of income mainly for men and much less so for women. Men who do not manage to live independently before age 25 not only have a lower income, they also have a lower income growth. Possibly these men are taking less initiative in their lives, for instance in relation to seeking further education or a better job, as there is less necessity given that they are able to stay living with their parents. For women, a pathway characterized by leaving the parental home early to live alone until (at least) age 25 is associated with the highest income, whereas for men there is no distinction between those leaving the parental home early or later in order to live alone.

In a meritocratic society, income differences should be mainly based on decisions made by young adults themselves in emerging adulthood. Therefore, we posed a second question: *To what extent are family background differences in income trajectories explained by life-course pathways in emerging adulthood?* The answer is 'only partially'. Effects of family background reduced substantially, although more for women than for men, once we took account of the life-course pathways taken in emerging adulthood. However, even when controlling for the choices that youths make regarding career and family pathways, family background factors continued to have an impact on income trajectories. Although some studies have found that the association between parental SES and income remains significant after controlling for own education (Corcoran 1995; Torche 2011; Walpole 2003), our study demonstrates that even when a holistic picture of emerging adulthood is considered, there remains a direct effect of several family background indicators on income. Individuals who grew up in the richest quarter of households had a higher increase in income compared with those in the poorest quarter. The effects of parental education mostly become insignificant, except that women with the highest educated parents have a higher income compared to those with the lowest-educated parents. Furthermore, we find not only significant remaining effects for parental SES, but also for

family structure, with children growing up in single-parent families having a lower income in young adulthood. For men, we found that those raised by one biological parent and one step-parent had a lower income growth compared with men growing up with married parents. This again emphasizes that growing up in a non-intact family is detrimental for income attainment beyond the economic deprivation associated with it, and that the impact on later life outcomes of being raised by a single parent or experiencing parental divorce should be investigated further. Regarding race, the negative effect of being black with respect to being white is greatly reduced once differences in pathways into adulthood are taken into account, but a difference in income growth nevertheless remains.

These results are striking in that they suggest that the influence of family background on the income of children extends beyond the intergenerational transmission of education (and beyond differences in career and family trajectories into adulthood). They provide support for the cumulative advantage perspective (Buchmann and DiPrete 2006; Dannefer 2003; Elman and O'Rand 2004), showing that advantages during childhood and emerging adulthood continue to accumulate, which leads differences between those from advantaged and disadvantaged backgrounds to increase over time rather than to remain stable. Not only does parental background have a lasting impact on life chances, but advantages also stack up over the life-course (Lui et al. 2014). Nonetheless, the question remains of how parental background continues to facilitate income even in young adulthood. There may be several, interrelated explanations for this. First, there may be some important elements in education that were not captured by the career sequences in our analysis. Not only are children from high status more likely to obtain an academic degree, high-SES parents may also be more successful in sending their children to the best universities and more able to persuade their children to choose a field of study with better income prospects (Mullen 2009; van de Werfhorst, Luijkx, and Werfhorst 2010). Cultural capital or identity capital (Bourdieu and Passeron 1990; Côté 2002) may not

only help children of advantaged background in the educational system, but may also help them get a high-status job. Research from the UK indicates that employers do select employees on the basis of parental background (Jackson 2009; Jackson, Goldthorpe, and Mills 2005). Finally, family advantage supplies a safety net, such that legal, economic or health struggles can be more easily and successfully addressed when money and social influence is at play.

In this study, sequence analysis was applied to construct continuous independent variables, which to our knowledge has not previously been attempted. The grade of membership (GoM) variables indicate the extent to which a pathway was similar to the typical sequence of a particular cluster. With this approach, the full information provided by Optimal Matching is used, creating more variation. Furthermore, a criticism of clustering techniques is that they provide an arbitrary number of clusters that is mainly based on the particular technique chosen (Warren et al. 2015). Not only did we avoid arbitrary single-cluster membership, but we also based the number of clusters on the model fit of the growth curve model rather than on cluster fit statistics. Additional results revealed that the GoM measures improved the model with respect to the categorical cluster membership variables.

Although this study provides new insights on income inequality over the life-course and social reproduction, a couple of limitations should be mentioned. First, our choice to examine overall income, rather than hourly wage for only those who were employed, implies that we could not use the log transformation to increase the normality of the distribution. This means that the results must be interpreted with some caution. However, as a result of our choice to examine income, including those with no income, we can provide some indication of who is self-reliant in young adulthood and who is not, which we could not have done had we only considered those with a job. Second, although this study has been able to provide a broad picture of factors influencing income inequality in young adulthood, we are not able to make specific causal claims or test specific mechanisms. However, by examining income trajectories

after emerging adulthood, there is strong suggestive evidence that family background, career and family pathways during emerging adulthood, and income trajectories are causally linked rather than only associated. Finally, it should be noted that the individuals in this cohort were impacted by the global financial crisis caused by the credit crunch of 2007/8. An important element of the life-course approach is that choices are made within a certain historical context (Elder 1998). It could be that differences between social classes were especially amplified during this time. On the other hand, in times of economic downturn, financial returns to college education have been found to be lower (Kahn 2010).

Nonetheless, our results provide interesting avenues for future research. In this study, we examined personal income because we wanted to focus on the financial independence of young adults, but one could also study household income, which may provide another aspect of social class. The income of the husband or the wife is also an indicator of social status. Furthermore, one could relate family background and emerging adulthood to other important life outcomes such as health. There is already some evidence that health advantages accumulate over the life course for the higher educated (Dannefer 2003; Elman and O'Rand 2004). In this study, the focus was not on gender differences, but results clearly demonstrate that such differences are considerable. Future research could investigate how these gender differences come about. Finally, researchers may wish to pay more attention to testing the exact mechanisms by which family structure and family behavior in emerging adulthood influence income.

Although there is still much research to be conducted on this topic, our results demonstrate that even in young adulthood, family background continues to strongly influence young adults' incomes. The advantages of those from rich, educated, and intact families continue to accumulate until (at least) age 32. However, the effects of emerging adulthood are much stronger than those of family background, indicating that young adults can recover from

much of their initial disadvantage by opting for the pathways into adulthood associated with higher income. Attending a 4-year college course, having left the parental home, and not having children outside of wedlock before age 25 appear to be the main ingredients for success in terms of income. However, for many youths from disadvantaged backgrounds this may be a pipe dream. Lowering the cost of 4-year college programs may improve the enrollment rate of children from disadvantaged backgrounds, but a more effective approach may be to stimulate youths to be or to remain active on the labor market during emerging adulthood. While those who forego a 4-year college education have a much lower income than those who attend one, youths able to stay in steady employment and attend 2-year college education have much higher incomes than those who are inactive. Reducing the gap between children from advantaged and disadvantaged backgrounds may be unattainable, but policies to help youths to remain active during emerging adulthood can help young adults of all social classes to earn a decent living, thereby protecting at least part of the American dream.

REFERENCES

Aassve, Arnstein, Francesco C. Billari, and Raffaella Piccarreta. 2007. “Strings of Adulthood: A Sequence Analysis of Young British Women’s Work-Family Trajectories.” Pp. 369–88 in *European Journal of Population*, vol. 23.

Abbott, Andrew. 1983. “Sequences of Social Events: Concepts and Methods for the Analysis of Order in Social Processes.” *Historical Methods: A Journal of Quantitative and Interdisciplinary History* 16(4):129–47.

Abbott, Andrew and Angela Tsay. 2000. “Sequence Analysis and Optimal Matching Methods in Sociology: Review and Prospect.” *Sociological Methods & Research* 29(1):3–33.

Ahituv, Avner and Robert I. Lerman. 2007. “How Do Marital Status, Work Effort, and Wage Rates Interact?” *Demography* 44(3):623–47.

Amato, Paul R. 2000. “The Consequences of Divorce for Adults and Children.” *Journal of marriage and family* 62(4):1269–87.

Amato, Paul R. et al. 2008. “Precursors of Young Women’s Family Formation Pathways.” *Journal of Marriage and Family* 70(5):1271–86.

Amato, Paul R., Alan Booth, Susan M. McHale, and Jennifer Van Hook, eds. 2015. *Families in an Era of Increasing Inequality*. Cham: Springer International Publishing.

Arnett, Jeffrey Jensen. 2000. “Emerging Adulthood: A Theory of Development from the Late Teens through the Twenties.” *American Psychologist* 55(5):469–80.

Barber, Jennifer S. 2001. “The Intergenerational Transmission of Age at First Birth among Married and Unmarried Men and Women.” *Social Science Research* 30(2):219–47.

Baum, Sandy, Jennifer Ma, and Kathleen Payea. 2013. “Education Pays 2013 : The Benefits of Higher Education for Individuals and Society. Trends in Higher Education Series.” *The College Board*.

Bernardi, Fabrizio and Diederik Boertien. 2017. “Non-Intact Families and Diverging Educational Destinies: A Decomposition Analysis for Germany, Italy, the United Kingdom and the United States.” *Social Science Research* 63:181–91.

Berrington, Ann and Ian Diamond. 2000. “Marriage or Cohabitation: A Competing Risks Analysis of the First-Partnership Formation among the 1958 British Birth Cohort.” *Journal of the Royal Statistical Society* 163(2):127–51.

Berzin, Stephanie C. and Allison C. De Marco. 2010. “Understanding the Impact of Poverty on Critical Events in Emerging Adulthood.” *Youth & Society* 42(2):278–300.

Biblarz, Timothy J. and Adrian E. Raftery. 1999. “Family Structure, Educational Attainment, and Socioeconomic Success: Rethinking the‘ Pathology of Matriarchy.’” *American Journal of Sociology* 105(2):321–65.

Billari, Francesco C. 2001. “Sequence Analysis in Demographic Research.” *Canadian*

Studies in Population 28(2):439–58.

Bjorklund, Anders and Markus Jantti. 1997. "Intergenerational Income Mobility in Sweden Compared to the United States." *American Economic Review* 87(5):1009–18.

Blau, Francine D. and Lawrence M. Kahn. 2006. "The U.S. Gender Pay Gap in the 1990s: Slowing Convergence." *Industrial and Labor Relations Review* 60(1):45–66.

Blau, Peter M. and Otis Dudley Duncan. 1967. "The American Occupational Structure."

Bloome, Deirdre. 2017. "Childhood Family Structure and Intergenerational Income Mobility in the United States." *Demography* 54(2):541–69.

Blossfeld, Hans-Peter and Johannes Huinink. 1991. "Human Capital Investments or Norms of Role Transition? How Women's Schooling and Career Affect the Process of Family Formation." *The American Journal of Sociology* 97(1):143–68.

Blossfeld, Hans-Peter and Yossi Shavit. 1993. "Persisting Barriers: Changes in Educational Opportunities in Thirteen Countries." Pp. 1–23 in *Persistent Inequality: Changing Educational Attainment in Thirteen Countries*, vol. 15.

Bourdieu, Pierre and Jean-Claude Passeron. 1990. *Reproduction in Education, Society and Culture*. Sage.

Bozick, Robert. 2007. "Making It Through the First Year of College: The Role of Students' Economic Resources, Employment, and Living Arrangements." *Sociology of Education* 80(3):261–85.

Breen, Richard and John H. Goldthorpe. 1997. "Explaining Educational Differentials: Towards a Formal Rational Action Theory." *Rationality and Society* 9(3):275–305.

Brzinsky-Fay, Christian. 2014. "The Measurement of School-to-Work Transitions as Processes." *European Societies* 16(2):213–32.

Buchmann, Claudia, and Thomas A. DiPrete. 2006. "The Growing Female Advantage in College Completion: The Role of Family Background and Academic Achievement."

American Sociological Review 71(4):515–41.

Bynner, John. 2005. "Rethinking the Youth Phase of the Life-Course: The Case for Emerging Adulthood?" *Journal of Youth Studies* 8(4):367–84.

Cheng, Siwei. 2014. "A Life Course Trajectory Framework for Understanding the Intracohort Pattern of Wage Inequality." *American Journal of Sociology* 120(3):633–700.

Cheng, Siwei. 2015. "Unequal Origins, Unequal Trajectories: Social Stratification over the Life Course."

Cheng, Siwei. 2016. "The Accumulation of (Dis)advantage: The Intersection of Gender and Race in the Long-Term Wage Effect of Marriage." *American Sociological Review* 81(1):29–56.

Corak, Miles, Matthew J. Lindquist, and Bhashkar Mazumder. 2014. "A Comparison of Upward and Downward Intergenerational Mobility in Canada, Sweden and the United States." *Labour Economics* 30:185–200.

Corcoran, Mary. 1995. "Rags to Rags: Poverty and Mobility in the United States." *Annual Review of Sociology* 21(1):237–67.

Côté, James E. 2002. "The Role of Identity Capital in the Transition to Adulthood: The Individualization Thesis Examined." *Journal of Youth Studies* 5(2):117–34.

Dannefer, Dale. 2003. "Cumulative Advantage/disadvantage and the Life Course: Cross-Fertilizing Age and Social Science Theory." *J Gerontol B Psychol Sci Soc Sci* 58(6):S327-37.

Danziger, Sheldon and David Ratner. 2010. "Labor Market Outcomes and the Transition to Adulthood." *The Future of Children* 20(1):133–58.

Dariotis, Jacinda K., Joseph H. Pleck, Nan M. Astone, and Freya L. Sonenstein. 2011. "Pathways of Early Fatherhood, Marriage, and Employment: A Latent Class Growth Analysis." *Demography* 48(2):593–623.

DiPrete, Thomas A. and Gregory M. Eirich. 2006. “Cumulative Advantage as a Mechanism for Inequality: A Review of Theoretical and Empirical Developments.” *Annual review of sociology* 271–97.

Dismuke, Clara E. and Leonard E. Egede. 2010. “Association between Major Depression, Depressive Symptoms and Personal Income in US Adults with Diabetes.” *General Hospital Psychiatry* 32(5):484–91.

Dorsett, Richard and Paolo Lucchino. 2014. “Explaining Patterns in the School-to-Work Transition: An Analysis Using Optimal Matching.” *Advances in Life Course Research* 22:1–14.

Dougherty, Christopher. 2006. “The Marriage Earnings Premium as a Distributed Fixed Effect.” *Journal of Human Resources* 41(2):433–43.

Elder, Glenn. 1998. “The Life Course as Developmental.” *Child Development* 69(1):1–12.

Elman, Cheryl and Angela M. O’Rand. 2004. “The Race Is to the Swift: Socioeconomic Origins, Adult Education, and Wage Attainment.” *American Journal of Sociology* 110(1):123–60.

Erikson, Robert and John H. Goldthorpe. 2002. “American Economic Association Intergenerational Inequality : A Sociological Perspective.” *Journal of Economic Perspectives* 16(3):31–44.

Ermisch, John, Markus Jäntti, Timothy Smeeding, and James A. Wilson. 2012. *Advantage in Comparative Perspective*. Russell Sage Foundation.

Fomby, Paula and Stacey J. Bosick. 2013. “Family Instability and the Transition to Adulthood.” *Journal of Marriage and Family* 75(5):1266–87.

Furstenberg, Frank F. 2008. “The Intersections of Social Class and the Transition to Adulthood.” Pp. 1–10 in *Social class and transitions to adulthood. New Directions for Child and Adolescent Development*, vol. 122.

Furstenberg, Frank F. 2010. “On a New Schedule : Adulthood and Transitions to Family Change.” *The Future of Children* 20(1):67–87.

Gabadinho, Alexis, Gilbert Ritschard, Nicolas Séverin Mueller, and Matthias Studer. 2011. “Analyzing and Visualizing State Sequences in R with TraMineR.” *Journal of Statistical Software* 40(4):1–37.

Galambos, Nancy L. and Harvey J. Krahn. 2008. “Depression and Anger Trajectories during the Transition to Adulthood.” *Journal of Marriage and Family* 70(1):15–27.

Gangl, Markus. 2005. “Income Inequality, Permanent Incomes, and Income Dynamics: Comparing Europe to the United States.” *Work and Occupations* 32(2):140–62.

Gangl, Markus. 2006. “Scar Effects of Unemployment: An Assessment of Institutional Complementarities.” *American Sociological Review* 71(6):986–1013.

Hardaway, Cecily R. and Vonnie C. McLoyd. 2009. “Escaping Poverty and Securing Middle Class Status: How Race and Socioeconomic Status Shape Mobility Prospects for African Americans during the Transition to Adulthood.” *Journal of Youth and Adolescence* 38(2):242–56.

Heflin, Colleen M. and Mary Pattillo. 2006. “Poverty in the Family: Race, Siblings, and Socioeconomic Heterogeneity.” *Social Science Research* 35(4):804–22.

Hiekel, Nicole, Aart C. Liefbroer, and Anne-Rigt Poortman. 2014. “Understanding Diversity in the Meaning of Cohabitation across Europe.” *European Journal of Population* 30(4):391–410.

Hofferth, Sandra L. and Frances Goldscheider. 2010. “Family Structure and the Transition to Early Parenthood.” *Demography* 47(2):415–37.

Jackson, Michelle. 2009. “Disadvantaged through Discrimination? The Role of Employers in Social Stratification.” *British Journal of Sociology* 60(4):669–92.

Jackson, Michelle, John H. Goldthorpe, and Colin Mills. 2005. “Education, Employers and

Class Mobility." *Research in Social Stratification and Mobility* 23:3–33.

Kahn, Lisa B. 2010. "The Long-Term Labor Market Consequences of Graduating from College in a Bad Economy." *Labour Economics* 17(2):303–16.

Kane, Thomas J. and Cecilia Elena Rouse. 1995. "Labor-Market Returns to Two- and Four-Year College." *The American Economic Review* 85(3):600–614.

Kennedy, Sheela and Larry Bumpass. 2008. "Cohabitation and Children's Living Arrangements: New Estimates from the United States." *Demographic research* 19:1663.

Killewald, Alexandra and Margaret Gough. 2013. "Does Specialization Explain Marriage Penalties and Premiums?" *American sociological review* 78(3):477–502.

Lareau, Annette. 2006. "Unequal Childhoods: Class, Race and Family Life." *American Journal of Sociology* 112:635–36.

Lareau, Annette. 2011. *Unequal Childhoods: Class, Race, and Family Life, with an Update a Decade Later*.

Light, Audrey. 2004. "Gender Differences in the Marriage and Cohabitation Income Premium." *Demography* 41(2):263–84.

de Linde Leonard, Megan and T. D. Stanley. 2015. "Married with Children: What Remains When Observable Biases Are Removed from the Reported Male Marriage Wage Premium." *Labour Economics* 33:72–80.

Lips, Hilary M. 2003. "The Gender Pay Gap: Concrete Indicator of Women's Progress toward Equality." *Analyses of Social Issues and Public Policy* 3(1):87–109.

Lopez, Mark Hugo and Gabriel Velasco. 2011. "Childhood Poverty Among Hispanics Sets Record , Leads Nation." *Nation* 29(202):0–16.

Lopoo, Leonard M. and Thomas DeLeire. 2014. "Family Structure and the Economic Wellbeing of Children in Youth and Adulthood." *Social Science Research* 43:30–44.

Lui, Camillia K., Paul J. Chung, Steven P. Wallace, and Carol S. Aneshensel. 2014. "Social

Status Attainment During the Transition to Adulthood." *Journal of Youth and Adolescence* 43(7):1134–50.

MacMillan, Ross and Ronda Copher. 2005. "Families in the Life Course: Interdependency of Roles, Role Configurations, and Pathways." *Journal of Marriage and Family* 67(4):858–79.

Mclanahan, Sara. 2004. "Diverging Destinies : How Children Are Faring Under the Second Demographic Transition." *Demography* 41(4):607–27.

McLanahan, Sara and Christine Percheski. 2008. "Family Structure and the Reproduction of Inequalities." *Annual Review of Sociology* 34(1):257–76.

Merton, Robert K. 1968. "The Matthew Effect in Science." *Science* 159(3810):56–63.

Mills, Melinda, Ronald R. Rindfuss, Peter McDonald, and Egbert te Velde. 2011. "Why Do People Postpone Parenthood? Reasons and Social Policy Incentives." *Human Reproduction Update* 17(6):848–60.

Mitchell, Lauren L. and Moin Syed. 2015. "Does College Matter for Emerging Adulthood? Comparing Developmental Trajectories of Educational Groups." *Journal of Youth and Adolescence* 44(11):2012–27.

Mroz, Thomas A. and Timothy H. Savage. 2006. "The Long-Term Effects of Youth Unemployment." *Journal of Human Resources* 41(2):259–93.

Mullen, Ann. 2009. "Elite Destinations: Pathways to Attending an Ivy League University." *British Journal of Sociology of Education* 30(1):15–27.

Oesterle, Sabrina, J. David Hawkins, Karl G. Hill, and Jennifer A. Bailey. 2010. "Men's and Women's Pathways to Adulthood and Their Adolescent Precursors." *Journal of Marriage and Family* 72(5):1436–53.

Oppenheimer, Valerie Kincade. 2003. "Cohabitation and Marriage During Young Men's Career-Development Process." *Demography* 40(1):127–49.

Osgood, D.Wayne, Gretchen Ruth, Jacquelynne S. Eccles, Janis E. Jacobs, and Bonnie L. Barber. 2005. *Six Paths to Adulthood: Fast Starters, Parents without Careers, Educated Partners, Educated Singles, Working Singles, and Slow Starters*. na.

Pager, Devah and Hana Shepherd. 2008. "The Sociology of Discrimination: Racial Discrimination in Employment, Housing, Credit, and Consumer Markets." *Annu. Rev. Sociol* 34:181–209.

Perelli-Harris, Brienna et al. 2010. "The Educational Gradient of Childbearing within Cohabitation in Europe." *Population and Development Review* 36(4):775–801.

Pettit, Becky and Bruce Western. 2004. "Mass Imprisonment and the Life Course: Race and Class Inequality in U.S. Incarceration." *American Sociological Review* 69(2):151–69.

Proctor, Bernadette D., Jessica L. Semega, and Melissa A. Kollar. 2016. *Income and Poverty in the United States: 2015*.

Putnam, Robert D. 2015. *Our Kids: The American Dream in Crisis*. Simon & Schuster.

Rindfuss, Ronald R. 1991. "The Young Adult Years: Diversity, Structural Change, and Fertility." *Demography* 28(4):493–512.

Roksa, Josipa and Melissa Velez. 2012. "A Late Start: Delayed Entry, Life Course Transitions and Bachelor's Degree Completion." *Social Forces* 90(3):769–94.

Salmela-Aro, Katariina, Noona Kiuru, Jari-Erik Nurmi, and Mervi Eerola. 2011. "Mapping Pathways to Adulthood among Finnish University Students: Sequences, Patterns, Variations in Family- and Work-Related Roles." *Advances in Life Course Research* 16(1):25–41.

Sassler, Sharon and Amanda J. Miller. 2011. "Class Differences in Cohabitation Processes." *Family Relations* 60(April):163–77.

Schoen, Robert, Nancy Landale, and Kimberly Daniels. 2007. "Family Transitions in Young Adulthood." *Demography* 44(4):807–20.

Schulenberg, John and Ingrid Schoon. 2012. “The Transition to Adulthood across Time and Space: Overview of Special Section.” *Longitudinal and Life Course Studies* 3(2):164–72.

Shanahan, Michael J. 2000. “Pathways to Adulthood in Changing Societies: Variability and Mechanisms in Life Course Perspective.” *Annual Review of Sociology* 26(1):667–92.

Sironi, Maria and Frank F. Furstenberg. 2012. “Trends in the Economic Independence of Young Adults in the United States: 1973–2007.” *Population and Development Review* 38(December):609–30.

Sironi, Maria, Nicola Barban, and Roberto Impicciatore. 2015. “Parental Social Class and the Transition to Adulthood in Italy and the United States.” *Advances in Life Course Research* 26:89–104.

Smock, Pamela J. 2000. “Cohabitation in the United States: An Appraisal of Research Themes, Findings, and Implications.” *Annual Review of Sociology* 26(2000):1–20.

Staff, Jeremy and Jeylan T. Mortimer. 2007. “Educational and Work Strategies from Adolescence to Early Adulthood: Consequences for Educational Attainment.” *Social Forces* 85(3):1169–94.

Taylor, Paul et al. 2011. *Is College Worth It?: College Presidents, Public Assess Value, Quality and Mission of Higher Education.* Pew Research Center.

Teachman, Jay D. and Karen A. Polonko. 1988. “Marriage, Parenthood, and the College Enrollment of Men and Women.” *Social Forces* 67(2):512–23.

Thornton, Arland, William G. Axinn, and Jay D. Teachman. 1995. “The Influence of School Enrollment and Accumulation on Cohabitation and Marriage in Early Adulthood.” *American Sociological Review* 60(5):762.

Torche, Florencia. 2011. “Is a College Degree Still the Great Equalizer? Intergenerational Mobility across Levels of Schooling in the United States.” *American Journal of*

Sociology 117(3):763–807.

Tyler, John H. and Magnus Lofstrom. 2009. "Finishing High School: Alternative Pathways and Dropout Recovery." *The future of children* 19(1):77–103.

Uecker, Jeremy E. and Charles E. Stokes. 2008. "Early Marriage in the United States." *Journal of Marriage and Family* 70(4):835–46.

Vuolo, Mike, Jeylan T. Mortimer, and Jeremy Staff. 2014. "Adolescent Precursors of Pathways from School to Work." *Journal of Research on Adolescence* 24(1):145–62.

Walpole, MaryBeth. 2003. "Socioeconomic Status and College: How SES Affects College Experiences and Outcomes." *The Review of Higher Education* 27(1):45–73.

Warren, John Robert, Liying Luo, Andrew Halpern-Manners, James M. Raymo, and Alberto Palloni. 2015. "Do Different Methods for Modeling Age-Graded Trajectories Yield Consistent and Valid Results?" *American Journal of Sociology* 120(6):1809–56.

van de Werfhorst, Herman G., and Ruud Luijkx. 2010. "Educational Field of Study and Social Mobility: Disaggregating Social Origin and Education." *Sociology* 44(4):695–715.

Wiik, Kenneth Aarskaug. 2009. "'You'd Better Wait!'- Socio-Economic Background and Timing of First Marriage versus First Cohabitation." *European Sociological Review* 25(2):139–53.

Winkler-Dworak, Maria and Laurent Toulemon. 2007. "Gender Differences in the Transition to Adulthood in France: Is There Convergence over the Recent Period? (Le Passage Vers I'âge Adulte Des Hommes et Des Femmes En France: Y-a-T-Il Convergence?)." *European Journal of Population / Revue Européenne de Démographie* 23(3/4):273–314.

Zimmerman, Frederick J. and Wayne Katon. 2005. "Socioeconomic Status, Depression Disparities, and Financial Strain: What Lies behind the Income-Depression Relationship?" *Health Economics* 14(12):1197–1215.

APPENDIX

APPENDIX A: Descriptives on Grade-of-Membership variables

Table A1 *Descriptive statistics for men's Grade-of-Membership variables*

	N	Mean	St. dev.	min	max
Career GoM variables					
No employ./enrollment	2301	0.28	0.17	0	1
Intermittent employ.	2301	0.48	0.19	0	1
Part-time employment	2301	0.33	0.12	0	1
Continuous employ.	2301	0.47	0.24	0	1
2-year college	2301	0.43	0.16	0	1
4-year college	2301	0.33	0.12	0	1
Family GoM variables					
Parental home staying	2301	0.55	0.30	0	1
Late par. home leaving	2301	0.60	0.23	0	1
Single living	2301	0.47	0.23	0	1
Family formation	2301	0.48	0.15	0	1
Out-of-wedl. par	2301	0.28	0.13	0	1

Table A2 *Descriptive statistics for women's Grade of Membership variables*

	N	Mean	St. dev.	min	max
Career GoM variables					
Intermittent employ.	2665	0.40	0.17	0	1
Continuous employ.	2665	0.42	0.21	0	1
2-year college	2665	0.38	0.13	0	1
4-year college	2665	0.37	0.15	0	1
Family GoM variables					
Parental home staying	2665	0.42	0.30	0	1
Single living	2665	0.45	0.24	0	1
Marriage and cohab.	2665	0.46	0.21	0	1
Out-of-wedl. par	2665	0.35	0.15	0	1
Marriage and par.	2665	0.33	0.17	0	1

Table A3 *Men's correlations between Grade of membership variables*

	Career pathways GoM						*Family pathways GoM*				
Career pathways GoM	intermit. empl.	4-year college	2-year college	no empl. /enroll.	cont. empl.	part-time empl.	late par. home leaving	family form.	par. home. staying	out-of-wed. par.	single living
intermittent employment	1										
4-year college	-0.1135	1									
2-year college	0.8135	-0.0642	1								
no empl./enroll.	0.4314	-0.1782	0.0541	1							
continuous employment	0.7796	-0.1927	0.7926	-0.1104	1						
part-time employment	0.5223	-0.0971	0.4736	0.1786	0.3831	1					
Family pathways GoM											
late parental home leaving	-0.2097	0.1761	-0.1357	-0.0938	-0.2222	-0.1584	1				
family formation	-0.0849	0.1117	0.0063	-0.168	-0.0254	-0.0107	0.6049	1			
parental home staying	-0.1079	0.0544	-0.0832	0.032	-0.1767	-0.1282	0.8838	0.4757	1		

out-of-wedl. parenthood	0.2373	-0.1518	0.1293	0.2919	0.1081	0.0844	-0.3645	-0.3132	-0.2278	1	
single living	-0.264	0.2612	-0.1688	-0.2575	-0.1733	-0.0747	0.2045	0.0918	-0.1621	-0.4061	1

Table A4 *Women's correlations between Grade-of-membership variables*

	Career pathways GoM				*Family pathways GoM*				
Career pathways GoM	4-year college	continuous empl.	2-year college	intermittent empl.	par. home staying	out-of-wedl. par.	marriage and coh.	single living	marriage and par.
4-year college	1								
continuous employment	0.071	1							
2-year college	0.1653	0.7117	1						
intermittent employment	-0.4421	0.204	0.0695	1					
Family pathways GoM									
parental home staying	0.2162	-0.1009	0.0428	-0.3018	1				
out-of wedlock parenthood	-0.1557	0.011	0.0336	0.2212	0.0572	1			
marriage and cohabitation	0.3531	-0.0199	0.1191	-0.3975	0.706	-0.1241	1		
single living	0.478	-0.1248	0.0106	-0.482	0.4825	-0.1564	0.6669	1	

marriage and parenthood	0.0302	0.0142	0.0298	-0.0224	-0.0794	-0.3319	0.184	0.0652	1

APPENDIX B: Model fit statistics

Table B1 *Model fit for growth curve models including varying number of GoM variables for men*

Nr. of Career GoM variables	Nr. of Family GoM variables	Log-likelihood	Degrees of Freedom	AIC
2	2	-140832.2	42	281748.3
3	2	-140701.2	44	281490.3
2	3	-140806.1	44	281700.2
4	2	-140692.9	46	281477.7
2	4	-140795.7	46	281683.4
3	3	-140683.5	46	281459.1
5	2	-140677.1	48	281450.1
2	5	-140789.2	48	281674.4
4	3	-140677.2	48	281450.3
3	4	-140677.3	48	281450.7
6	2	-140667.4	50	281434.8
2	6	-140788.6	50	281677.2
5	3	-140661.8	50	281423.6
3	5	-140674.3	50	281448.6
4	4	-140671.1	50	281442.2
6	3	-140652.8	52	281409.6
3	6	-140673.7	52	281451.4
5	4	-140657.0	52	281418.0
4	5	-140667.7	52	281439.4
6	4	-140648.7	54	281405.5
4	6	-140666.9	54	281441.8
5	5	-140653.1	54	281414.2
6	5	-140644.8	56	281401.7
5	6	-140652.4	56	281416.7
6	6	-140644.1	58	281404.3

Table B2 *Model fit for growth curve models including varying number of GoM variables for women*

Nr. of Career GoM variables	Nr. of Family GoM variables	Log-likelihood	Degrees of Freedom	AIC
2	2	-132140.2	42	264364.5
3	2	-131989.0	44	264066.0
2	3	-132121.6	44	264331.2
4	2	-131969.5	46	264031.0
2	4	-132121.8	46	264335.6
3	3	-131975.8	46	264043.7
5	2	-131977.7	48	264051.3
2	5	-132115.5	48	264326.9
4	3	-131957.3	48	264010.5
3	4	-131976.8	48	264049.6
6	2	-131972.5	50	264045.1
2	6	-132114.7	50	264329.4
5	3	-131965.6	50	264031.2
3	5	-131970.7	50	264041.4
4	4	-131958.5	50	264017.0
6	3	-131960.7	52	264025.3
3	6	-131970.1	52	264044.2
5	4	-131966.8	52	264037.7
4	5	-131952.7	52	264009.5
6	4	-131961.9	54	264031.8
4	6	-131952.2	54	264012.3
5	5	-131960.8	54	264029.6
6	5	-131956.7	56	264025.5
5	6	-131960.3	56	264032.6
6	6	-131956.2	58	264028.3

APPENDIX C: Growth curve models with categorical variables instead of GoM variables

Table C1 *Men's Model 2 results with categorical variables instead of GoM variables*

	Coefficient	SE
Fixed part		
Intercept	17808.7***	1407.1
Age	1239.6**	462.2
Parental income		
Quartile 1	ref.	
Quartile 2	1213.5	1094.7
Quartile 3	3861.4**	1281.9
Quartile 4	6282.1***	1523.0
Missing	4426.3***	1141.2
Parental education		
Less than high school	ref.	
High school	2593.8*	1078.0
Some college	2692.2*	1258.0
4 year college or more	1142.3	1494.6
Missing	2107.6	2016.1
Family structure		
Both bio parents	ref.	
1 bio 1 step-parent	-1552.4	1238.0
Single parent	-2469.1*	967.6
Other	-1550.3	1806.6
Race		
White	ref.	
Black	-3322.0***	939.7
Hispanic	115.8	1042.6
Mixed	95.9	4417.5
Career clusters		
Intermittent employment	ref.	
4-year college	11754.7***	1344.5
2-year college	5846.1***	1214.4
No employment/enrollment	-10072.9***	1152.3
Continuous employment	10252.8***	1048.0
Part-time employment	8510.9***	2134.7
Family clusters		
Late parental home leaving	ref.	
Family formation	6510.2***	1215.2
Parental home staying	-3250.5**	1094.1
Non-marital parenthood	635.4	1222.0

Single living	1531.0	1319.8
Interaction career clusters		
Intermittent employment * age	ref.	
4-year college * age	3109.3***	410.9
2-year college * age	1213.7**	394.7
No employment/enrollment * age	77.4	318.1
Continuous employment * age	351.5	319.2
Part-time employment * age	1082.6	735.9
Interaction family clusters		
Late parental home leaving * age	ref.	
Family formation * age	408.6	383.4
Parental home staying * age	-513.3	326.3
Non-marital parenthood * age	234.2	404.4
Single living * age	9.4	396.5
Interaction parental income		
Quartile 1 *age	ref.	
Quartile 2 * age	21.7	340.6
Quartile 3 * age	491.6	407.3
Quartile 4 * age	1172.1*	478.8
Missing * age	375.2	331.4
Parental education		
No high school	ref.	
High school diploma * age	87.1	289.5
Some college * age	173.3	369.7
4 year college or more * age	181.5	416.6
Missing * age	-643.0	528.3
Interaction family structure		
Both bio parents * age	ref.	
1 bio 1 step-parent * age	-900.8*	361.5
Single parent * age	-271.2	303.4
Other * age	-758.3	642.2
Interaction race		
White * age	ref.	
Black * age	-673.1*	305.6
Hispanic * age	-146.1	331.9
Mixed * age	-11.73	1221.7
Random part		
σ_{age}	4793.9***	225.8
σ_{int}	17109.2***	533.2
$r_{int*age}$	-0.0	0.1
σ_e	12659.0***	426.0
Observations	11112	
AIC	281594.7	

BIC	281975.1

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, two-tailed tests

Table C2 *Women's Model 2 results with categorical variables instead of GoM variables*

	Coefficient	SE
Fixed part		
Intercept	23821.5***	1400.4
Age	2453.4***	397.7
Parental income		
Quartile 1	ref.	
Quartile 2	570.5	896.5
Quartile 3	264.7	1049.4
Quartile 4	3284.9**	1246.2
Missing	436.8	860.4
Parental education		
Less than high school	ref.	
High school diploma	1088.5	745.5
Some college	646.9	882.0
4 year college or more	2935.3**	1046.3
Missing	1462.3	1646.3
Family structure		
Both bio parents	ref.	
1 bio 1 step-parent	-1267.0	883.3
Single parent	-1780.2*	742.0
Other	-1668.8	1209.7
Race		
White	ref.	
Black	-796.6	740.2
Hispanic	916.3	763.2
Mixed	565.7	3464.0
Career clusters		
4-year college	ref.	
Continuous employment	-5203.8***	928.4
2-year college	-6030.4***	1014.7
Intermittent employment	-16098.4***	913.9
Family clusters		
Parental home staying	ref.	
Non-marital parenthood	-460.6	829.1
Marriage and cohabitation	3393.3***	994.0
Single living	5561.4***	1061.7

Marriage and parenthood	-872.3	1117.0
Interaction career clusters		
4-year college * age	ref.	
Continuous employment * age	-1928.2***	287.0
2-year college * age	-1465.1***	282.2
Intermittent employment * age	-2004.1***	269.2
Interaction family clusters		
Parental home staying * age	ref.	
Non-marital parenthood * age	-326.1	246.3
Marriage and cohabitation * age	-781.6**	296.9
Single living * age	-11.1	337.7
Marriage and parenthood * age	-149.7	303.4
Interaction parental income		
Quartile 1 * age	ref.	
Quartile 2 * age	233.4	236.6
Quartile 3 * age	306.3	284.6
Quartile 4 * age	637.4	364.7
Missing * age	711.3**	238.1
Interaction parental education		
Less than high school * age	ref.	
High school diploma * age	-277.7	211.5
Some college * age	-412.0	251.1
4 year college or more * age	-146.1	322.8
Missing * age	-267.5	475.0
Interaction family structure		
Both bio parents * age	ref.	
1 bio 1 step-parent * age	-270.1	278.9
Single parent * age	118.3	225.6
Other * age	-427.9	353.0
Interaction race		
White * age	ref.	
Black * age	-140.5	213.6
Hispanic * age	-103.5	220.4
Mixed * age	656.2	762.1
Random part		
σ_{age}	3405.5***	205.2
σ_{int}	13272.0***	444.2
$r_{int*age}$	-0.1*	0.1
σ_{e}	10296.3***	281.6
Observations	12985	
AIC	264283.7	
BIC	264642.3	

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, two-tailed tests

APPENDIX D: Growth curve models with "simple indicator" variables instead of GoM variables

Table D1 *Men's Model 2 results with "simple indicator" variables instead of GoM variables*

	Coefficient	SE
Fixed part		
Intercept	27829.9***	1614.7
Age	1206.2*	518.6
Parental income		
Quartile 1	ref.	
Quartile 2	1453.9	1063.1
Quartile 3	3707.6**	1276.7
Quartile 4	5521.7***	1527.5
Missing	4294.1***	1127.0
Parental education		
Less than high school	ref.	
High school diploma	1706.9	1079.9
Some college	1299.8	1244.3
4 year college or more	-838.4	1443.3
Missing	1770.1	1910.0
Family structure		
Both parents	ref.	
1 bio 1 step-parent	-262.0	1211.1
Single parent	-1051.2	948.2
Other	-322.4	1693.6
Race		
White	ref.	
Black	-2695.4**	880.3
Hispanic	-34.7	1010.7
Mixed	-541.2	4224.5
Highest completed education at 25		
No diploma	ref.	
GED	1527.9	1373.9
High school (K-12)	-162.1	1089.4
Associate/Junior college (AA)	3938.1*	1917.0
Bachelor's degree	6831.2***	1689.0
Master's degree	7620.6	5296.0
PhD and professional degree	56850.3	30202.0
Unemployment		
Months of unemployment (until 25)	-443.7***	22.80

Family events		
Teenage birth	452.0	1140.3
Married (before 25, no divorce)	5762.6***	1061.2
Staying in parental home (until 25)	-3587.7***	1029.5
Interaction parental income		
Quartile 1 * age	ref.	
Quartile 2 * age	59.7	342.2
Quartile 3 * age	533.0	416.2
Quartile 4 * age	1197.3*	484.2
Missing * age	417.5	333.3
Interaction parental education		
Less than high school * age	ref.	
High school diploma * age	-26.4	291.1
Some college * age	167.7	363.0
4 year college or more * age	387.8	418.3
Missing * age	-635.6	532.8
Interaction family structure		
Both parents * age	ref.	
1 bio 1 step-parent * age	-917.6*	359.9
Single parent * age	-178.0	307.0
Other * age	-702.3	639.8
Interaction race		
White * age	ref.	
Black * age	-613.2*	306.2
Hispanic * age	-78.1	335.1
Mixed * age	-125.8	1190.9
Interaction education		
No diploma * age	ref.	
GED * age	277.6	434.9
High school (K-12) * age	799.1*	346.4
Associate/Junior college (AA) * age	581.3	591.1
Bachelor's degree * age	2992.7***	555.4
Master's degree * age	3123.6*	1311.6
PhD and professional degree * age	11594.5***	1527.1
Interaction unemployment		
Months of unemployment * age	-3.4	7.951
Interaction family events		
Teenage birth * age	-213.2	334.2
Married * age	307.5	357.6
Staying parental home * age	-709.4*	302.0
Random part		

σ_{age}	4817.6***	226.4
σ_{int}	16367.8***	526.7
$r_{int*age}$	-0.0	0.1
σ_e	12654.6***	425.8
Observations	11112	
AIC	281432.4	
BIC	281820.1	

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, two-tailed tests

Table D2 *Women's Model 2 results with "simple indicator" variables instead of GoM variables*

	Coefficient	SE
Fixed part		
Intercept	22635.4***	1257.4
Age	393.5	378.2
Parental income		
Quartile 1	ref.	
Quartile 2	-56.2	860.7
Quartile 3	-977.0	1012.9
Quartile 4	1936.6	1199.9
Missing	-65.68	824.3
Parental education		
Less than high school	ref.	
High school diploma	504.7	723.3
Some college	89.08	847.4
4 year college or more	1710.2	992.5
Missing	1196.2	1560.5
Family structure		
Both parents	ref.	
1 bio 1 step-parent	-768.1	844.9
Single parent	-1702.8*	709.5
Other	-1057.9	1122.3
Race		
White	ref.	
Black	-433.1	702.6
Hispanic	970.6	726.4
Mixed	1275.8	3422.6
Highest completed education at 25		
No diploma	ref.	

GED	822.5	973.8
High school (K-12)	-1311.8	772.9
Associate/Junior college (AA)	4214.9**	1546.3
Bachelor's degree	8921.1***	1166.8
Master's degree	11092.3**	3546.5
PhD and professional degree	29057.4*	11289.4
Unemployment		
Months of unemployment (until 25)	-322.3***	14.48
Family events		
Teenage birth	120.9	644.9
Married (before 25, no divorce)	-1056.4	709.5
Staying in parental home (until 25)	-4094.3***	1159.6
Interaction parental income		
Quartile 1 * age	ref.	
Quartile 2 * age	267.4	235.8
Quartile 3 * age	335.6	279.3
Quartile 4 * age	729.9*	360.5
Missing * age	784.6***	233.6
Interaction parental education		
Less than high school * age	ref.	
High school diploma * age	-317.8	215.9
Some college * age	-376.1	254.2
4 year college or more * age	-119.2	326.6
Missing * age	-235.3	480.9
Interaction family structure		
Both parents * age	ref.	
1 bio 1 step-parent * age	-366.1	281.5
Single parent * age	4.787	218.1
Other * age	-431.9	353.5
Interaction race		
White * age	ref.	
Black * age	-117.9	197.8
Hispanic * age	-189.4	219.2
Mixed * age	650.2	763.4
Interaction education		
No diploma * age	ref.	
GED * age	262.3	265.5
High school (K-12) * age	796.9***	224.8
Associate/Junior college (AA) * age	228.7	403.2
Bachelor's degree * age	1811.5***	371.5

Master's degree * age	3496.7**	1277.7
PhD and professional degree * age	12114.5***	2504.8
Interaction unemployment		
Months of unemployment * age	-1.4	4.430
Interaction family events		
Teenage birth * age	-125.4	180.8
Married * age	-398.0	216.6
Staying parental home * age	383.9	333.0
Random part		
σ_{age}	3349.1***	206.0
σ_{int}	12561.5***	444.6
$r_{int*age}$	-0.2*	0.1
σ_e	10301.2***	280.7
Observations	12985	
AIC	263999.0	
BIC	264402.4	

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, two-tailed tests

5. Becoming obese in young adulthood: The role of career-family pathways in the transition to adulthood for men and women[1]

Jarl E. Mooyaart; Aart C. Liefbroer; Francesco C. Billari

Abstract *This study examines the extent to which family and career sequences during the transition to adulthood (age 17 to 27) are related to becoming obese in early adulthood (age 28) for men and women. We use data from NLSY97 (N=4688) to identify clusters of typical career-family pathways during the transition to adulthood using multichannel sequence analysis, and subsequently investigate whether these pathways are associated with becoming obese at the end of young adulthood. To take into account the fact that the transition to adulthood has a different meaning for men and for women, we also interact career-family clusters with gender, and control for family background factors (race, parental education, parental income, and family structure). The results highlight the importance of gender differences when relating career-family pathways during the transition to adulthood to obesity. For women, pathways characterized by college education, early home leaving, and postponement of family formation decrease the likelihood of becoming obese. For men, pathways characterized by early marriage increase the likelihood of becoming obese.*

[1] A similar, but somewhat different version of this chapter is currently under review at an international peer-reviewed journal.

5.1 INTRODUCTION

The dramatic increase in obesity over the last few decades in the United States and other Western countries is a major public health concern (Clarke et al. 2009; Morgen and Sørensen 2014; Ogden et al. 2006). Although obesity levels have stabilized in the last decade, currently about one in three adults is obese (Ogden et al. 2014). Because obesity has been linked to an increased risk of a number of diseases (See Kopelman (2007) for an overview), it is crucial to identify risk factors for obesity.

While much research has focused on obesity during childhood and adolescence, a large increase in body mass index (BMI) occurs during the transition from adolescence to adulthood (Harris, Perreira, and Lee 2009; Nelson et al. 2008; Singh et al. 2008). Many youths, having normal weight during their childhood, become obese for the first time during the transition to adulthood (Gordon-Larsen et al. 2004). However, the explanation of why such a strong increase in obesity occurs during the transition to adulthood has received little attention (Nelson et al. 2008).

The transition to adulthood is an eventful phase in the life-course. It is the time in which events such as leaving the parental home, entering the labor market, and/or postsecondary education, union formation, and parenthood take place in the lives of many young adults. This life-phase has been described therefore as demographically dense (Rindfuss 1991). Over the last decades the transition to adulthood has become destandardized and diversified (Shanahan 2000), meaning that there is no longer one typical way in which youths become adults, but rather there are diverse pathways marking the transition to adulthood. Some of these pathways might be more strongly related to obesity than others. Events in the transition to adulthood can cause changes in dietary behavior and physical activity. There is some research indicating changes in physical activity and diet after life-course transitions such as marriage, entering

employment, and the transition from high school to college (Brown and Trost 2003; Wengreen and Moncur 2009).

An important aspect of the transition to adulthood is the adoption of adult roles. The life-course approach acknowledges that not only do people transition from one role to another; they can also adopt multiple roles at the same time in the career and family domains (Elder 1998). The interplay between career and family roles may have an impact on obesity, because the adoption of multiple roles may give rise to work-family conflict, which has been related to higher BMI (van Steenbergen and Ellemers 2009). Given the different ways in which men and women adopt career and family roles (Schoon 2010), the impact of career and family pathways during the transition to adulthood is likely to be gendered. For instance, women who become mothers during their teens or early twenties may receive little support from the biological father and may have to take care of the child on their own (Bunting and McAuley 2004). Furthermore, many women still do the majority of the housework (Lachance-Grzela and Bouchard 2010), meaning that entering a relationship has different implications for men than for women. On the other hand, men may feel more stigmatized for being out of the labor force than women (Mossakowski 2009). Thus, adopting or failing to adopt certain roles may have different well-being implications for men and women and could therefore possibly also affect their risk of obesity.

Research linking the transition to adulthood with obesity is scarce. While some research focuses on single transitions such as college enrollment (Levitsky, Halbmaier, and Mrdjenovic 2004; Nelson et al. 2009) and marriage (Averett, Sikora, and Argys 2008; Sobal and Hanson 2011; Teachman 2016), few studies examine the influence of multiple characteristics of the transition to adulthood on BMI. MacMillan and Furstenberg (2016) find that employed, married young adults with a 4-year college degree, having become parents after the transition to adulthood show a lower BMI increase than unemployed young adults with no college degree,

who have not entered unions or parenthood. Scharoun-Lee et al. (2009) find that young adults who become residentially independent and enter the labor market and marriage early have an increased risk of obesity. There is also limited evidence for gender differences in the relationship between the transition to adulthood and obesity. Studies by Scharoun-Lee and colleagues find that for women, being socio-economically disadvantaged throughout the transition to adulthood and foregoing post-secondary education increases the risk of obesity whereas this applies less for men (Scharoun-Lee et al., 2009; Scharoun-Lee et al., 2011).

However, these studies do not take into account the ordering and timing of both career- and family-related events in the transition to adulthood. Transitions, such as marriage and entering postsecondary education, obtain a specific meaning once the whole pathway of the transition to adulthood is taken into account (Aisenbrey and Fasang 2017; Amato et al. 2008; Elder 1994). While other studies link family and career sequences to health outcomes (Carmichael and Ercolani 2016; Sabbath et al. 2015), the present study is the first to link the transition to adulthood as a sequence of events to obesity in young adulthood. Sequences contain information on quantum (which events occur and how many times), ordering (what is the sequencing of events), and timing (when events take place) of events (Billari 2005). This approach can provide more insight into what specific life-courses are linked to the risk of becoming obese.

In this study, we focus in detail on the influence of life-course sequences in both career and family domains between ages 17 and 27. In order to compare career and family sequences simultaneously, we use multichannel sequence analysis (Gauthier et al. 2010; Pollock 2007), which enables us to obtain a measure of similarity between career-family sequences. Individuals' career-family sequences are then grouped into clusters on the basis of similarity. In the final step we examine whether membership of a certain career-family sequence group is related to a higher or lower probability of developing obesity in young adulthood. In this study

we specifically focus on gender because the transition to adulthood has different implications for men and women, and this is likely to be visible in how pathways have a different impact on the risk of obesity for men and women. Our research question is therefore: to what extent are career-family pathways during the transition to adulthood related to becoming obese for men and women?

Research on obesity has shown important differences between subgroups in the population. Black and Hispanic youths are found to have a higher prevalence of obesity compared with whites (Ogden et al. 2014). Parental SES and family structure are also related to BMI for children from impoverished and broken families and lower-class households, who are more likely to develop obesity during their lifetimes (Lamerz et al., 2005; Scharoun-Lee et al., 2009; Schmeer, 2012; Wells, Evans, Beavis, & Ong, 2010; Whitaker, Wright, Pepe, Seidel, & Dietz, 1997). In the present study, the influences of race, parental SES, and family structure are taken into account. We examine whether these background factors continue to have an influence on obesity during young adulthood. The advantages offered by protective factors may accumulate over the life-course, also known as cumulative advantage (Dannefer 2003; Singh-Manoux et al. 2004; Walsemann, Geronimus, and Gee 2008). There is some research indicating that cumulative advantage can also occur with respect to obesity risk (Dupre, 2008; Scharoun-Lee et al., 2009). Our research design allows us to test whether certain types of career-family sequences during the transition to adulthood increase the risk of becoming obese in early adulthood, and have an effect independently and on top of disadvantage in childhood.

Finally, we control for reverse causality, i.e., the possibility that obesity affects the course of the transition to adulthood rather than the other way around. There is ample research showing that obesity has an effect on markers in the transition to adulthood, including enrollment in education, employment, and marriage (Chung et al. 2014; Gortmaker et al. 1993; Morris 2007; Mukhopadhyay 2008). We control for obesity at the end of adolescence, so that

we can examine how career-family sequences affect the risk of becoming obese, rather than showing association only.

5.2 DATA & METHODS

5.2.1 Data

This study uses data from the National Longitudinal Survey of Youth from 1997 (hereafter referred to as NLSY97), a panel study conducted by the U.S. Bureau of Labor Statistics. Respondents were selected in 1997 at ages 12 to 17 (born 1980-1984), using a multi-stage stratified random sampling design and were interviewed annually until 2013 (with the exception of 2012). The NLSY97 contains an oversample of respondents of Afro-American and Latino descent. However, when weighted, the NLSY97 provides a nationally representative sample. The total sample consists of 8,984 respondents. However, we only selected those respondents who participated in all waves and for whom there is at least some information on body height and weight at (around) age 28, leading to the selection of N=4,688 cases (47% men, 53% women).

5.2.2 Obesity

The NLSY97 contains measures of self-reported height in feet and inches and weight in pounds (lbs). BMI is calculated by (weight(lbs) × 703)/height^2(inches). Measurements of BMI were not undertaken by a medical professional, and may therefore be somewhat less reliable than

would otherwise be the case (Merrill and Richardson 2009). In total, two variables were constructed. The dependent variable is whether or not the subject was obese at age 28, chosen because all respondents in the survey were at least 28 years old. Since not all respondents reported height and weight at age 28, some are assigned a BMI at age 29, and if this is also missing, a BMI at age 27. The common cut-off point for obesity (BMI>=30) is used. Furthermore, adopting the same approach as MacMillan and Furstenberg (2016), all BMI scores below 12 or over 50 are considered invalid. As a control, a continuous variable indicating BMI at age 17 is included in the analysis. We defined obesity at age 17 at a cut-off point of 28 rather than 30 as previous research has shown that a somewhat lower cut-off point more accurately captures obesity at younger ages (Reilly, Kelly, and Wilson 2010).

5.2.3 Multichannel analysis of career-family sequences

Respondents reported the year and month in which specific life-course events occurred. In terms of education, in each wave they were asked whether they had entered or exited an educational institution in the previous year. Respondents were also asked to report the level of education in which they enrolled, i.e., secondary school, 2-year college, or 4-year college (including postgraduates). Regarding employment, respondents were asked to provide the start and end dates of each job they had in the previous year, including the number of working hours[2]. With respect to family formation characteristics, respondents were asked whether they had started or ended a marriage or cohabiting relationship in the previous year. They also had to report the year and month of birth of each of their children. In each wave, respondents

[2] The NLSY97 reports weekly job status. We recoded this to monthly statuses using the conversion recommended by the NLS. If someone is employed for at least one week during that period, this person is considered employed.

reported who was living in their household at that time. Furthermore, respondents were asked the month and year in which they first left and returned to the parental home (if they had done this)[3]. This information is used to construct a sequence-type life-course dataset. For each individual, a sequence of 96 consecutive months is created between ages 17 and 27, along two dimensions: career and family.

In order to create a sequence dataset it is necessary to define the 'state space', consisting of the different states individuals can occupy at each time-point along two dimensions: career and family. The career states cover educational enrollment and employment status. Respondents are classified as being enrolled in high school, in a 2-year college education, a 4-year college education, or not enrolled. Where there are gaps between educational episodes, we consider someone continuously enrolled if those gaps are shorter than 3 months. Regarding employment, individuals are classified employed 35 hours per week or more, employed for less than 35 hours per week, or not employed (the last category includes people who are not actively seeking employment, for instance stay-at-home mothers). Combining these educational and employment statuses leads to 12 (4 x 3) possible different career states.

Family states are defined in terms of living arrangements and parenthood status. Four living arrangements are distinguished: living with parents, living alone/independent, living with partner (cohabiting), and living with spouse (marriage). Within each of these options the respondent can either have had a child or not. Entering parenthood is considered irreversible. Once people become a parent they stay a parent for the rest of the sequence, independently of whether they reside with the child. This leads to 8 (4 x 2) possible family states.

Multichannel sequence analysis is used to compare life-course sequences on multiple dimensions (Gauthier et al. 2010; Pollock 2007), such as career and family. In the case of

[3] These questions were included from 2003 onwards, but in 2003 respondents also indicated the month and year of home return if this occurred in any of the previous years.

multichannel sequence analysis, sequences are compared on both dimensions simultaneously. The method allows us to distinguish more career and family states than would have been feasible in normal sequence analysis. The pathways of two different individuals are similar if the timing, occurrence, ordering, and duration in states are similar to each other in both the career and family sequences.

Optimal Matching Analysis is used to establish the level of dissimilarity of sequences (Abbott and Tsay 2000). This method establishes how many states would have to be substituted, deleted, or inserted in order to transform one sequence into another. The more of these operations are required, the less similar the sequences are. However, some life-course transitions may occur more often than others. Therefore, we assign costs of substitutions based on the transition rates between different states (Studer and Ritschard 2014). Thus, some operations are more costly than others. If the transition rate from one state to another is low, the substitution costs for these states will be high, leading to a larger distance between sequences.

Multichannel sequence analysis is performed using the TraMineR package in R. Based on the distance matrix resulting from the multichannel Optimal Matching procedure, a weighted (using NLSY97 weights) hierarchical clustering procedure using Ward's method is chosen to produce clusters of respondents with similar life sequences. An advantage of the Ward algorithm is that it produces fairly equal-sized groups (Aisenbrey and Fasang 2010).

Table 1 *Descriptive statistics on family background variables (N=4,688)*

	Proportion in sample (%)	Obesity at Age 17 (%)	Obesity at Age 28 (%)
Gender			
Male	47.11	15.58	31.26
Female	52.89	14.12	34.27
Parental income			

Quartile 1	18.79	19.93	40.54
Quartile 2	18.91	17.55	35.66
Quartile 3	19.23	15.04	34.51
Quartile 4	19.77	8.29	23.90
Missing	23.30	13.79	30.59
Parental education			
Less than high school	15.32	20.00	40.42
High school diploma	31.06	16.10	36.03
Some college	23.79	16.19	33.36
4 year college or more	25.45	9.03	23.58
Missing	4.38	13.59	34.95
Family structure			
Both biological parents	52.15	12.28	30.27
1 biological, 1 step parent	12.26	14.06	30.21
Single parent	30.53	18.75	37.56
Other	5.06	18.91	37.39
Race			
White	52.49	11.19	27.20
Black	26.40	19.34	41.34
Hispanic	20.11	17.88	36.08
Other	1.00	23.40	40.43

5.2.4 Family background and control variables

The first NLSY97 wave contains a parent questionnaire from which family background characteristics, such as parental income, education, and family structure are derived. *Parental education* is coded as the highest education of the mother or father using five categories: lower than high school, high school, some college, 4-year college or higher, and missing. *Parental income* refers to the household income reported by one of the parents when the respondent was 12 to 16 years old and is coded in quartiles, also including a missing category. The *family structure* variable is the recorded family structure in 1997 and has four categories: 1) Both biological parents, 2) 1 biological, 1 step-parent, 3) 1 biological parent, 4) other (no biological parents). Finally, *race* is coded as: 1) white (non-Hispanic), 2) black (non-Hispanic), 3) Hispanic, 4) other (mixed). Finally, we control for *sex* and for whether a woman was *pregnant*

or not at age 28. Table 1 shows the proportions of all the categories of the family background variables in the sample and the percentage of obesity within these categories.

Table 2 *Model fit (AIC) of logistic regression for different number career-family clusters*

Number of clusters	AIC
4	4887.19
5	4880.47
6	4883.93
7	4878.49
8	4876.91
9	4877.81
10	4881.52

5.2.5 Analytical strategy

Logistic regression is used to identify the effects of career-family sequences on the risk of obesity at age 28. In addition to the family background and control variables, the career-family sequence during the transition to adulthood is included as a categorical variable, indicating whether someone is member of a particular career-family cluster. The number of clusters and therefore the number of career-sequence dummy variables is based on the best model fit in terms of the Akaike Information Criteria (AIC) (Akaike 1981). The number of career-sequence dummy variables that provides the lowest AIC value is selected. Table 2 shows that the 8-cluster solution provides the lowest AIC and therefore the best model fit, thus we opt for the 8-cluster solution. The career-family cluster variables are interacted with gender in order to examine differences of the influence of each career-family type between men and women. Weights constructed by the NLS were used to counter any potential selectivity of the sample.

5.3 RESULTS

5.3.1 Descriptive results on the transition to adulthood

In Figure 1 we describe the eight career and family clusters. Some clusters have a similar career sequence, but differ in their family sequence and vice versa. To label the clusters we use a coding system that highlights whether most individuals in the cluster attend college (CO), are continuously employed (E) or have more unstable employment (UE). For what concerns family behavior, our labels use the main relationship/residential status: married (M), unmarried cohabitation (UC), single living (S) or in parental home (P), and lastly whether the majority of individuals has a child (CH). In the first cluster, the majority of young adults spend most of their time in the parental home. Regarding career pathways, respondents in this cluster spend little time in college and most end up in full-time employment, followed by part-time employment, and then inactivity. We therefore label this cluster UE-P. In the second cluster, the vast majority cohabit and have a child. Almost no one in this cluster attends college and employment is relatively unstable, giving this cluster the UE-UC-CH code. The third cluster we label CO-E-M. Almost all respondents in this cluster are married, but relatively few have had children. Most spend time in either 2- or 4-year college education. The vast majority have stable full-time employment. The fourth cluster includes respondents who (previously) entered cohabitation or marriage, but by age 27 the majority have had a child and are not in a cohabiting relationship. Of all the clusters, respondents in this one spend most time in inactivity and least in employment and hardly anyone attends college. Therefore, we label this cluster UE-S-CH. In the fifth cluster, respondents marry and have children in quick succession. Most people in this cluster are in employment, either full-time or part-time at age 27, but there is also quite some time spent in inactivity, and few enter college, hence the label UE-M-CH. Entering cohabitation but not having children is the most salient feature of the sixth cluster. Most remain

in cohabitation although some marry or become single again. Most enter college and have full-time employment when they reach 27. The label for this cluster is CO-E-UC. In the seventh cluster, almost all attend a 4-year college education. At age 27 most have finished their college education and have entered full-time employment. Regarding the family pathways of this group, most have left the parental home but experienced no other events, hence the label CO-E-S. In the final cluster, respondents spend very little to no time in college education. Most are full-time employed at age 27, but there is also time spent in part-time work and inactivity. They leave the parental home, but do not enter a union or have a child, thus the label for this cluster is UE-S.

Tables 3a and 3b provide information on the distribution of the variables within each cluster. It shows clear differences in the composition of those in the clusters. However, while some clusters may be dominated by a particular gender or race, it also shows that people of all backgrounds are represented in each of the clusters.

Figure 1 Distribution of states for each of the multichannel career-family sequence clusters

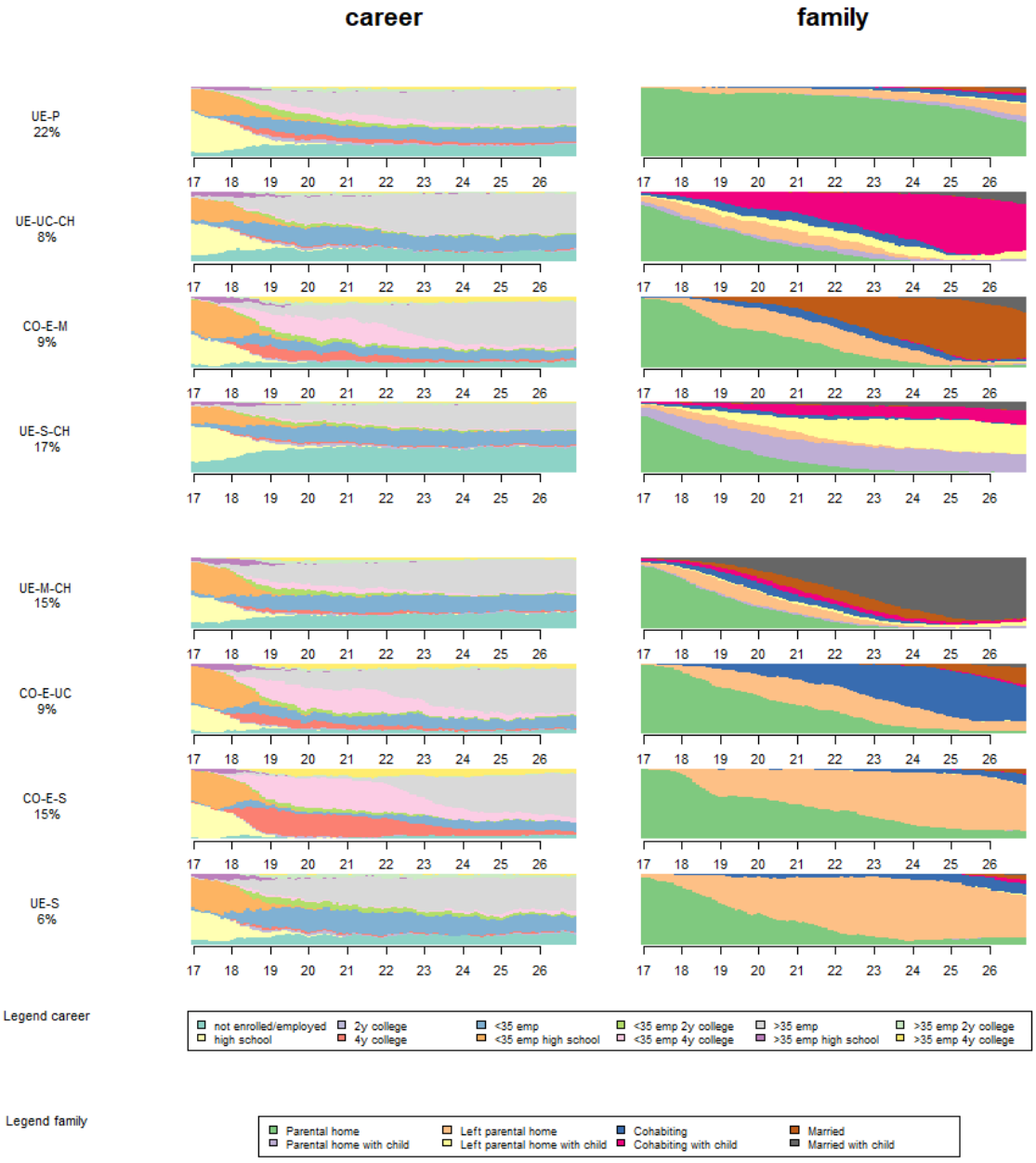


Table 3a *Obesity, gender, pregnancy and career-family sequence cluster membership (%)*

	UE-P	UE-UC-CH	CO-E-M	UE-S-CH	UE-M-CH	CO-E-UC	CO-E-S	UE-S
Obesity at 17								
No	79.44	82.67	92.57	81.94	86.94	90.02	91.01	83.51
Yes	20.56	17.33	7.43	18.06	13.06	9.98	8.99	16.49
Obesity at 28								
No	61.97	63.07	68.82	61.78	64.61	75.18	78.75	67.35
yes	38.03	36.93	31.18	38.22	35.39	24.82	21.25	32.65
Gender								
Men	62.56	45.74	40.53	31.68	36.10	38.69	53.95	68.04
Women	37.44	54.26	59.47	68.32	63.90	61.31	46.05	31.96
Pregnant 28								
No	95.33	91.19	81.53	86.78	86.38	88.56	94.41	95.53
Yes	4.67	8.81	18.47	13.22	13.62	11.44	5.59	4.47

Table 3b *Family background and career-family sequence cluster membership (%)*

	UE-P	UE-UC-CH	CO-E-M	UE-S-CH	UE-M-CH	CO-E-UC	CO-E-S	UE-S
Parental edu.								
<high school	18.37	21.31	8.39	25.39	19.66	7.79	4.22	8.59
High school	32.57	42.90	23.26	41.75	31.18	29.93	17.03	31.96
Some college	27.21	22.44	24.94	19.76	24.86	23.84	19.62	29.90
4-year col.	17.48	7.95	39.57	9.29	17.70	35.04	55.59	26.12
missing	4.37	5.40	3.84	3.80	6.60	3.41	3.54	3.44
Parental inc.								
Quartile 1	19.46	26.42	7.91	33.12	20.22	11.68	8.86	16.15
Quartile 2	20.16	25.85	16.55	22.64	19.24	18.00	10.35	21.99
Quartile 3	18.57	19.03	24.70	12.57	21.63	23.84	18.80	19.93
Quartile 4	16.48	8.52	30.22	6.02	14.89	25.79	38.42	22.34
missing	25.32	20.17	20.62	25.65	24.02	20.68	23.57	19.59
Race								
White	43.79	36.93	74.82	25.52	57.3	73.72	68.80	57.39
Black	29.89	32.10	8.15	56.81	13.76	10.71	20.16	22.68
Hispanic	25.32	29.55	15.83	16.88	28.23	14.84	9.95	18.21
other	0.99	1.42	1.20	0.79	0.70	0.73	1.09	1.72
Family struc.								
Both parents	56.21	38.35	66.43	28.53	54.35	59.37	66.21	45.70
1 bio 1 step	9.33	17.05	12.71	13.74	13.62	14.84	9.13	12.71
Single parent	30.09	36.93	17.75	48.43	26.83	24.33	21.8	35.05
other	4.37	7.67	3.12	9.29	5.20	1.46	2.86	6.53

5.3.2 Multivariate analysis

Results of the logistic regression are presented in Table 4. Noticeable is the strong effect of obesity at age 17. Respondents who were obese at age 17 are more than 16 times more likely to be obese at age 28 compared with those who were not obese at age 17. Two significant family background effects are observed. First, young adults who have one or more university educated parents have a lower risk of being obese at age 28 compared to those whose parents do not have more than a high school education. Second, blacks have an increased probability of being obese at age 28 compared with whites. There are no significant effects for parental income and family structure.

From Table 4 we learn that there are significant differences between some career-family clusters and that these differences are gendered. Because of the interaction with gender, the main effects of the clusters are the effects for men. Not all relative differences can be shown in the table, but we ran the same analysis with different reference categories in order to reveal all significant differences. There is a clear positive effect for the CO-E-M cluster, indicating a higher risk of obesity at age 28 for this cluster compared with men in the UE-P, UE-UC-CH, UE-S-CH, CO-E-UC, and CO-E-S clusters. Men in the UE-M-CH cluster have a significantly higher risk of obesity compared with the UE-S-CH and CO-E-S clusters. All other differences between clusters for men are not significant.

Table 4 *Log-odds estimates (and SE) from a logistic regression model with obesity risk at age 28 as the dependent variable*

	Coefficient	Standard error
Obesity age 17	2.798***	0.126
Female	0.367*	0.181
Parental income		
Quartile 1	ref.	
Quartile 2	-0.105	0.130
Quartile 3	0.053	0.138
Quartile 4	-0.269	0.151
Missing	-0.233	0.129
Parental education		
Less than high school	ref.	
High school diploma	-0.091	0.132
Some college	-0.275	0.143
4 year college or more	-0.436**	0.152
Missing	0.028	0.224
Family structure		
Both biological parents	ref.	
1 biological, 1 step-parent	-0.126	0.131
Single parent	0.025	0.101
Other	-0.237	0.204
Race		
White	ref.	
Black	0.367***	0.103
Hispanic	0.039	0.112
Other	0.326	0.333
Pregnant at 28	0.373**	0.135
Career-family clusters		
UE-P	ref.	
UE-UC-CH	-0.085	0.237
CO-E-M	0.470*	0.214
UE-S-CH	-0.198	0.208
UE-M-CH	0.295	0.190
CO-E-UC	-0.180	0.236
CO-E-S	-0.176	0.177
UE-S	-0.035	0.214
Interactions with female		
UE-P*female	ref.	
UE-UC-CH*female	-0.008	0.347

CO-E-M*female	-0.659*	0.300
UE-S-CH*female	-0.031	0.277
UE-M-CH*female	-0.532*	0.268
CO-E-UC*female	-0.297	0.326
CO-E-S*female	-0.772**	0.276
UE-S *female	-0.220	0.379
Constant	-1.020***	0.191
Observations	4,688	

The interaction terms show how the cluster effects of women differ from those of men. The negative significant effects for CO-E-M and UE-M-CH completely cancel out the positive main effect (effect for men), meaning that for women, being in these clusters is not related to a higher probability of obesity at age 28. The interaction with the CO-E-S cluster also shows a negative effect. However, because the effect for men was already negative, this indicates that for women there is a strong negative effect of being in the CO-E-S cluster. In fact, women in this cluster have a lower obesity risk than all other groups of women. The only other significant difference between career-family clusters among women is that those in the CO-E-UC cluster have a lower obesity risk at age 28 compared to those in the UE-P cluster.

In order to ease the interpretation of the results, in Figure 2 we show the predicted obesity rate at age 28 of those who were not obese at age 17, for each of the career-family clusters, split by gender (pregnant women at age 28 were excluded). We report the predicted obesity rate for respondents who were not obese at age 17, because we want to focus on which of the different career-family clusters are related to becoming, rather than to staying, obese.

Figure 2 Predicted probability of obesity for each career-family cluster, split by gender

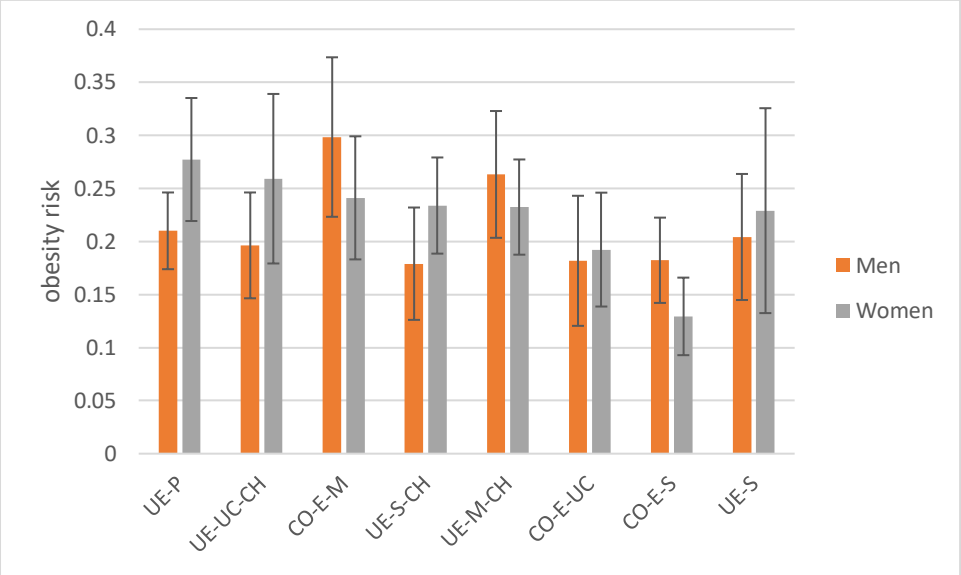


Figure 2 shows substantial gender variation within some of the clusters. Men who are in the CO-E-M cluster have the highest risk of becoming obese (30%). Among men, those following a UE-M-CH type of sequence have a 26% risk of obesity at age 28. The lowest obesity risk, around 18%, is for men in the UE-S-CH, CO-E-S, and CO-E-UC clusters. Men in other clusters have around a 20% risk of becoming obese.

For women, the ordering of career-family clusters in terms of highest to lowest obesity risk is very different from that of men. Women in the UE-P cluster have a 28% chance of becoming obese and thereby have the highest risk among women. Next, the UE-UC-CH cluster has a 26% chance of becoming obese. At the lower end in terms of obesity risk are women in the CO-E-M cluster (19%), but the lowest obesity risk of all is found for women in the CO-E-S cluster (13%). Women in the other career-family clusters have around a 23-24% chance of becoming obese.

As a robustness check, we reran the model presented in Table 4, but including gender interactions with all family background variables (results available upon request). The results

did not change substantially compared to those presented in Table 4 and Figure 2. Therefore, we focus on the more parsimonious model.

5.4 DISCUSSION

In line with previous studies, we find that obesity in adolescence is strongly related to obesity in adulthood (Harris et al. 2009; Nelson et al. 2008; Singh et al. 2008). However, even after controlling for obesity at age 17, we find that, as we expected, different pathways into adulthood differ in their associated risks of becoming obese, implying that career and family pathways during the transition to adulthood are associated with the risk of becoming obese. Another important finding of this study is that this association is strongly gendered, in that specific types of pathways during the transition to adulthood have different meanings in terms of the risk of becoming obese in young adulthood for men and for women.

By applying a multichannel optimal matching sequence analysis, we distinguish eight different pathways to adulthood. Women who typically attend 4-year college education, leave the parental home in their early 20s, but postpone union formation and parenthood, have a much lower risk of being obese at age 28 compared to women following other pathways. However, our study shows that it is not only the career or family pathway that matters for women, but rather their combination. This is demonstrated by the fact that women who postpone family formation and forego any postsecondary education, have a significantly higher risk of developing obesity than their peers who are follow the same family pathways but do attend college. Women who stayed in the parental home had the highest risk of developing obesity. It may be that this group of women share particular features that remain unobserved in our analyses. However, another reason why women in this cluster develop obesity could be

that they consider themselves to be relatively unsuccessful in life, given that few of them attend post-secondary education, many do not have a stable occupation, and are still living with their parents. It may be that women in this group are more likely to suffer or have suffered from depression, which may increase their likelihood of becoming obese (Richardson et al. 2003).

For men, the picture is quite different. Early marriage seems to be the defining characteristic of increased obesity risk. Surprisingly, men who marry but do not have a child early appear to have the highest risk of developing obesity. One would expect that being married and having one or more children at the same time would constitute a heavier source of strain than just being married, and that this strain is related to a higher chance of becoming obese, but this is not corroborated by our data. Furthermore, results show that those who marry and have children early are less likely to attend college. Thus, it appears that college education does not buffer the risk of becoming obese among men that marry early. A possible explanation for the increase in BMI after marriage is that those who are still in the 'marriage market' may be more keen to maintain a healthy body weight in order to attract a potential marriage partner (Averett et al. 2008; The and Gordon-Larsen 2009). Perhaps this applies more to men than to women, or married women experience the increase in BMI later, after childbearing.

In addition to the impact of career-family pathways during the transition to adulthood, we find some family background effects. We find a decreased risk of obesity for those with at least one parent with a 4-year college degree or more compared with those whose parents have no more than a high school degree. This suggests that there is cumulative advantage on the basis of education, as the advantage of a decreased risk of developing obesity by following a "4-year college" sequence and having highly educated parents stack up. Furthermore, we find that blacks compared with whites have a higher risk of obesity in young adulthood. The reason we do not find other effects of family background could be that these effects are mediated through the career-family sequences in the transition to adulthood and obesity at adolescence.

This study has some limitations. First, BMI was calculated based on self-reported height and weight. There is evidence indicating a small bias in these self-reports because height tends to be over-reported and weight overestimated by men, while underestimated by women (Merrill and Richardson 2009). Second, this study has shown that career-family sequences in the transition to adulthood are related to the risk of becoming obese, but has not revealed the exact mechanisms by which these pathways impact the risk of obesity. Future research should therefore examine more specifically the mechanisms, for instance through change in diet and physical activity, by which life-course transitions and role combinations and obesity are related.

All in all, this study has shown that different career-family pathways are related to different risks for developing obesity. Furthermore, results also show that there is a clear gender component in this relationship. For women, a combination of college education and the postponement of family formation clearly buffer elevated obesity risks. Men with college education also have lower risk for obesity, but not when college education is combined with early marriage. These results show that clearly 'one size' does not fit all. Policy makers should be aware that it is not single factors or events in the transition to adulthood, but rather combinations of events and states over the life-course which are related to becoming obese in young adulthood . This life-course perspective may not only be helpful in informing policy on how to reduce obesity, but can also be useful in reducing other health risks over the life-course.

REFERENCES

Abbott, Andrew, and Angela Tsay. 2000. "Sequence Analysis and Optimal Matching Methods in Sociology: Review and Prospect." *Sociological Methods & Research* 29 (1): 3–33. doi:10.1177/0049124100029001001.

Aisenbrey, Silke, and Anette Fasang. 2017. "The Interplay of Work and Family Trajectories

over the Life Course: Germany and the United States in Comparison." *American Journal of Sociology* 122 (5): 1448–84. doi:10.1086/691128.

Aisenbrey, Silke, and Anette F. Fasang. 2010. "New Life for Old Ideas: The 'Second Wave' of Sequence Analysis Bringing the 'Course' Back Into the Life Course." *Sociological Methods & Research* 38 (3): 420–62. doi:10.1177/0049124109357532.

Akaike, Hirotugu. 1981. "Likelihood of a Model and Information Criteria." *Journal of Econometrics* 16 (1): 3–14. doi:10.1016/0304-4076(81)90071-3.

Amato, Paul R., Nancy S. Landale, Tara C. Havasevich-Brooks, Alan Booth, David J. Eggebeen, Robert Schoen, and Susan M. McHale. 2008. "Precursors of Young Women's Family Formation Pathways." *Journal of Marriage and Family* 70 (5): 1271–86. doi:10.1111/j.1741-3737.2008.00565.x.

Averett, Susan L., Asia Sikora, and Laura M. Argys. 2008. "For Better or Worse: Relationship Status and Body Mass Index." *Economics and Human Biology* 6 (3): 330–49. doi:10.1016/j.ehb.2008.07.003.

Billari, Francesco C. 2005. "Life Course Analysis: Two (Complementary) Cultures? Some Reflections with Examples from the Analysis of the Transition to Adulthood." *Advances in Life Course Research*. doi:10.1016/S1040-2608(05)10010-0.

Brown, W J, and S G Trost. 2003. "Life Transitions and Changing Physical Activity Patterns in Young Women." *Am J Prev Med* 25: 140–43. doi:10.1016/S0749-3797(03)00119-3.

Bunting, Lisa, and Colette McAuley. 2004. "Research Review: Teenage Pregnancy and Parenthood: The Role of Fathers." *Child & Family Social Work* 9 (3): 295–303. doi:10.1111/j.1365-2206.2004.00335.x.

Carmichael, Fiona, and Marco G. Ercolani. 2016. "Unpaid Caregiving and Paid Work over Life-Courses: Different Pathways, Diverging Outcomes." *Social Science and Medicine* 156: 1–11. doi:10.1016/j.socscimed.2016.03.020.

Chung, Arlene E., Asheley Cockrell Skinner, Gary R. Maslow, Carolyn T. Halpern, and Eliana M. Perrin. 2014. “Sex Differences in Adult Outcomes by Changes in Weight Status from Adolescence to Adulthood: Results from Add Health.” *Academic Pediatrics* 14 (5): 448–55. doi:10.1016/j.acap.2014.03.016.

Clarke, Philippa, Patrick M. O’Malley, Lloyd D. Johnston, and John E. Schulenberg. 2009. “Social Disparities in BMI Trajectories across Adulthood by Gender, Race/ Ethnicity and Lifetime Socio-Economic Position: 1986-2004.” *International Journal of Epidemiology* 38 (2): 499–509. doi:10.1093/ije/dyn214.

Dannefer, Dale. 2003. “Cumulative Advantage/Disadvantage and the Life Course: Cross-Fertilizing Age and Social Science Theory.” *J Gerontol B Psychol Sci Soc Sci* 58 (6): S327-37. doi:10.1093/geronb/58.6.S327.

Dupre, Matthew E. 2008. “Educational Differences in Health Risks and Illness over the Life Course: A Test of Cumulative Disadvantage Theory.” *Social Science Research* 37 (4): 1253–66. doi:10.1016/j.ssresearch.2008.05.007.

Elder, Glen H. 1994. “Time, Human Agency, and Social Change: Perspectives on the Life Course.” *Social Psychology Quarterly* 57 (1): 4–15. doi:10.2307/2786971.

Elder, Glenn. 1998. “The Life Course as Developmental.” *Child Development*. doi:10.1111/j.1467-8624.1998.tb06128.

Gauthier, Jacques-Antoine, Eric D. Widmer, Philipp Bucher, and Cédric Notredame. 2010. “Multichannel Sequence Analysis Applied to Social Science Data.” *Sociological Methodology* 40 (1): 1–38. doi:10.1111/j.1467-9531.2010.01227.x.

Gordon-Larsen, Penny, Linda S. Adair, Melissa C. Nelson, and Barry M. Popkin. 2004. “Five-Year Obesity Incidence in the Transition Period between Adolescence and Adulthood: The National Longitudinal Study of Adolescent Health.” *American Journal of Clinical Nutrition* 80 (3): 569–75.

Gortmaker, S L, A Must, J M Perrin, A M Sobol, and W H Dietz. 1993. “Social and Economic Consequences of Overweight in Adolescence and Young Adulthood.” *The New England Journal of Medicine* 329: 1008–12. doi:10.1056/NEJM199309303291406.

Harris, Kathleen Mullan, Krista M Perreira, and Dohoon Lee. 2009. “Obesity in the Transition to Adulthood: Predictions across Race/Ethnicity, Immigrant Generation, and Sex.” *Archives of Pediatrics & Adolescent Medicine* 163 (11): 1022–28. doi:10.1001/archpediatrics.2009.182.

Kopelman, P. 2007. “Health Risks Associated with Overweight and Obesity.” *Obesity Reviews : An Official Journal of the International Association for the Study of Obesity* 8 Suppl 1 (11): 13–17. doi:10.1111/j.1467-789X.2007.00311.x.

Lachance-Grzela, Mylène, and Geneviève Bouchard. 2010. “Why Do Women Do the Lion’s Share of Housework? A Decade of Research.” *Sex Roles* 63 (11): 767–80. doi:10.1007/s11199-010-9797-z.

Lamerz, A, J Kuepper-Nybelen, C Wehle, N Bruning, G Trost-Brinkhues, H Brenner, J Hebebrand, and B Herpertz-Dahlmann. 2005. “Social Class, Parental Education, and Obesity Prevalence in a Study of Six-Year-Old Children in Germany.” *International Journal of Obesity (2005)* 29 (4): 373–80. doi:10.1038/sj.ijo.0802914.

Levitsky, DA a, CA a Halbmaier, and G Mrdjenovic. 2004. “The Freshman Weight Gain: A Model for the Study of the Epidemic of Obesity.” *International Journal of Obesity* 28: 1435–42. doi:10.1038/sj.ijo.0802776.

Merrill, R M, and J S Richardson. 2009. “Validity of Self-Reported Height, Weight, and Body Mass Index: Findings from the National Health and Nutrition Examination Survey, 2001-2006.” *Preventing Chronic Disease* 6 (4): A121. doi:A121 [pii].

Morgen, Camilla Schmidt, and Thorkild I a Sørensen. 2014. “Global Trends in the Prevalence of Overweight and Obesity.” *Nature Reviews. Endocrinology* 10 (9): 513–

14. doi:10.1038/nrendo.2014.124.

Morris, Stephen. 2007. “The Impact of Obesity on Employment.” *Labour Economics* 14 (3): 413–33. doi:10.1016/j.labeco.2006.02.008.

Mossakowski, Krysia N. 2009. “The Influence of Past Unemployment Duration on Symptoms of Depression Among Young Women and Men in the United States.” *American Journal of Public Health* 99 (10): 1826–32. doi:10.2105/AJPH.2008.152561.

Mukhopadhyay, Sankar. 2008. “Do Women Value Marriage More? The Effect of Obesity on Cohabitation and Marriage in the USA.” *Review of Economics of the Household* 6 (2): 111–26. doi:10.1007/s11150-007-9025-y.

Nelson, Melissa C., Rebecca Kocos, Leslie A. Lytle, and Cheryl L. Perry. 2009. “Understanding the Perceived Determinants of Weight-Related Behaviors in Late Adolescence: A Qualitative Analysis among College Youth.” *Journal of Nutrition Education and Behavior* 41 (4): 287–92. doi:10.1016/j.jneb.2008.05.005.

Nelson, Melissa C, Mary Story, Nicole I Larson, Dianne Neumark-Sztainer, and Leslie a Lytle. 2008. “Emerging Adulthood and College-Aged Youth: An Overlooked Age for Weight-Related Behavior Change.” *Obesity (Silver Spring, Md.)* 16 (10): 2205–11. doi:10.1038/oby.2008.365.

Ogden, Cynthia L., Margaret D. Carroll, Brian K. Kit, and Katherine M. Flegal. 2014. “Prevalence of Childhood and Adult Obesity in the United States, 2011-2012.” *JAMA : The Journal of the American Medical Association* 311 (8): 806–14. doi:10.1001/jama.2014.732.

Ogden, Cynthia L, Margaret D Carroll, Lester R Curtin, Margaret a McDowell, Carolyn J Tabak, and Katherine M Flegal. 2006. “Prevalence of Overweight and Obesity in the United States, 1999-2004.” *JAMA : The Journal of the American Medical Association* 295 (13): 1549–55. doi:10.1001/jama.295.13.1549.

Pollock, Gary. 2007. “Holistic Trajectories: A Study of Combined Employment, Housing and Family Careers by Using Multiple-Sequence Analysis.” *Journal of the Royal Statistical Society. Series A: Statistics in Society* 170 (1): 167–83. doi:10.1111/j.1467-985X.2006.00450.x.

Reilly, J. J., J. Kelly, and D. C. Wilson. 2010. “Accuracy of Simple Clinical and Epidemiological Definitions of Childhood Obesity: Systematic Review and Evidence Appraisal.” *Obesity Reviews*. doi:10.1111/j.1467-789X.2009.00709.x.

Richardson, Laura P., Robert Davis, Richie Poulton, Elizabeth McCauley, Terrie E. Moffitt, Avshalom Caspi, and Frederick Connell. 2003. “A Longitudinal Evaluation of Adolescent Depression and Adult Obesity.” *Archives of Pediatrics & Adolescent Medicine* 157 (8): 739. doi:10.1001/archpedi.157.8.739.

Rindfuss, Ronald R. 1991. “The Young Adult Years: Diversity, Structural Change, and Fertility.” *Demography* 28 (4). Springer-Verlag: 493–512. doi:10.2307/2061419.

Sabbath, Erika L., Iván Mejía-Guevara, Clemens Noelke, and Lisa F. Berkman. 2015. “The Long-Term Mortality Impact of Combined Job Strain and Family Circumstances: A Life Course Analysis of Working American Mothers.” *Social Science and Medicine* 146: 111–19. doi:10.1016/j.socscimed.2015.10.024.

Scharoun-Lee, M, J S Kaufman, B M Popkin, and P Gordon-Larsen. 2009. “Obesity, Race/Ethnicity and Life Course Socioeconomic Status across the Transition from Adolescence to Adulthood.” *Journal of Epidemiology and Community Health* 63 (2): 133–39. doi:10.1136/jech.2008.075721.

Scharoun-Lee, Melissa, Linda S. Adair, Jay S. Kaufman, and Penny Gordon-Larsen. 2009. “Obesity, Race/Ethnicity and the Multiple Dimensions of Socioeconomic Status during the Transition to Adulthood: A Factor Analysis Approach.” *Social Science and Medicine* 68 (4): 708–16. doi:10.1016/j.socscimed.2008.12.009.

Scharoun-Lee, Melissa, Penny Gordon-Larsen, Linda S. Adair, Barry M. Popkin, Jay S. Kaufman, and Chirayath M. Suchindran. 2011. "Intergenerational Profiles of Socioeconomic (Dis)Advantage and Obesity During the Transition to Adulthood." *Demography* 48 (2): 625–51. doi:10.1007/s13524-011-0024-5.

Schmeer, Kammi K. 2012. "Family Structure and Obesity in Early Childhood." *Social Science Research* 41 (4): 820–32. doi:10.1016/j.ssresearch.2012.01.007.

Schoon, Ingrid. 2010. "Becoming Adult: The Persisting Importance of Class and Gender." *Gender Inequalities in the 21st Century New Barriers and Continuing Constraints*, 22–39.

Shanahan, Michael J. 2000. "Pathways to Adulthood in Changing Societies: Variability and Mechanisms in Life Course Perspective." *Annual Review of Sociology* 26 (1): 667–92. doi:10.1146/annurev.soc.26.1.667.

Singh-Manoux, Archana, Jane E. Ferrie, Tarani Chandola, and Michael Marmot. 2004. "Socioeconomic Trajectories across the Life Course and Health Outcomes in Midlife: Evidence for the Accumulation Hypothesis?" *International Journal of Epidemiology* 33 (5): 1072–79. doi:10.1093/ije/dyh224.

Singh, A. S., C. Mulder, J. W R Twisk, W. Van Mechelen, and M. J M Chinapaw. 2008. "Tracking of Childhood Overweight into Adulthood: A Systematic Review of the Literature." *Obesity Reviews*. doi:10.1111/j.1467-789X.2008.00475.x.

Sobal, Jeffery, and Karla L. Hanson. 2011. "Marital Status, Marital History, Body Weight, and Obesity." *Marriage & Family Review* 47 (7): 474–504. doi:10.1080/01494929.2011.620934.

Studer, Matthias, and Gilbert Ritschard. 2014. "A Comparative Review of Sequence Dissimilarity Measures (Forthcoming LIVES Working Paper)." *Lives* Forthcomin: 1–45.

Teachman, Jay. 2016. "Body Weight, Marital Status, and Changes in Marital Status." *Journal*

of Family Issues 37 (1): 74–96. doi:10.1177/0192513X13508404.

The, Natalie S, and Penny Gordon-Larsen. 2009. "Entry into Romantic Partnership Is Associated with Obesity." *Obesity (Silver Spring, Md.)* 17 (7): 1441–47. doi:10.1038/oby.2009.97.

van Steenbergen, Elianne F., and Naomi Ellemers. 2009. "Is Managing the Work-Family Interface Worthwhile? Benefits for Employee Health and Performance." *Journal of Organizational Behavior* 30 (5): 617–42. doi:10.1002/job.569.

Walsemann, K. M., A. T. Geronimus, and G. C. Gee. 2008. "Accumulating Disadvantage Over the Life Course: Evidence From a Longitudinal Study Investigating the Relationship Between Educational Advantage in Youth and Health in Middle Age." *Research on Aging* 30 (2): 169–99. doi:10.1177/0164027507311149.

Wells, Nancy M., Gary W. Evans, Anna Beavis, and Anthony D. Ong. 2010. "Early Childhood Poverty, Cumulative Risk Exposure, and Body Mass Index Trajectories through Young Adulthood." *American Journal of Public Health* 100 (12): 2507–12. doi:10.2105/AJPH.2009.184291.

Wengreen, Heidi J, and Cara Moncur. 2009. "Change in Diet, Physical Activity, and Body Weight among Young-Adults during the Transition from High School to College." *Nutrition Journal* 8 (1): 32. doi:10.1186/1475-2891-8-32.

Whitaker, Robert C, Jeffrey A Wright, Margaret S Pepe, Kristy D Seidel, and William H Dietz. 1997. "Predicting Obesity in Young Adulthood From Childhood and Parental Obesity." *The New England Journal of Medicine* 337 (13): 869–73. doi:10.1056/NEJM199709253371301.

6. Conclusion and Discussion

In this dissertation, I postulated two main research questions: 1) How has the relation between social background and family formation developed over time? 2) What are the consequences for the individual on choosing a particular family formation trajectory? Although this dissertation does not provide definitive answers to both these questions, results from the studies in this dissertation provide new knowledge and insights for future research in the areas of demography, family sociology and life-course research, but particularly for research on the intergenerational transmission of (dis)advantage.

In answering these questions, I adopted a life-course perspective. Elder and colleagues describe five key features of the life-course perspective, i.e. linked lives, human agency, life-span development, socio-historical and geographical location and timing of lives (Elder 1994; Elder, Johnson, and Crosnoe 2003). Linked lives refer to the fact that life courses are not shaped in isolation, but rather that lives are for an important part influenced by key social relationships, e.g. with parents, partner, family, and friends. This dissertation has focused on the impact of parents. The second pillar of the life-course perspective is human agency, which acknowledges that humans to some extent shape their own lives within socio-economic constraints, based on their own preferences. It assumes that humans have some autonomy in their decision making. This links to the discussion to what extent family formation is the result of individual preferences or economic constraints, which is captured by the tension between the two central theories in this dissertation, the Second Demographic Transition and the Pattern of Disadvantage. Life-span development refers to the life course being an ongoing process, in which previous events in the life course have an impact on events to come. This links with the Cumulative Disadvantage perspective, in that differences in family formation patterns may

continue to have an impact on life outcomes and therefore create further disparities between people who have followed different types of family formation pathways. Fourth, the life-course perspective argues that socio-historical and geographical location of where people grow up has an impact on how people lead their lives. In this dissertation I have examined whether the link between social background and family formation has changed over time, by comparing different birth cohorts in their family formation patterns in relation to social background. Also, the influence of geographical context has been considered since the research covers multiple countries as the link between social background and family formation may be context dependent, but also the potential life outcomes of family formation choices. Finally, the timing of lives refers to when people experience certain transitions and how the timing of such events are related. This dissertation has paid particular attention to the timing of events and the interrelatedness of family and career events. Thus, the research of this thesis falls neatly within the life-course perspective. As I will discuss in this chapter, results from this study also show the value of the life-course perspective and the need for using such a framework in understanding the relationship between family background and family formation. First, the results of the four empirical studies included in this dissertation are summarized. Second, the implications of these results are discussed. Third, I point out some limitations of this research. Finally, I close with some suggestions for future research.

6.1 SUMMARY OF FINDINGS

The first two chapters focused on the first research question, i.e. how the relation between social background and family formation has developed over time. In Chapter 2 I examined to what extent the influence of parental education on union formation changes over time and

across the life course. More specifically, the study examined the influence of parental education on the timing of the first union, the timing of first marriage and the choice for either unmarried or married cohabitation as the first union among Dutch born between 1930 and 1990, using data from 8 different nationally representative surveys.

In line with previous research, I found that higher parental education is associated with later entry into cohabitation and particularly into marriage (Brons, Liefbroer, and Ganzeboom 2017; South 2001; Wiik 2009). I distinguished between the educational attainment of the mother and the father, finding that the impact of educational attainment of the mother on union formation is stronger. Overall, results were similar for male and female young adults. The only significant differences were that for women, entry into a first union is postponed more, the higher the father's education is, while for men entry into marriage is postponed more, the higher the mother's education is.

The most surprising result from Chapter 2 was that the influence of parental education on union formation remains rather stable across different birth cohorts. The only exception is for men for whom the influence of parental education on opting for cohabitation over marriage as a first union decreases over time. Thus, the influence of parental education remains important even among more recent birth cohorts. This finding was at odds with the central hypothesis, i.e. that the influence of parental education would decrease over time and previous research findings (South 2001; Wiik 2009). This result challenges the idea that societies such as the Netherlands have individualized to the extent that family no longer influences young adults' decision-making. Furthermore, this study examined to what extent national-level economic conditions impact the relationship between parental education and union formation, but it appears from the results that economic circumstances also have little impact on the relationship between parental education and union formation.

Another important result of Chapter 2 is that the influence of parental education decreases as young adults age. There is a strong impact of parental education mainly at young ages, in which highly educated parents appear to prevent their children from entering a union quickly. Furthermore, the influence of parental education on timing of first marriage decreases after someone enters a cohabiting union. This suggests that a cohabiting couple is less influenced by parents than a couple not (yet) living together. This result shows the importance of the life-course perspective, as it suggests a shift in influence from parents to the partner during young adulthood. In sum, the impact of parents is not constant, but is stronger at younger ages and the influence of parental education decreases when the young adult enters a cohabiting relationship.

Much research on union and family formation considers educational attainment as the most important socio-economic indicator. In fact, most of this research assumes that the influence of parental background is completely mediated through educational attainment of the child. In order to account for this intergenerational transmission of educational advantage, a respondent's own education was included in the model in order to investigate whether the impact of parental education on union formation extends beyond the intergenerational transmission of education. Interestingly, there remains an effect of parental education, even after including a respondent's own education in the model. In fact, there appears to be very little mediation as the coefficients only decrease slightly when own educational attainment is included in the model. This implies that other mechanisms, such as socialization with family values or imitation of parental family behavior may partially explain the link between parental background and family formation.

Chapter 3 expanded on the research in Chapter 2 in multiple ways. First, it examined the start of the family formation process, including both union formation and parenthood. It focused on family formation pathways as an outcome rather than on single outcomes, such as

cohabitation and marriage, thus viewing the family formation process from a holistic perspective. Second, it examined the influence of parental education on the family formation process in four distinct European countries, i.e. France, Sweden, Romania and Italy, using data from the first wave of the Generations and Gender Survey (GGS).

Competing Trajectories Analysis (CTA) (Studer et al. 2018) was used to assess when family formation trajectories start and who opts for which kind of family formation trajectory. The first step involved identifying what types of family formation pathways are present across the countries. I distinguished seven different types; *marriage and parenthood*, *slow marriage and parenthood* (which in many cases has unmarried cohabitation before marriage and parenthood), *cohabitation dissolution* (where one enters a cohabiting union, but this union dissolves), *marriage*, *single parent*, *cohabitation* and *cohabitation and parenthood*. The second step involved analyzing the cumulative predicted entry into each of these types with age for different birth cohort (1925-1944, 1945-1964, 1965-1994), parental education (low-middle-high) and country combinations.

For all countries in the oldest cohort marriage and parenthood was the dominant family formation pathway. In France and Sweden, this rapidly changed in the subsequent cohorts, in which people following the marriage and parenthood pathway became a minority. Instead, family pathways including cohabitation rather than marriage dominated the family formation picture in these countries in the youngest birth cohorts. The story in Italy and Romania was a bit different, as in these countries I observed less change in the type of family formation pathways that were followed, but much more in the timing of entry into these family formation pathways, with in particular children from highly educated parents delaying entry into family formation. In short, clear diffusion of new family formation pathways (all trajectories other than marriage quickly succeeded by children) was found in France and Sweden, but to a much lesser extent in Italy and Romania. Similar to Chapter 2, I expected that while family formation

patterns would change over time, the impact of parental education would decrease across birth cohorts. Following the SDT theory, differences between individuals with different levels of parental education could at first increase as the children of highly educated could be the frontrunners of family formation change. Later on, these new family formation behaviors could diffuse to all social strata leading to fewer differences between those with high and low educated parents. However, the results from this study did not corroborate this narrative. Support for the notion that children of higher educated parents are the first to enter new types of family formation pathways is found in France, but to lesser extent in Sweden, Italy and Romania. However, the result that runs most counter to the narrative of the SDT is that in the 1945-1964, but also the 1965-1994 birth cohort, differences between the parental education groups in all countries persisted. Generally, among children of higher to middle educated parents the chance is higher that they opt for a more reversible family formation trajectory, i.e. trajectories which start with cohabitation and in which childbearing is postponed (in France and Sweden) or postpone family formation altogether (in Italy and Romania). On the other hand, with the exception of Italy, children of low educated parents were more likely to follow pathways in which childbearing occurs earlier in the family trajectory and more often outside marriage.

One could even argue that in the time period covered by my data, family pathways of young adults with different socio-economic background have diverged, given that compared with the 1925-1944 cohort, in the 1945-1964 and the 1965-1994 birth cohorts there are more and stronger significant differences by socio-economic background in the rate of entry into different family formation trajectories. Thus, in line with Chapter 2, I found that not only in the Netherlands, but also in four other European countries (Sweden, France, Italy, Romania) there remains a clear impact of parental education that continues to divide individuals in the tendency to follow certain types of family formation pathways.

Chapters 4 and 5 focused on the second research question, i.e. what are the consequences for the individual on choosing a particular family formation trajectory? Both chapters studied the influence of the transition to adulthood in the United States, using the same panel data from the National Longitudinal Survey of Youth of 1997 (NLSY97). Separate career and family sequences were created for each respondent in order to allow more detail in both the career and family domain. Career states were defined in terms of educational enrollment and number of working hours, whereas family states were defined on the basis of living arrangement, relationship status and parenthood status. Sequences of states were then clustered into different groups. Finally, the NLSY97 contains multiple measures of family background, of which parental education, parental income, childhood family structure and race were included in the analyses in both chapters.

Chapter 4 added a life-course perspective to research regarding social stratification and the intergenerational transmission of advantage. This study examined more in detail how career and family pathways influence income of young adults. Another important innovation of this study was that it examines income trajectories between age 25 and 32 rather than income at a single point in time. This is important because income is very unstable in young adult years and thus income at one time point may not be an accurate representation of someone's financial situation (Cheng 2015). Furthermore, with income trajectories I could examine to what extent there is cumulative advantage (Cheng 2014; DiPrete and Eirich 2006), or in other words to what extent incomes diverge between individuals with different family backgrounds following different pathways to adulthood.

All the different family background characteristics were associated with differences in income trajectories. The strongest effects were found for the socio-economic indicators, i.e. parental education and income, with those with highest parental education and income

particularly having a stronger increase in income. However, childhood family structure and race also mattered. Individuals who were not raised in an intact family had lower incomes, particularly those raised by one biological and one step-parent. Regarding race, blacks had a significantly lower income development compared with whites. A striking finding was that family background continues to matter even when career and family pathways are included in the analysis. Family background did not only increase the likelihood of having a career and family pathway that was associated with a higher income trajectory, but family background had a (remaining) direct impact on the income trajectories of their children as well. This suggests that the impact of the parental home on income extends beyond the transmission of education and career.

The effects of the career and family pathways were stronger than those of family background. Regarding career pathways, women following a pathway that is typified by a long stay in a 4-year college education clearly diverged from the other groups, particularly from women who followed an intermittent employment type of career. Women whose career pathway contained attending 2-year college and/or working continuously more than 20 hours per week after high school formed an intermediate group in terms of income. The results for men were similar. In sum, those entering and staying in 4-year college education succeeded by full-time employment clearly had the highest income trajectory, those who had steady employment and/or attend 2-year college form a middle group, whereas those with no post-secondary education and little employment stability formed the bottom group. While most of these results were in line with previous research findings, this study demonstrated that already in late twenties to early thirties incomes are strongly diverging between those following different career pathways.

Family pathways, albeit to a lesser extent than career pathways, also had an impact on income trajectories. I observed divergence between men and women staying in the parental

home or entering non-marital parenthood on the one hand and those following the other types of family pathways on the other. While career and family pathways were associated, results from linear growth curve models indicated that family pathways have an impact on income net of the influence of career pathways. This was the case for both men and women. However, a difference between men and women was that men appear to benefit more in terms of income from early marriage than women, who benefit more from postponing marriage and parenthood altogether. This suggests that there still exists a marriage premium particularly for men (Ahituv and Lerman 2007; Cheng 2016; de Linde Leonard and Stanley 2015).

In Chapter 5, the combined influence of career and family pathways on obesity risk in young adulthood was examined. Rather than examining the impact of career and family pathways separately, I used Multichannel Sequence Analysis (Gauthier et al. 2010; Pollock 2007), in order to examine the combined influence of family and career on obesity risk in young adulthood. An important note here is that obesity status at age 17 was included as a control variable. Thus, the study took into account differences prior to the transition to adulthood that may have led to an increased risk of obesity. The focus thus squarely was on becoming obese during young adulthood.

While in Chapter 4 results were relatively similar for men and women, in this study a different picture emerged. Women following 4-year college while spending most of the time living single had a much lower risk of developing obesity than women that attained less education and stay in the parental home or became single parents. For men, early marriage appeared to be a major risk factor for obesity. It is surprising, however, that those who enter marriage and parenthood early on did not have a higher risk of developing obesity compared with those who only marry. Thus, it is not care burden which increases the risk of obesity, but some other feature of this group of men that make them more likely to become obese. Moreover, many of the men in the early marriage cluster did attend 4-year college, suggesting

that for men who marry early, college education does not serve as a protective factor. The results showed that influences of career and family on obesity cannot be singled out, but that role combinations matter. Finally, Chapter 5 also demonstrated that the same career and family pathways have different impacts for men and women and that the transition to adulthood has to be studied from a gender perspective when it comes to its influence on obesity.

Family background variables showed little remaining impact on the risk of obesity in young adulthood. This suggests that while family background factors may increase the likelihood of developing obesity during childhood, the risk of developing obesity for the first time in young adulthood has little relation to characteristics of the parental home. The only significant family background indicator was parental education, with those with higher parental education having a lower risk of developing obesity. This suggests that perhaps knowledge of health risks associated with obesity among people in one's network (which may be better known among educated people) decreases the risk of obesity.

6.2 DISCUSSION OF FINDINGS

6.2.1 The lasting influence of parental socio-economic status on family formation

Results in Chapters 2 and 3 show that family formation behavior is still related to the educational level of the parents. Chapter 2 shows that union formation behavior continues to be stratified in terms of socio-economic background. Chapter 3 even suggests that the differences between social classes in terms of family pathways may have become stronger. While the results appear to suggest a divergence in family behavior between countries, the role

of parental education appears to work in a similar way across countries. As found in Chapters 2 and 3, serious commitments such as marriage and childbearing are postponed by those from higher SES backgrounds compared with those from low SES backgrounds. In Western and Northern European countries children of highly educated parents usually start cohabiting with a partner, often appearing to test the relationship for some years before moving to marriage and parenthood. In Southern and Eastern European countries, children of highly educated parents strongly postpone family formation. Results of Chapter 2 also do not suggest a strong impact of macro-economic factors. However, the measurement used is only a crude indicator of economic conditions. Perhaps a more specific indicator such as youth unemployment would have revealed a moderating effect on the link between parental education and union formation. Unfortunately, this was not possible as good macro indicators do not reach back far enough in time. Furthermore, it appears that at least in the Dutch context, the influence of parental education does not only run through the educational attainment of the child. This is in line with recent comparative studies indicating that in some countries parental education continues to have an impact on family formation decisions whereas in other countries this is not the case (Anne Brons et al. 2017; Koops et al. 2017).

The narrative behind the SDT theory is that societies individualize as a result of increasing welfare and that, consequently, individuals would make decisions regarding family formation more independently. This leads to the expectation of a decreasing influence of social background on family formation, but results show the opposite, as the influence of social background persists and appears even to increase rather than to decrease. That is not to say that the SDT theory is of no merit. I observe rapid changes in family formation behavior and there is clear diffusion of family behavior in all countries and among all individuals of different social origin. I also find, particularly in France, that the children of high educated parents were at first more likely to diverge from the traditional marriage and parenthood pattern. However,

SDT theory requires amendment when it comes to diffusion as it is clear that differences across social groups remain and appear to have even increased since the SDT. Chapter 3 reveals that social inequality in family formation pathways is relatively limited among people born before World War II. Those born after the war are more diverse in their pathways. Instead of viewing cultural change as an instigator of increased family formation diversity among all, it should be considered as an avenue towards new social inequality. The SDT shapes the opportunity for new inequalities described by the literature on Diverging Destinies and Pattern of Disadvantage. While the results in this dissertation suggest that the ties within the nuclear family may still be strong, it could be that individualization mainly weakened the links between extended family members and between members of social institutions such as the church. Therefore, young women facing an unintended pregnancy may have to rely more on their own in handling this situation. During the early 20th century, when the church had more influence on family behavior, it would be more likely that a (shotgun) marriage would be arranged. The stigma on childbearing outside of marriage in the past perhaps did make biological fathers more inclined to take on a parenting role and provide income for the family, whereas nowadays it may be easier to avoid parental responsibilities, leaving perhaps already disadvantaged mothers behind to deal with parenthood. Thus, while individualization has provided people more freedom to choose a family form that mostly fits with their own needs and desires, this may have been more beneficial for those with more resources. Lesthaeghe himself quotes Kathleen Kiernan by stating that "the SDT is not kind for all" (Lesthaeghe 2010), to which one may add "particularly for those from disadvantaged background".

One explanation as to why children of high SES background start union formation, but particularly parenthood later, is that high SES parents want their children to focus on their career first. If so, early family formation will be viewed as a "distraction" from this goal, that should therefore be avoided. As found in Chapter 2, the influence of parental education is

particularly strong in the early stages of young adulthood and fades as young adults age. Another explanation could be that children from high educated parents are more careful with tying the knot, as in their parents' generation it were the highly educated that were more prone to divorce. Studies on the intergenerational transmission of divorce show a strong link between divorce proneness of the parents and their children. Nowadays, as described in the Diverging Destinies literature, it is the low educated that are more prone to divorce. The question is whether the lower social classes will be successful in lowering divorce rates, having been more likely to have experienced the negative consequences of divorce and not wishing to pass this on to their children. However, for the lower classes it may be a different story compared with the higher classes in the past, as the lower social classes may be unable to prevent unstable family situations in terms of finances and relationships. In the United States research has demonstrated that marriage has become increasingly an institution for the privileged in the society (Wilcox, Wolfinger, and Stokes 2015). With the exception of Southern European countries, in which marriage is still an important pillar in family formation, this trend may be observed in Europe as well. In sum, results from this dissertation indicate that social background will remain and perhaps will even become a more important differentiating factor in family formation differences within Western societies. In the next section, I will discuss the role of family formation in the intergenerational transmission of (dis)advantage.

6.2.2 The role of family formation in the intergenerational transmission of (dis)advantage

This dissertation has not only examined how family background relates to family formation, but also how both family background and family formation impact indicators of financial

security and health, i.e. personal income and obesity in young adulthood. This way I did not only investigate whether those from disadvantaged background are more likely to become disadvantaged themselves, but also what role family formation plays in this process. This dissertation therefore also informs the debate on the process of intergenerational transmission of (dis)advantage. Previous studies on the intergenerational transmission of advantage have focused on transmission through education (e.g. Blau and Duncan 1967; Breen and Jonsson 2005; Haveman, Robert and Wolfe 1995). This dissertation brings family into the equation both during childhood by examining the impact of childhood family structure, but also in the transition to adulthood by examining the impact of one's own family pathways on income and obesity.

The findings regarding the impact of parental social background on income trajectories are in line with the Diverging Destinies theory. McLanahan (2004) stated that as parental divorce would increasingly occur among those with lower education, the destinies of children from high and low socio-economic background would diverge. This is indeed clearly visible in the results of Chapter 4. Children from intact highly educated and wealthy homes clearly diverge from those from low educated, poor and broken families. While the impact of parental education and income appear to be a bit larger than that of childhood family structure and racial background, all these disadvantages stack up. That is, if for instance someone is raised by low educated parents who also divorced during his or her childhood, their projected income is lower than for someone who was raised by low educated parents who stayed together.

While these results show stark differences in income attainment in young adulthood on the basis of social background, these findings are not very surprising as they are in line with previous research demonstrating the large impact of family background on life chances (McLanahan and Jacobsen 2015; Putnam 2015). However, in Chapter 4, I also find that even when accounting for someone's career and family life-course pathways, social background

continues to influence income attainment of the children, albeit much less compared with a model which does not incorporate individual life courses. This finding clearly demonstrates that the United States is far from the meritocratic ideal as portrayed by the American Dream (Putnam 2015). Not only do children of disadvantaged background have a lower likelihood of following career and family pathways that would lead them to attain higher income, even if they follow the career and family pathways that are associated with the highest income attainment, they still earn less compared with those from advantaged backgrounds. That is not to say that children brought up in disadvantaged circumstances can never become rich, but that – on average - as long as disadvantaged youths attend and complete university education and postpone family formation until late twenties they earn less income than their advantaged peers following the same pathways. The results therefore are in line with the Cumulative Disadvantage perspective, that is, those that start with an advantage accumulate more advantage as time goes by, whereas for those starting from a disadvantaged position it is difficult to catch up with someone from an advantaged position.

One can speculate on what this remaining impact of social background entails. It could be that children of advantaged backgrounds possess cultural capital as described by Bourdieu (Bourdieu and Passeron 1990) that helps them in making important career connections and being more successful in job interviews. Perhaps the social network of parents helps in acquiring jobs, or they are more able to help to finance a move to another city for a job. Another explanation could be that while these career and family sequences capture much information, perhaps certain information that is important is not captured by these sequences. For instance, perhaps children of advantaged background compared with those of disadvantaged background are more likely to pick college majors that are associated with higher income (Luijkx and van de Werfhorst 2010). While this research was unable to test specific reasons by which social

background influences income attainment, this dissertation has shown that the influence of parents extends beyond setting their children on the right life path.

Chapter 4 does not only demonstrate that family structure in childhood matters for income attainment, but that the family decisions that young adults make themselves in the transition to adulthood matter as well. The fact that these family formation pathways have an effect on income next to career pathways, indicates that the intergenerational transmission of disadvantage does not only run through educational attainment. Generally, those who become parents outside of marriage have lower incomes in young adulthood. However, prolonging the stay in the parental home is also associated with lower income, which may partly be because these youths are unable to live independently, due to physical and/or mental problems. It appears that a family pathway in which someone leaves the parental home in his or her late teens or early twenties, but postpones serious relationships until after mid-twenties is associated with higher income, particularly for women. It therefore seems that experiencing single living before entering a cohabiting relationship or parenthood may be important for one's development. This finding relates well to the criticism on the Emerging Adulthood theory. Arnett (2000) describes that in the United States adolescence is no longer immediately followed by adulthood, but that there is an "in-between" life phase, which he describes as Emerging Adulthood in which adults explore their identities and refrain from strong life commitments. Critics of the theory, however, claim that this life phase is not universal among American youths, and that it is mainly privileged youths who experience this life phase (Berzin and De Marco 2010; Mitchell and Syed 2015). It may very well be that youths following the pathway described above experience this Emerging Adulthood phase, which contributes to the successful development of their work careers.

It is important, though, to place the results of Chapter 4 in context. The United States is described as a liberal welfare state, in which government expenditures on benefits for

disadvantaged groups are relatively low compared with other Western countries, especially social-democratic regimes (Esping-Andersen 1990). This means that in the United States youths may have to rely more on the resources of their parents than in other Western countries, therefore increasing the influence of social background on life courses and outcomes. One may argue that in social-democratic regimes both the link between social background and family formation and the link between family formation and life outcomes are weaker. On the other hand, there are indications from other findings in this dissertation that the influence of social background may also be strong in more social-democratic countries. Chapter 3 demonstrates that in Sweden and France in the youngest birth cohort children with low educated parents were more likely to have a family pathway including parenthood outside of marriage, while those with high educated parents would enter family formation choosing to cohabit first for a couple of years. In Chapter 2, I find that parental education influences relationship behavior beyond the intergenerational transmission of education. Thus, it is likely that in countries with more welfare expenditures, intergenerational transmission through family formation still is important.

Disadvantage is not only expressed in socio-economic indicators such as income, but also in health. In Chapter 5, I therefore examine whether career and family pathways also have an influence on obesity, a health condition linked with many health risks (Kopelman 2007). The United States is a particular context when it comes to obesity, as about a third of the population suffers from obesity (Ogden et al. 2014). However, it is unclear whether this high prevalence of obesity affects the link between social disadvantage and obesity risk. Previous research has indicated that there is a strong link between growing up in disadvantaged circumstances and childhood obesity (Schmeer 2012; Wells et al. 2010; Whitaker et al. 1997). In examining the influence of career and family pathways on obesity risk, I therefore account for selection, by taking into account whether someone was already obese before the transition

to adulthood. Results from this study show that the combination of career and family pathways matters when it comes to obesity risk. In line with Chapter 4, attending 4-year college and living independently during one's twenties are related to a lower obesity risk. However, not all the results are in line with Chapter 4 in terms of which pathways are related to better outcomes. For men, there is a clear premium on income for marrying relatively early and having children later, but this same pathway is associated with a higher risk of developing obesity. Thus, certain life-course pathways are associated with advantage in one respect, but may be associated with disadvantage in another, demonstrating that one has to be careful in categorizing pathways in terms of advantage and disadvantage. Furthermore, family background operates somewhat differently when it comes to obesity risk. In Chapter 5 I find that parental education has an impact on developing obesity during young adulthood next to career and family pathways. When it comes to obesity, having highly educated parents may raise someone's awareness of the importance of a healthy diet and physical exercise. In terms of racial background, I find that blacks have a higher risk of obesity than whites. Whether this is due to life-style differences or genetic differences remains unclear. This does not imply that other social background indicators, such as parental income and childhood family structure, have no relation with obesity, but it appears that the impact of these indicators fades after youths enter the transition to adulthood, whereas parental education and race appear to have a more lasting influence.

While the results of family background and career and family pathways on obesity may be a bit different compared with income as an outcome, the results of both studies show that in the process of intergenerational transmission of (dis)advantage family pathways play an important role.

6.2.3 The importance of life courses and how to capture them

This dissertation demonstrates that it is important to capture family formation as a process. In Chapter 2, I only focus on part of the family formation process, i.e. union formation. In this chapter I use event-history analysis, a method widely used in demography and family sociology, distinguishing between marriage and unmarried cohabitation. However, one could argue that there is more variation within both these destinations. For instance, a cohabiting relationship which is quickly succeeded by parenthood is a different type of cohabitation than for instance a cohabitating relationship in which a marriage follows a couple of years later. This is also stressed by literature on the meaning of cohabitation (Hiekel et al. 2014). In general, it has been argued that the transition to adulthood and family formation have to be analyzed more holistically as the sequence of events provides meaning to the process of a whole, that cannot be captured if one studies all the events separately (Billari 2001). This approach is followed in Chapter 3, yet it still uses event-history analysis as well. The Competing Trajectories (CTA) procedure allowed me to analyze the start of family formation and the pathways following the first family formation event. Instead of having competing destinations such as marriage, cohabitation and single parenthood, CTA provided clusters of more detailed family formation pathways. With respect to sequence analysis, CTA provides more clear clustering, because family formation clusters are often different on the basis of the timing of the first event (Studer et al 2018). Thus, by having sequences start at the timing of the first family event, the cluster solution of Chapter 3 provides clear homogeneous clusters with internal consistency (Studer and Ritschard 2016). Chapter 3 also demonstrates that across multiple countries a clear set of different types of family formation pathways could be identified, which supports the notion that this cluster solution could be the basis for a new typology on family formation pathways.

Sequence analysis (SA) is most often used to analyze family formation trajectories as an outcome. However, in this dissertation SA is also used to create independent variables capturing the impact of career and family pathways on income trajectories and obesity risk. In Chapter 4, instead of using dichotomous variables indicating the membership of a particular cluster, I adopted a strategy in which I created variables indicating the relative distance to the most typical sequence of each cluster, the medoid. These Grade of Membership (GoM) variables, more optimally use the information provided by the distance matrix (on which the clustering is based). Instead of treating someone's sequence as belonging to one cluster, this allowed a more nuanced approach in which someone's sequence is compared with the most typical sequences of all clusters. Additional analyses revealed that models using the GoM variables performed better in terms of model fit compared with models in which cluster grouping variables are used. Furthermore, compared with a model with more simple indicators, such as educational level and duration of unemployment as career indicators and teenage parenthood and whether someone has left the parental home as family formation indicators (all indicators on situation before age 25, see Appendix D in Chapter 4), the GoM approach also proved to provide a better model fit. Therefore, the GoM method shows that life-course trajectories contain information that is valuable in determining differences in income that cannot be captured by simple indicators. A potential drawback of the GoM approach is that interpretation of results of GoM variables is a bit less straightforward, since one has to interpret the results in relative terms (the extent to which one pathway is similar to a specific cluster), whereas with the usual cluster variable approach it is simply being part of a cluster or not that matters. More simple indicators or cluster variables therefore are easier to interpret, but at the cost of not capturing the impact of more subtle differences in life courses.

The decision on the number of GoM variables to include in the model in Chapter 4 is based on the number of GoM variables that provide the highest model fit, meaning that the

cluster solution to draw the GoM variables from is based on what explains most variance in terms of income trajectories. That is, multiple analyses are run, which only differ in the number of GoM variables included. From these different analyses, the one with the highest model fit (in terms of AIC) is picked and the coefficients from this model were interpreted. This approach differs from the usual one in sequence analysis, in which the number of clusters are chosen on the basis of creating optimal internal consistency within clusters. However, internal consistency of clusters may not be meaningful when examining the relationship between life courses and life-course outcomes. For instance, an additional cluster may be meaningful from an internal consistency perspective, but if this extra cluster does not explain more variation in the outcome variable, it is not useful. My approach of using the optimal number of GoM variables is better suited to discover which distinctions matter. On the other hand, this approach is more data driven and less theoretically informed. In this study I choose to create GoM variables that were linked to observed sequences in the data, but one could also relate sequences to theoretically informed pathways.

In Chapter 5, rather than the GoM method, I used the cluster variable approach. However, rather than examining the impact of career and family pathways separately, I examined the influence of combined career and family pathways. Family and career are intertwined and mutually influence one another, which is my main reason to combine career and family pathways into one variable. In Chapter 5 I used a particular form of sequence analysis, called Multichannel Sequence Analysis, in which rather than having clusters based on one sequence, clusters are based on two or more types of sequences. The results from Chapter 5 show the value of this approach as it reveals that certain combinations of career and family pathways matter. On the other hand, the clustering solutions of the Multichannel Sequence Analysis show less internal consistency, which means that there also may be quite some variation within the clusters in terms of obesity risk.

Regarding the meaning of life courses, particularly Chapter 5 revealed that life courses can have a different impact for different groups of people. Chapter 5 showed that for men certain career-family pathways were linked with a higher obesity risk while not for women and vice versa. This probably has to do with the roles that men and women adopt during family formation. A clear example is single motherhood. The daily schedule of the biological father has fewer changes than that of the mother, as the mother usually ends up taking care of the child, while the biological father can potentially retract from any responsibilities for the child and live a relatively unaltered life-style. Other subgroup distinctions in the meaning of life courses may also be present. Ethnic or religious background may provide specific meaning to a life course. For instance, unmarried cohabitation may be more stressful for someone of a religious background compared to someone from a non-religious background as a result of stigma by their religious community. It may therefore be worthwhile examining the impact of the same career and family sequences across groups if one believes these same pathways can lead to different outcomes for different groups as they may contain different meanings.

All in all, this dissertation has demonstrated that sequence analysis is not only a tool for description, but can also be used in more explanatory analyses. The transition to adulthood is a complex life phase in which one transition influences the timing and likelihood of other transitions across domains such as career and family. Therefore, proving causal relationships will always prove to be difficult given the endogenous nature of the variables that capture family formation or the transition to adulthood. Thus, pathways should be considered as variables that link social background with life-course outcomes and can perhaps as such be incorporated in models within a more causal framework.

Improving methods on capturing the life course better is an important aim for future research to counter the current limitations of life-course methods. In the next section, I will discuss some limitations of this dissertation.

6.3 LIMITATIONS

Although this dissertation has provided pertinent answers to my central research questions, it is not without limitations. Some of the limitations result from the topic being so broad that one cannot simply cover every aspect, whereas other limitations result from limitations in the data used in this study. When reexamining the theoretical model presented in Chapter 1, some parts of the theoretical model have not been fully covered by this dissertation. This is particularly true for the question how the historical and country context impact the relationship between family formation pathways and wellbeing. In this dissertation I only examined two wellbeing-related outcomes, income and obesity, in the contemporary United States. However, as mentioned above, the question is to what extent these results can be generalized to other social and historical contexts. In terms of the link between family background and family formation, Chapter 2 and 3 together examined changes in the link between parental education and family formation over time in five different European countries. However, this research could also be extended to more countries. Another aspect of the theoretical model that could have been examined in more detail, was the mediating role of family formation in the influence of family background on wellbeing. In Chapter 4, I find that even when career and family pathways are included in a model predicting income trajectories, family background factors still have a remaining effect on these income trajectories. However, in the analysis I do not provide an answer as to how much of the influence of family background on personal income is mediated through family and career life-course pathways. The same applies to Chapter 5 where I examine obesity risk, but do not examine the potential mediating role of career-family pathways. In order to provide answers to these questions, one would require mediation analysis (MacKinnon and Valente 2014).

This dissertation revealed how family background and family formation are associated with wellbeing. However, this thesis has not unraveled the exact mechanisms by which family background influences family formation and subsequent wellbeing. An important finding of Chapter 2 is that the intergenerational transmission of education only partly explains differences in family formation pathways. Yet, it is unclear exactly what other mechanisms, like differences in preferences or differences in actual or perceived constraints, are at play. Thus, the question around agency has remained partially unanswered. Moreover, this research has not been able to provide statistical tests on reasons why certain family formation pathways would be linked with (dis)advantage. However, what this dissertation has demonstrated is the multifaceted nature in which both family background and family formation are linked with one another and with subsequent wellbeing.

Possibly the link between family formation and wellbeing in Chapters 4 and 5 could have been more clear if respondents would have been followed until later in adulthood. Many of the respondents will still experience many transitions and being able to compare outcomes at for instance age 40 would have provided a more complete picture of where individuals end up on the social ladder or in terms of health status. On the other hand, results are easily outdated when one follows individuals for a longer part of their life course as the results of these studies may have little bearing on contemporary youths who may face different challenges compared with previous generations. Furthermore, the results from this study demonstrate that groups of young adults are already diverging in young adulthood, which is an interesting result in itself. In Chapters 2 and 3 I was able to capture and compare family formation pathways, but was unable to link them with wellbeing provided the cross-sectional structure of the data. Furthermore, the data of these chapters consisted of retrospective life histories which are considered less reliable than panel data due to recall bias. Problems include inaccurate dates of

cohabitation histories and particularly fathers not reporting offspring, which could bias results (Hayford and Morgan 2008; Kreyenfeld and Bastin 2016).

Finally, in this thesis parents have been considered the main influencers in young adults' lives, but naturally there are other actors who influence young adults, such as members of their social networks or neighborhood and later on the partner. For instance, Christakis and Fowler (2013) show the importance of the social network when it comes to obesity risk. Future research could investigate other actors that influence respondents in their family formation decisions next to parents. In the next section, I reflect more broadly on what future researchers in this area should consider.

6.4 FUTURE RESEARCH

To understand more clearly the impact that family background and family formation have on later life (dis)advantage, the most obvious path for future research is to investigate the relationships of family background and family formation with a more diverse set of outcomes. In Chapter 4, I investigated how family and career pathways during the transition to adulthood were related to personal income. However, there are other indicators of socio-economic status, such as household income, wealth and job status that could indicate different types of socio-economic (dis)advantage. In Chapter 5 I examined obesity as a health-related outcome, but naturally there are many other health outcomes that could be related with career-family pathways in young adulthood. One could think of the risk of obtaining certain diseases or physical disabilities. Furthermore, mental health conditions such as depression and anxiety may be more strongly related to some family formation pathways than to others. Also, health behaviors, such as smoking, drinking and drugs use, could be linked with family formation.

Finally, one could relate family background and family formation to other types of outcomes, such as life satisfaction, civic participation or criminal activity.

In this dissertation I analyzed different indicators of family background covering different aspects. However, these measures did not capture the dynamic nature of family background. This dissertation applied the life-course perspective to the transition to adulthood, but the life-course perspective could also be more fully applied on family background. There are potentially important transitions during childhood, such as moving households, or experiencing a divorce or parental unemployment that can have implications for the remainder of someone's life course (Aquilino 1996; Feldhaus, Boehnke, and Krohn 2015). Furthermore, in this dissertation family background was mainly related to household conditions when respondents were teenagers, but future research could investigate the impact of fluctuations of family background indicators during childhood and adolescence on family formation behavior. Finally, one could have different indicators relating to early childhood, such as time spent with children (Kalil, Ryan, and Corey 2012) that could be incorporated in future research.

Ideally, future research on family formation and the intergenerational transmission of (dis)advantage would incorporate all links of the theoretical model presented in Chapter 1 in one research design. Thus, one would conduct research such as in Chapter 4 and 5, but also investigate the linkage between social background and family formation, such as in Chapter 2 and 3. Another important aspect of the model is that the strength of the linkages between family background, family formation and wellbeing may depend on the context. Therefore, future research should examine how these relationships differ between countries (or even regions within countries) and over time. In examining cross-national differences one can focus on the influence of different types of institutional or cultural differences, while in investigating temporal changes one can assess the impact of key historical events, such as the credit crisis. Finally, family formation pathways should be considered next to career pathways as an

important mediator of the influence of family background on (dis)advantage. Thus, a comprehensive study would fully embrace the life-course perspective as described above. It would bring together life-course research with research on the intergenerational transmission of advantage, providing more detailed answers to how life courses develop and how they are related to (dis)advantage. For instance, methods such as Structural Equation Modeling (Muthén and Muthén 2015) could be used to reveal both direct and mediating relationships. Sequence analysis could be used to create more detailed variables regarding career and family sequences, such as in Chapter 4.

Another important challenge for future research is collecting the 'right' data. The life-course approach has not only important implications for the way we conduct analysis, but also for the way we collect data. As mentioned above, it would be best to track individuals from early childhood until adulthood in order to capture all key events in people's life courses that may or may not facilitate the intergenerational transmission of (dis)advantage. An example of this type of design is the Millennium Cohort Study in the UK. It would be ideal if all countries would collect data such as this, but for now, comparative datasets such as the Generations and Gender Survey (GGS), the European Social Survey (ESS) and the Survey of Health, Ageing and Retirement in Europe (SHARE) may be relatively decent alternatives, especially since they are moving towards panel data collection. Furthermore, efforts could be made to harmonize existing cohort studies in European and North American countries. The requirement in terms of the number of countries to be included would not necessarily have to be high, as long as distinct Western countries, for instance in terms of their welfare regime (Esping-Andersen 1990), would be included. In many North American and European countries, family panel study infrastructures are maturing, increasing the opportunity that in the near future a comparative harmonized life-course dataset could be constructed. Harmonizing data is an

important first step, but creating a central hub to coordinate the collection of cohort study data would be even better.

Another type of data that is out there are big data gathered by governments, but also by social media, such as Google, Facebook and LinkedIn. While governments have important information on individuals relevant for studying family formation, it may be difficult to use register data from multiple countries given their restricted access. Social media may also be hesitant to share detailed information, but if one would be granted access to more detailed anonymized information one could have respondents from multiple countries. While these data may have their own unique problems, they could still be a welcome addition in the study of family formation and family change (Cesare et al. 2018).

If these types of high-quality detailed data would become available, one could unravel the now still hidden mechanisms by which family background and family formation contribute to the intergenerational transmission of disadvantage and the accumulation of life-course (dis)advantages. Global economic, social, technological and environmental developments may create new opportunities, but also pose new challenges to the current generation and the ones to come. A combination of improving data infrastructures, analytical life-course methods and the computational capacity of these methods to handle increasingly large and complex datasets can form a good basis to monitor the relationship between family background, family formation and subsequent wellbeing. This would create fascinating new opportunities to fully unravel the role that family plays in determining people's wellbeing in life.

REFERENCES

Ahituv, Avner and Robert I. Lerman. 2007. "How Do Marital Status, Work Effort, and Wage Rates Interact?" *Demography* 44(3):623–47.

Aquilino, W. S. 1996. "The Life Course of Children Born to Unmarried Mothers: Childhood

Living Arrangements and Young Adult Outcomes." *Journal of Marriage and Family*.

Arnett, Jeffrey Jensen. 2000. "Emerging Adulthood: A Theory of Development from the Late Teens through the Twenties." *American Psychologist* 55(5):469–80.

Berzin, S. C. and a. C. De Marco. 2010. "Understanding the Impact of Poverty on Critical Events in Emerging Adulthood." *Youth & Society* 42(2):278–300.

Billari, Francesco C. 2001. "Sequence Analysis in Demographic Research." *Canadian Studies in Population* 28(2):439–58.

Blau, Peter M. and Otis Dudley Duncan. 1967. "The American Occupational Structure."

Bourdieu, Pierre and Jean-Claude Passeron. 1990. *Reproduction in Education, Society and Culture*. Sage.

Breen, Richard and Jan O. Jonsson. 2005. "Inequality of Opportunity in Comparative Perspective: Recent Research on Educational Attainment and Social Mobility." *Annual Review of Sociology*.

Brons, Anne M. D., Aart C. Liefbroer, and Harry 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):809–22.

Cesare, Nina, Hedwig Lee, Tyler McCormick, Emma Spiro, and Emilio Zagheni. 2018. "Promises and Pitfalls of Using Digital Traces for Demographic Research." *Demography* 55(5):1979–99.

Cheng, Siwei. 2014. "A Life Course Trajectory Framework for Understanding the Intracohort Pattern of Wage Inequality." *American Journal of Sociology* 120(3):633–700.

Cheng, Siwei. 2015. "Unequal Origins, Unequal Trajectories: Social Stratification over the Life Course."

Cheng, Siwei. 2016. "The Accumulation of (Dis)Advantage: The Intersection of Gender and

Race in the Long-Term Wage Effect of Marriage." *American Sociological Review* 81(1):29–56.

Christakis, Nicholas A. and James H. Fowler. 2013. "Social Contagion Theory: Examining Dynamic Social Networks and Human Behavior." *Statistics in medicine* 32(4):556–77.

DiPrete, Thomas A. and Gregory M. Eirich. 2006. "Cumulative Advantage as a Mechanism for Inequality: A Review of Theoretical and Empirical Developments." *Annual review of sociology* 271–97.

Elder, Glen H. 1994. "Time, Human Agency, and Social Change: Perspectives on the Life Course." *Social Psychology Quarterly* 57(1):4–15.

Elder, Glen H., Monica Kirkpatrick Johnson, and Robert Crosnoe. 2003. "The Emergence and Development of Life Course Theory." Pp. 3–19 in *Handbook of the Life Course*.

Esping-Andersen, Gøsta. 1990. "The Three Worlds of Welfare Capitalism." Pp. 1–34 in *The three worlds of welfare capitalism*.

Feldhaus, Michael, Mandy Boehnke, and Franziska Krohn. 2015. "Childhood Family Transitions and Their Impact on Family Living Arrangements in Later Life." *Zeitschrift für Familienforschung-Journal of Family Research* 27.

Gauthier, Jacques-Antoine, Eric D. Widmer, Philipp Bucher, and Cédric Notredame. 2010. "Multichannel Sequence Analysis Applied to Social Science Data." *Sociological Methodology* 40(1):1–38.

Haveman, Robert and Barbara Wolfe. 1995. "The Determinants of Children ' s Attainments : Findings and Review of Methods." *Journal of Economic Literature*.

Hayford, Sarah R. and S. Philip Morgan. 2008. "The Quality of Retrospective Data on Cohabitation." *Demography*.

Hiekel, Nicole, Aart C. Liefbroer, and Anne-Rigt Poortman. 2014. "Understanding Diversity in the Meaning of Cohabitation across Europe." *European Journal of Population*

30(4):391–410.

Kalil, Ariel, Rebecca Ryan, and Michael Corey. 2012. “Diverging Destinies: Maternal Education and the Developmental Gradient in Time with Children.” *Demography* 49(4):1361–83.

Koops, Judith C., Aart C. Liefbroer, and Anne 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):533–57.

Kopelman, P. 2007. “Health Risks Associated with Overweight and Obesity.” *Obesity reviews : an official journal of the International Association for the Study of Obesity* 8 Suppl 1(11):13–17.

Kreyenfeld, Michaela and Sonja Bastin. 2016. “Reliability of Union Histories in Social Science Surveys: Blurred Memory, Deliberate Misreporting, or True Tales?” *Advances in Life Course Research*.

Lesthaeghe, Ron. 2010. “The Unfolding Story of Transition.” *Population and Development Review* 36(2):211–51.

de Linde Leonard, Megan and T. D. Stanley. 2015. “Married with Children: What Remains When Observable Biases Are Removed from the Reported Male Marriage Wage Premium.” *Labour Economics* 33:72–80.

MacKinnon, David P. and Matthew J. Valente. 2014. “Mediation from Multilevel to Structural Equation Modeling.” in *Annals of Nutrition and Metabolism*.

Mclanahan, Sara. 2004. “Diverging Destinies : How Children Are Faring Under the Second Demographic Transition *.” 41(4):607–27.

McLanahan, Sara and Wade Jacobsen. 2015. “Diverging Destinies Revisited.” Pp. 3–23 in *Families in an Era of Increasing Inequality SE - 1*, vol. 5, *National Symposium on Family Issues*, edited by P. R. Amato, A. Booth, S. M. McHale, and J. Van Hook.

Springer International Publishing.

Mitchell, Lauren L. and Moin Syed. 2015. "Does College Matter for Emerging Adulthood? Comparing Developmental Trajectories of Educational Groups." *Journal of Youth and Adolescence* 44(11):2012–27.

Muthén, L. K. and B. Muthén. 2015. "Mplus." *The comprehensive modelling program for applied researchers: user's guide* 5.

Ogden, Cynthia L., Margaret D. Carroll, Brian K. Kit, and Katherine M. Flegal. 2014. "Prevalence of Childhood and Adult Obesity in the United States, 2011-2012." *JAMA : the journal of the American Medical Association* 311(8):806–14.

Pollock, Gary. 2007. "Holistic Trajectories: A Study of Combined Employment, Housing and Family Careers by Using Multiple-Sequence Analysis." *Journal of the Royal Statistical Society. Series A: Statistics in Society* 170(1):167–83.

Putnam, Robert D. 2015. *Our Kids: The American Dream in Crisis*. Simon & Schuster.

Schmeer, Kammi K. 2012. "Family Structure and Obesity in Early Childhood." *Social Science Research* 41(4):820–32.

South, Scott J. 2001. "The Variable Effects of Family Background on the Timing of First Marriage: United States, 1969–1993." *Social Science Research* 30(4):606–26.

Studer, Matthias, Aart C. Liefbroer, and Jarl E. Mooyaart. 2018. "Understanding Trends in Family Formation Trajectories: An Application of Competing Trajectories Analysis (CTA)." *Advances in Life Course Research* 36:1–12.

Studer, Matthias and Gilbert Ritschard. 2016. "What Matters in Differences between Life Trajectories: A Comparative Review of Sequence Dissimilarity Measures." *Journal of the Royal Statistical Society. Series A: Statistics in Society* 179(2):481–511.

Wells, Nancy M., Gary W. Evans, Anna Beavis, and Anthony D. Ong. 2010. "Early Childhood Poverty, Cumulative Risk Exposure, and Body Mass Index Trajectories

through Young Adulthood." *American Journal of Public Health* 100(12):2507–12.

van de Werfhorst, H. G., Ruud Luijkx, and H. G. Van De Werfhorst. 2010. "Educational Field of Study and Social Mobility: Disaggregating Social Origin and Education." *Sociology* 44(4):695–715.

Whitaker, Robert C., Jeffrey A. Wright, Margaret S. Pepe, Kristy D. Seidel, and William H. Dietz. 1997. "Predicting Obesity in Young Adulthood From Childhood and Parental Obesity." *The New England Journal of Medicine* 337(13):869–73.

Wiik, Kenneth Aarskaug. 2009. "'You'd Better Wait!'- Socio-Economic Background and Timing of First Marriage versus First Cohabitation." *European Sociological Review* 25(2):139–53.

Wilcox, W. Bradford, Nicholas H. Wolfinger, and Charles E. Stokes. 2015. "One Nation, Divided: Culture, Civic Institutions, and the Marriage Divide." *Future of Children*.

Nederlandse Samenvatting (Summary in Dutch)

In de afgelopen decennia hebben er ingrijpende veranderingen plaatsgevonden op het gebied van gezinsvorming. Waar partners voorheen pas gingen samenwonen nadat ze getrouwd waren, is ongetrouwd samenwonen nu gebruikelijk in Westerse landen. Verder is het aantal geboortes buiten het huwelijk wereldwijd sterk toegenomen. Een toenemend aantal sociologen en demografen beargumenteren dat deze verandering op het gebied van gezinsvorming heeft bijgedragen aan een toename van de sociale en economische ongelijkheid in Westerse landen. Een bekend voorbeeld hiervan is dat in Westerse landen kinderen van laagopgeleide ouders in de loop der jaren een steeds grotere kans hebben gekregen om een scheiding van de biologische ouders mee te maken of met één ouder op te groeien, met slechtere prestaties op school en de arbeidsmarkt als gevolg. Eerder onderzoek laat tevens zien dat het gedrag omtrent gezinsvorming van ouders de latere gezinsvorming van het kind zelf beïnvloedt. Als verschillen in gezinsvorming bijdragen aan toenemende sociale ongelijkheid dan versterkt dit zich dus over de generaties.

In deze dissertatie bestudeer ik hoe sociale achtergrond het proces van gezinsvorming beïnvloedt en wat de gevolgen zijn van het doorlopen van bepaalde familietrajecten voor de financiële en fysieke gesteldheid van het individu. In dit proefschrift staan twee thema's centraal. Het eerste thema richt zich op de invloed van sociale achtergrond op gezinsvorming. Onderzoek naar het verband tussen sociale achtergrond en gezinsvorming is niet nieuw, maar er zijn maar weinig studies waarin onderzocht wordt of de relatie tussen sociale achtergrond en gezinsvorming over de tijd veranderd is. In dit proefschrift bestudeer ik deze vraag vanuit een levensloopperspectief. Dit houdt in dat gezinsvorming als een proces wordt gezien waarin gebeurtenissen in de gezinsvorming elkaar onderling beïnvloeden. De eerste centrale

onderzoeksvraag luidt dan ook: hoe heeft het verband tussen sociale achtergrond en gezinsvorming zich ontwikkeld in de tijd?

Het tweede thema in dit proefschrift richt zich op de consequenties van gezinsvorming voor het welzijn van individuen. Hoewel er onderzoek is dat bijvoorbeeld uitwijst dat kinderen krijgen als alleenstaande ouder vaak gepaard gaat met armoede, is er weinig onderzoek dat expliciet het verband legt tussen gezinsvorming en levensuitkomsten gerelateerd aan welzijn. Verder bestudeert dit proefschrift de invloed van gezinsvormingstrajecten in plaats van losse gezinsvormingsgebeurtenissen, zoals het huwelijk of ouderschap. Ik kies voor twee relatief objectieve maten van welzijn, omdat ik een beeld wil geven van hoe gezinsvorming van invloed kan zijn op sociale ongelijkheid in de samenleving. Ik kies één economische indicator, inkomen (hoofdstuk 4), en één gezondheidsgerelateerde indicator, obesitas (hoofdstuk 5). De tweede centrale onderzoeksvraag is: wat zijn de consequenties voor het individu van het kiezen voor een bepaald gezinsvormingstraject?

Hoofdstuk 2 en 3 richten zich op de eerste onderzoeksvraag: hoe heeft het verband tussen sociale achtergrond en gezinsvorming zich ontwikkeld over de tijd? In Hoofdstuk 2 bestudeer ik de invloed van ouderlijk opleidingsniveau op relatievorming in Nederland voor cohorten geboren tussen 1931 en 1991. Uit eerder onderzoek is gebleken dat kinderen van hoogopgeleide ouders later gaan samenwonen en trouwen met hun partner dan kinderen van laagopgeleide ouders. In dit hoofdstuk onderzoek ik of de invloed van ouderlijk opleidingsniveau op relatievorming veranderd is tussen de geboortecohorten en hoe de invloed van ouderlijk opleidingsniveau verandert tijdens de levensloop. Meer specifiek wordt onderzocht hoe het opleidingsniveau van de vader en de moeder gerelateerd is aan de timing van de eerste samenwoonrelatie, de timing van het eerste huwelijk en de keuze tussen trouwen of ongehuwd samenwonen als eerste samenwoonrelatie. Ik gebruik hiervoor data van acht verschillende nationaal representatieve Nederlands surveys. In overeenstemming met

voorgaand onderzoek stellen individuen met hoger ouderlijk opleidingsniveau hun eerste samenwoonrelatie en huwelijk vaker uit en kiezen ze vaker om (eerst) ongetrouwd samen te wonen in plaats van (direct) te trouwen dan individuen met lager ouderlijk opleidingsniveau. Op basis van de theorie van de Tweede Demografische Transitie was de hypothese dat de invloed van ouderlijk opleidingsniveau af zou nemen over de geboortecohorten, maar de resultaten wijzen uit dat er geen verandering is in de sterkte van het effect van ouderlijk opleidingsniveau. Over de levensloop neemt de invloed van ouderlijk opleidingsniveau op de timing en keuze van ongetrouwd samenwonen en huwelijk wel af. Tevens zijn de consequenties van ouderlijk opleidingsniveau voor de timing van het eerste huwelijk kleiner voor hen die al samenwonen met een partner. Tenslotte vind ik in dit hoofdstuk weinig verschillen tussen mannen en vrouwen in de effecten van opleidingsniveau op relatievorming en worden deze effecten ook nauwelijks beïnvloed door jaarlijkse variaties in nationale economische omstandigheden.

In hoofdstuk 3 bestudeer ik veranderingen in de relatie tussen ouderlijk opleidingsniveau en gezinsvorming in vier Europese landen, namelijk Frankrijk, Zweden, Italië en Roemenië. Frankrijk en Zweden worden in de demografische literatuur gezien als voorlopers van de Tweede Demografische Transitie, terwijl Italië en Roemenië beschouwd worden als landen waar deze transitie later is ingezet (of zelfs niet is voltooid). De centrale vraag in dit hoofdstuk is in hoeverre de ontwikkeling in het verband tussen ouderlijk opleidingsniveau en gezinsvorming vergelijkbaar is tussen deze Europese landen. Ik analyseer hiervoor data van de eerste ronde van de Generations and Gender Survey (GGS) gebruikmakend van Competing Trajectories Analysis (CTA). De CTA methode combineert event-history analyse met sequentie analyse, waardoor ik zowel verschillen in de timing als verschillen in het verloop van de familietrajecten tussen individuen met verschillend ouderlijk opleidingsniveau kan analyseren. De resultaten laten zien dat er tussen de cohorten weliswaar

sterke veranderingen in gezinsvorming hebben plaatsgevonden, maar dat er nog altijd significante verschillen zijn tussen individuen met verschillend ouderlijk opleidingsniveau. Ten opzichte van het oudste cohort zijn de onderlinge verschillen zelfs toegenomen. Waar in Frankrijk en Zweden in het oudste cohort trouwen en vervolgens kinderen krijgen de norm was, is dit in het jongste cohort niet meer zo, en dit geldt in nog sterkere mate voor diegenen met hoogopgeleide ouders. In Italië en Roemenië zijn vooral de verschillen in timing van gezinsvorming toegenomen. Kinderen van hoogopgeleide ouders starten later met gezinsvorming dan kinderen van laagopgeleide ouders, maar die verschillen zijn onder jongere cohorten nog groter dan onder oudere cohorten. Verder is in alle landen een trend te zien dat kinderen van hoogopgeleide ouders voorzichtiger zijn geworden als het gaat om gezinsvorming. In Frankrijk en Zweden uit zich dat in een toenemende voorkeur voor ongetrouwd samenwonen en het uitstellen van de komst van kinderen, terwijl in Roemenië en Italië het hele gezinsvormingsproces wordt uitgesteld. Verder observeer ik, met uitzondering van Italië, dat individuen met laag opgeleide ouders, in toenemende mate kinderen krijgen buiten het huwelijk. Net zoals hoofdstuk 2, laat ook dit hoofdstuk dus zien dat ouderlijk opleidingsniveau nog steeds (en zelfs in toenemende mate) van belang is als het gaat om verschillen in gezinsvorming in de maatschappij.

Hoofstukken 4 en 5 richten zich op de tweede onderzoeksvraag: wat zijn de consequenties voor het individu van het kiezen voor een bepaald gezinsvormingstraject? Beide hoofstukken maken gebruik van longitudinale data afkomstig van de Amerikaanse National Longitudinal Survey of Youth uit 1997. Dit is een panelstudie, waarin respondenten in 1997 tussen 12 en 17 jaar oud waren, op de middelbare school zaten en sindsdien jaarlijks zijn geïnterviewd (om de 2 jaar vanaf 2011). Omdat respondenten voor elke maand moesten aangeven wat hun werk, school en relatiestatus was, kon ik tot op de maand nauwkeurig hun carrière- en familietrajecten reconstrueren. Oftewel, de levenslopen in jong-volwassenheid

konden in detail worden vastgelegd. Tevens komen in beide hoofdstukken meerdere aspecten van sociale achtergrond aan de orde. Naast ouderlijk opleidingsniveau wordt ook de invloed van ouderlijk inkomen, de gezinssamenstelling (bijvoorbeeld of er een scheiding heeft plaatsgevonden) en etniciteit meegenomen in de analyse.

In hoofdstuk 4 onderzoek ik de invloed van sociale achtergrond en levenspaden in de jongvolwassenheid op inkomen. De intergenerationele overdracht van sociale status bestudeer ik vanuit een levensloop perspectief. In deze studie kijk ik hoe sociale achtergrond samenhangt met de carrière- en familietrajecten tussen leeftijd 17 en 25, en hoe deze beiden weer samenhangen met inkomenstrajecten tussen leeftijd 25 en 32. Het is belangrijk om inkomen op meerdere momenten te meten, aangezien het inkomen op slechts één moment een sterk vertekend beeld kan geven. Met behulp van Optimal Matching en Ward's clustering creëer ik clusters van carrière- en familietrajecten. Vervolgens ga ik na hoe sociale achtergrond en levenslooptrajecten tezamen het inkomen en de inkomensgroei tussen leeftijd 25 en 32 beïnvloeden. De resultaten wijzen uit dat alle sociale achtergrond variabelen geassocieerd zijn met inkomen. Diegenen met hoger opgeleide en rijkere ouders hebben later zelf ook een hoger inkomen. Individuen die een scheiding hebben meegemaakt of opgevoed zijn door een alleenstaande ouder, maar vooral diegenen die zijn opgegroeid met één biologische en één stiefouder hebben een lager inkomen. Afro-Amerikanen hebben een lager inkomen dan blanke Amerikanen. Een opmerkelijke bevinding in dit hoofdstuk is dat, zelfs als rekening wordt gehouden met de verschillende carrière- en familietrajecten die individuen kunnen doorlopen, er nog substantiële impact is van sociale achtergrond. Dit betekent dat sociale achtergrond niet alleen invloed heeft op de levensloop in jong-volwassenheid, maar dat er ook een meer direct verband bestaat tussen sociale achtergrond en inkomen aan het einde van de transitie naar volwassenheid. Dit suggereert dat de ouderlijke invloed verder strekt dan alleen invloed via de opleiding en carrière van het kind.

De sterkste effecten op inkomen hebben de carrièretrajecten. Zowel mannen als vrouwen, die na een universitaire studie full-time zijn gaan werken, hebben het hoogste inkomen en ook de grootste toename in inkomen. Individuen die dan eerst naar een community college gaan om vervolgens full-time te gaan werken of meteen na de middelbare school full-time zijn gaan werken vormen een middengroep, terwijl diegenen die slechts met tussenposen werk hebben tussen hun 17e en 25ste jaar en geen vervolgopleiding volgen, het laagste inkomen hebben en ook de minste groei in inkomen laten zien. Gezinsvormingstrajecten zijn minder bepalend voor het inkomen dan carrièretrajecten, maar zijn toch nog steeds van betekenis. Individuen die tot aan hun 25ste jaar in het ouderlijk huis zijn blijven wonen en individuen die een kind hebben gekregen buiten het huwelijk hebben een relatief laag inkomen en een beperkte inkomensgroei. Verder is er een opmerkelijk verschil tussen mannen en vrouwen, waarbij mannen die vroeg huwen een beter inkomen hebben dan veel andere mannen, terwijl vrouwen die vroeg trouwen juist een lager inkomen hebben dan vrouwen die niet een dergelijk familietraject volgen. Dit suggereert dat er nog steeds een 'huwelijksbonus' is voor mannen, maar niet voor vrouwen.

In hoofdstuk 5 bestudeer ik hoe carrière- en familietrajecten gezamenlijk invloed hebben op het risico op obesitas. Met behulp van Multichannel sequentie analyse creëer ik een typologie van combinaties van carrière- en familietrajecten. Vervolgens schat ik een logistisch regressie model, om na te gaan hoe de diverse clusters samenhangen met het risico op obesitas op 28-jarige leeftijd (deze leeftijd is gekozen, omdat iedereen in deze data tenminste deze leeftijd heeft bereikt). Ook kenmerken van iemands sociale achtergrond en de obesitas status op 17-jarige leeftijd worden als controle variabelen meegenomen, omdat diegenen met obesitas een grotere kans hebben om bepaalde carrière- en familietrajecten te volgen. Deze studie houdt dus rekening met selectie en kan derhalve bestuderen in hoeverre carrière- en familietrajecten bijdragen aan het risico op obesitas op 28-jarige leeftijd. De resultaten uit hoofdstuk 5 laten

zien dat er belangrijke verschillen zijn tussen mannen en vrouwen als het gaat om hoe carrière- en familietrajecten samenhangen met obesitas op 28-jarige leeftijd. Voor vrouwen geldt dat diegenen die een universitaire opleiding volgen en met name op zichzelf (of althans niet in een samenwoonrelatie) wonen duidelijk de minste kans hebben om obesitas te ontwikkelen. Bij mannen hebben degenen die begin 20 trouwen, met wisselende carrière trajecten, de grootste kans om op 28-jarige leeftijd obees te zijn. Verassend is echter dat mannen die zowel trouwen als kinderen krijgen een minder grote kans hebben op obesitas dan mannen die alleen trouwen en geen kinderen krijgen tussen de leeftijden 17 en 27. Dit betekent dat het niet per se een overbelasting aan zorgtaken is die mannen een grotere kans geven op het ontwikkelen van obesitas, maar dat wellicht een verklaring moet worden gezocht in specifieke kenmerken van de groep die trouwt, maar later (of geen) kinderen krijgt. De resultaten laten zien dat levenslooptrajecten een duidelijke invloed kunnen hebben op het risico om obesitas te ontwikkelen in jong volwassenheid en dat het belangrijk is om te kijken naar de combinatie van carrière- en familietrajecten. Zo hebben mannen die een universitaire opleiding volgen maar vroeg trouwen een groter risico op obesitas dan mannen die een universitaire opleiding volgen, maar geen samenwoonrelatie aangaan. Tevens laat hoofdstuk 5 zien dat het belangrijk is om een genderperspectief te hanteren. De familieachtergrond variabelen hebben, als rekening wordt gehouden met de verschillende carrière- en familietrajecten die individuen kunnen doorlopen, weinig (directe) invloed op het risico op obesitas. De enige significante familieachtergrond indicator is ouderlijk opleidingsniveau, waarbij kinderen met hoogopgeleide ouders een geringere kans hebben op het ontwikkelen van obesitas gedurende de jong-volwassenheid. Dit zou te maken kunnen hebben met betere informatie over de risico's van obesitas in de sociale netwerken van kinderen van hoogopgeleide ouders in vergelijking met die van laagopgeleide ouders.

Uit het proefschrift kunnen drie belangrijke conclusies worden getrokken. Ten eerste, terugkomend op de eerste onderzoeksvraag, kan geconcludeerd worden dat familieachtergrond nog steeds een belangrijke invloed heeft op relatie- en gezinsvorming. De resultaten uit dit proefschrift staan haaks op theorieën die veronderstellen dat in moderne, geïndividualiseerde maatschappijen, afkomst nauwelijks meer van invloed zou zijn. De resultaten suggereren zelfs dat verschillen in gezinsvorming tussen sociale klassen zouden kunnen toenemen. Ten tweede, terugkomend op de tweede onderzoekvraag, laat dit proefschrift zien dat de keuze van bepaalde familietrajecten, bovenop of in samenspel met carrièretrajecten, de kans op inkomensverschillen en op het ontwikkelen van obesitas in jongvolwassenheid vergroot. De resultaten in dit proefschrift bieden ook nieuw inzicht in de intergenerationele overdracht van sociale ongelijkheid, aangezien sociale achtergrond niet alleen het verloop van de carrière- en familietrajecten beïnvloed, maar ook meer directe gevolgen heeft voor het welzijn heeft van individuen. De resultaten van dit proefschrift ondersteunen het perspectief van Cumulative (Dis)advantage. De kanttekening hierbij is wel, dat hoofdstukken 4 en 5 op de situatie in de Verenigde Staten betrekking hebben en dat het de vraag is in hoeverre de resultaten generaliseerbaar zijn naar andere nationale contexten. Ten derde laat dit proefschrift het belang zien van het gebruik maken van methoden die het proces van gezinsvorming als geheel in ogenschouw nemen. De door mij gebruikte methoden van sequentie analyse kunnen hierbij niet alleen een rol spelen in descriptief opzicht, maar ook in meer analytisch opzicht.

Ten slotte pleit ik voor meer aandacht voor landen vergelijkend en lange-termijn onderzoek naar het proces van hoe sociale achtergrond en levenslopen in de transitie naar volwassenheid bijdragen aan sociale ongelijkheid in de samenleving. Hierbij moeten onderzoekers ook openstaan voor het gebruik van social media data en andere ‘big data’ om meer in detail te kunnen onderzoeken hoe sociale ongelijkheid in samenlevingen tot stand komt.

Curriculum Vitae

Jarl Mooyaart was born on 29 January 1989 in Gouda, Netherlands. He completed his bachelor's degree in sociology, cum laude, at Utrecht University in 2011, and at the same university completed a master's degree in Sociology and Social Research in 2013. In January 2014 he started working as a junior researcher in the Families and Generations research group at the Netherlands Interdisciplinary Demographic Institute (NIDI). In September of that same year he would officially start as PhD candidate, affiliated with the University Medical Center Groningen (UMCG). During his PhD he was part of the Context of Opportunity (CONOPP) project, for which he helped harmonize Generations and Gender Survey data. During his PhD he has been involved in teaching bachelor and master students at the University of Groningen and has been a thesis supervisor for a masters student from the Radboud University Nijmegen. He is currently employed as a Postdoctoral researcher in the department of sociology at McGill University.