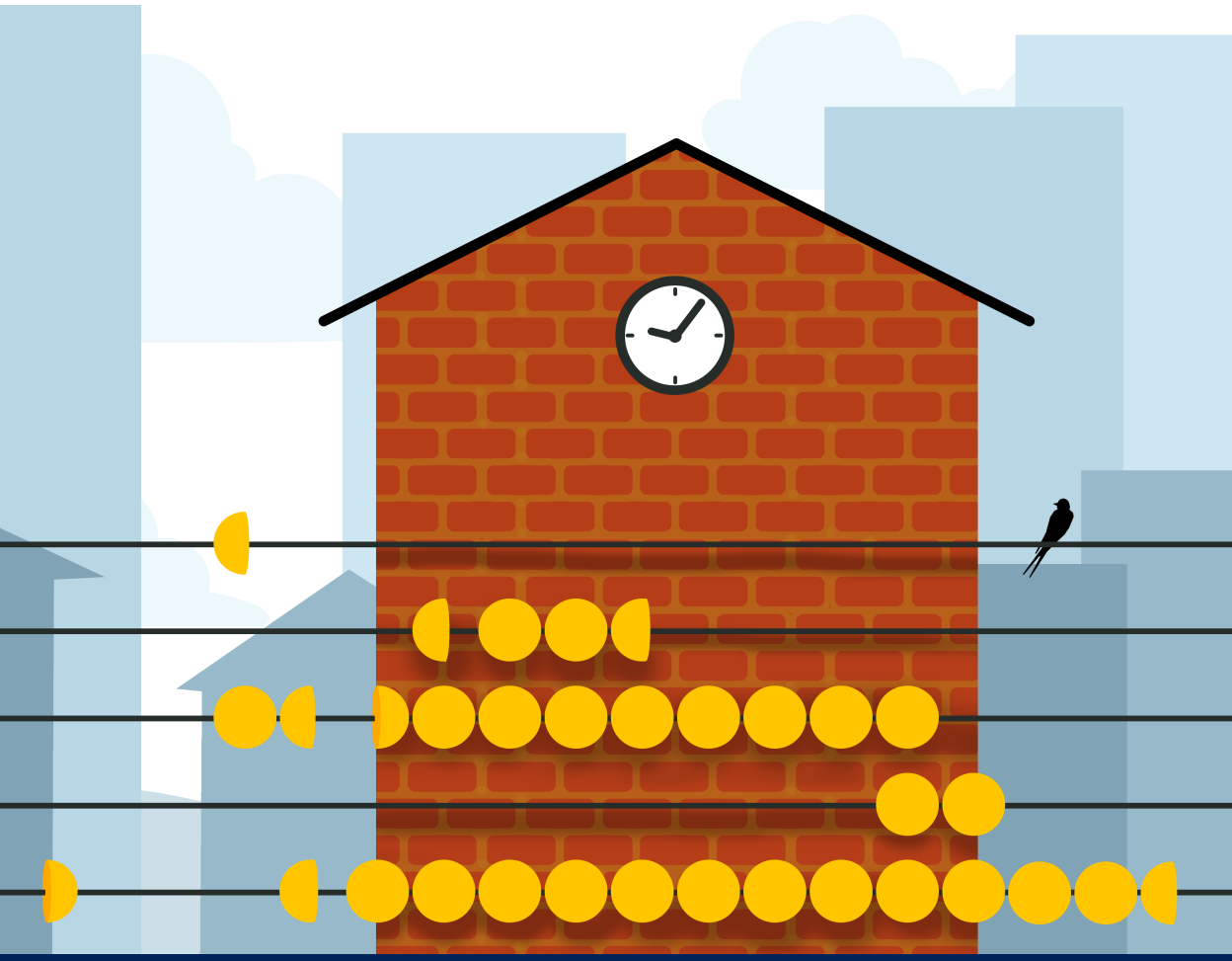
Stockholm University Demography Unit,
Dissertation series 20

Stockholm University

Out-of-Home Care and Educational Outcomes

Prevalence, Patterns and Consequences

Marie Berlin



Doctoral Thesis in Sociological Demography at Stockholm University, Sweden 2020

Out-of-Home Care and Educational Outcomes

Prevalence, Patterns and Consequences

Marie Berlin

Academic dissertation for the Degree of Doctor of Philosophy in Sociological Demography at Stockholm University to be publicly defended on Saturday 30 May 2020 at 13.00 in hörsal 3, hus B, Universitetsvägen 10 B, digitally via Zoom, see meeting address at www.sociology.su.se

Abstract

The aim of this thesis is to examine educational stratification in the context of out-of-home care (OHC; foster family care, residential care) and to place one of society's most vulnerable groups in the fields of social stratification and family complexity research. About 5% of the Swedish population experience OHC during childhood or adolescence. OHC is not only a matter of protecting children and youth; it is also intended to improve future opportunities and compensate for adverse childhood factors. However, a vast body of international research, including Swedish studies, shows that a substantial proportion of young people from OHC have poor school performance and low educational attainment as adults. Furthermore, this is strongly associated with their high risk of other adverse outcomes in life. To date there are no signs of improvement in this regard, and the disadvantage of having a low education is increasing in today's knowledge-based society.

Many previous OHC studies have relied on small, local samples, and longitudinal data are often lacking. In this respect, Swedish researchers are well positioned to contribute to the field through research based on our high-quality population registers. The main data source in this thesis – the Child Welfare Intervention Register – covers half a century of OHC data. Based on these data, an overview of OHC prevalence in Sweden and patterns of educational outcomes are presented in the introductory chapter. The thesis further consists of five individual studies investigating different aspects of the transition through the educational system to adult life among children and youth from OHC. Two of the five studies focus on children who spent most of their childhood in OHC and for whom society has assumed a long-term commitment of parental responsibilities.

The descriptive data show that patterns of poor educational outcomes in the OHC population have remained stable as long as they can be followed in the registers. Study I shows that youth who exited long-term care were disadvantaged as compared to youth without OHC experience, both in terms of educational attainment and regarding the strong association between poor school performance and other adverse outcomes in young adulthood. Up to 55% of their excess risks of later psychosocial problems were statistically attributable to dismal school performance. Study II shows that 54% of clients in substance-misuse treatment in the 1980s had been in OHC, half before their teen years and half as teenagers. In this group, OHC was associated with excess mortality during the 30-year follow-up from exit from treatment, with statistical significance mainly for females who had entered OHC before their teens. School failure was more common in the OHC population than for misuse clients without OHC experience, and was strongly associated with the excess mortality of females. Two Nordic comparative studies (Studies III and IV) show that the OHC population had a substantially higher risk of not completing upper-secondary education across countries, and that poor performance in primary school inflicted a greater risk in OHC youth of being NEET in young adulthood than for their peers without OHC experience. Study V shows that the intergenerational transmission of education was weak and inconsistent in the foster care setting, and that living in a highly educated foster family did not have a robust positive effect on foster children's educational outcomes.

Keywords: *out-of-home care, foster care, foster parents, school performance, educational outcomes, intergenerational transmission, Sweden, Nordic countries.*

Stockholm 2020
http://urn.kb.se/resolve?urn=urn:nbn:se:su:diva-180704

ISBN 978-91-7911-090-1
ISBN 978-91-7911-091-8
ISSN 1404-2304

Department of Sociology

Stockholm University, 106 91 Stockholm

OUT-OF-HOME CARE AND EDUCATIONAL OUTCOMES

Marie Berlin

Stockholm
University

Out-of-Home Care and Educational Outcomes

Prevalence, Patterns and Consequences

Marie Berlin

ISBN print 978-91-7911-090-1
ISBN PDF 978-91-7911-091-8
ISSN 1404-2304

Cover picture: Emmanuel Berlin
The picture is a graphic representation of different care histories during childhood and adolescence to illustrate the heterogeneity in care experience. The straight lines that run through the figure symbolize the age span from birth to 20 years of age. The house represents the primary school years (age 7–16) and the beads represent time in out-of-home care (OHC). The top line is an example of early short-term care and is followed by early intermediate care, long-term care and teen care, while the bottom line is an example of care leavers from long-term care. The examples are based on average age at first entry into OHC, average time spent in OHC, and median number of OHC sequences, in the OHC sub-groups presented in the thesis.

Printed in Sweden by Universitetsservice US-AB, Stockholm 2020

Contents

Acknowledgements

My work with this dissertation started ten years ago, and the speed of progress has varied over the years. Still, I have been surrounded by great encouragement and support the entire time, both within and outside the academic sphere. For that, I am amazed and truly grateful to all my fantastic friends, colleagues, and family members.

First of all, I would like to thank my supervisors who have guided me through the different stages of this long process and without whom this dissertation would never have been finished. Gunnar Andersson, thanks for brilliantly adapting your support to my work pace at the different stages of the process: with patience when progress was slow and with amazing efficiency and speed when the intensity was higher, and at all times with a warm heart and a big smile. I am deeply grateful that you have stood by my side all these years. Lars Brännström, thanks for stepping in and helping me bring it all together. I have gained a lot from your analytical eye and your input on relevant pieces, and your humor and good spirits have been liberating when it was most needed. Anders Hjern and Bo Vinnerljung, thanks for introducing me to this research field, for getting me started with my PhD studies, and for all the time and research experience you have generously shared with me over the years. Your encouragement has been tremendously important to me, and I have learned so much from working with you at the National Board of Health and Welfare and in the academic field.

Over the years I have had many great colleagues at several different workplaces. My colleagues at the National Board of Health and Welfare have been incredibly supportive during my work with this dissertation, and I would like to express my sincerest gratitude to you all! A special thanks to the participants in the foster family network for sharing their vast knowledge, and to Hillevi Rydh for the excellent support in all matters concerning the Child Welfare Intervention Register. I am also deeply thankful to everyone at the Demography Unit (SUDA) and the Department of Sociology; you have been so inclusive and supportive of me. Despite my irregular presence you have always made me feel welcome whenever I returned.

Furthermore, my warmest thanks to Ninive von Greiff and Lisa Skogens at the Department of Social Work, who gave me the push I needed when the dissertation work had nearly ground to a halt. It has been a great inspiration and a pleasure to work with the two of you. I am also very grateful to all the

participants in the Nordic Network of Longitudinal Child Welfare Research – NORDLOCH – for inspiring meetings that have provided energy during my dissertation work. A special thanks to Antti Kääriälä and Mette Lausten for their great collaboration in the Nordic studies.

The English language has been a struggle for me during the dissertation process, and I am sincerely thankful to Judith Rinker Öhman, who has language-checked all the sections in the introduction with great detail and proficiency. Any text errors will be a sign of my last-minute changes.

And last but not least: My warmest thanks to all of you who are closest to me: my family and my friends! Thanks for boosting me in all possible ways during this period. Thanks to my Mom Kerstin, my Dad Nils, and my brother Per Uhlén, for providing a solid foundation of unconditional love and support. Thanks to my now highly athletic husband, Krister, and my dear children, Edvin and Emmanuel (who also made me such a splendid cover picture), for keeping our home tidy and full of joy. You are everything to me. I am so lucky to have you in my life!

Marie Berlin
Stockholm, April 2020

Funding: The current thesis work has been funded by a grant from the Swedish Research Council, Vetenskapsrådet, through the Swedish Initiative for Research on Microdata in the Social and Medical Sciences (SIMSAM), grant 340-2013-5164.

List of studies

Study I Berlin, M., Vinnerljung, B. & Hjern, A. (2011). School performance in primary school and psychosocial problems in young adulthood among care leavers from long term foster care. *Children and Youth Services Review, 33*, 2489–2497.

Study II Berlin, M., von Grieff, N., & Skogens, L. (2020). The relation between out-of-home care, early school failure, and premature mortality: A 30-year follow-up of people treated for substance misuse in Sweden. *Nordic Social Work Research.* DOI: 10.1080/2156857X.2020.1749119.

Study III Kääriälä, A., Berlin, M., Lausten, M., Hiilamo, H. & Ristikari, T. (2018). Early school leaving by children in out-of-home care: A comparative study of three Nordic countries. *Children and Youth Services Review, 93*, 186–195.

Study IV Berlin, M., Kääriälä, A., Lausten, M., Andersson, G., & Brännström, L. (submitted manuscript). Long-term NEET among young adults with experience of out-of-home care: A comparative study of three Nordic countries.

Study V Berlin, M., Vinnerljung, B., Hjern, A. & Brännström, L. (2019). Educational outcomes of children from long-term foster care: Does foster parents' educational attainment matter? *Developmental Child Welfare, 1*(4), 344–359.

Sammanfattning

Syftet med den här avhandlingen har varit att bidra till ökad kunskap om hur barn och unga som varit placerade i familjehem eller på institution klarar sig i det svenska utbildningsystemet och hur det inverkar på deras fortsatta liv. Omkring 5% av dagens 20-åringar har någon gång under uppväxten (0–19 år) varit placerade i heldygnsvård. Avsikten med en placering är inte bara att skydda barn och ungdomar som riskerar att fara illa, utan också att kompensera för tidigare ogynnsamma uppväxtfaktorer och ge goda förutsättningar för en fortsatt positiv utveckling. Trots det så visar både internationell och svensk forskning att många barn och unga som varit placerade i social dygnsvård har låga eller ofullständiga grundskolebetyg, och låg utbildningsnivå som vuxna. Detta gäller även dem som har varit placerade under merparten av uppväxten. Forskning visar också att den höga förekomsten av låga skolresultat har starkt samband med deras höga överrisker för olika former av problem senare i livet, exempelvis missbruk, kriminalitet, psykisk ohälsa och social marginalisering. Utbildning har dessutom kommit att bli allt viktigare i dagens kunskapsbaserade samhälle, och konsekvenserna av att tidigt halka efter i skolan riskerar därmed att öka.

Internationell forskning kring placerade barn och unga är ofta baserad på små och regionalt avgränsade datamaterial av tvärsnittskaraktär. I det avseendet är det svenska forskarsamhället väl rustat till att bidra genom våra nationella dataregister som håller hög kvalitet. Socialstyrelsens register över insatser till barn och unga är den huvudsakliga datakällan i den här avhandlingen. I dagsläget omfattar det ett halvt sekel (från 1968 och framåt) av social dygnsvård, det vill säga socialtjänstens heldygnsinsatser till barn och unga enligt Socialtjänstlagen, SoL (2001:453), och Lagen om vård av barn och unga, LVU (1990:52).

I introduktionen till avhandlingen ges en översikt av utvecklingen av andelen barn och unga som varit placerade under uppväxten, och av deras utbildningsmönster. Avhandlingen omfattar också fem individuella studier som undersöker hur skolresultaten i grundskolan inverkar på olika utfall senare i livet. Två av studierna är avgränsade till personer med erfarenhet av långvariga placeringar, och där samhället kan sägas ha haft ett föräldraansvar under stora delar av deras uppväxt. I flera av studierna jämförs de placerade med andra befolkningsgrupper som har en liknande socioekonomisk bakgrund som de

placerade, men som inte har varit placerade under uppväxten. I två av studierna jämförs placerades utbildningsvägar i Danmark, Finland och Sverige.

Översikten visar att mönstren av låga utbildningsutfall bland personer med erfarenhet av den sociala barnavården har varit stabila över tid så långt de kan följas i registren. Studie I visar att unga vuxna som varit långvarigt placerade och som lämnade placeringen som vuxna (myndiga) var missgynnade i förhållande till andra jämnåriga i befolkningen utan placeringserfarenhet. Både genom att så många hade låga eller ofullständiga betyg i grundskolan och genom att detta hade en så stark betydelse för olika ogynnsamma utfall senare i livet. Upp till 55% av de placerades överrisker för olika framtida psykosociala problem kunde statistiskt härledas till dåliga skolresultat i grundskolan.

Att risken för olika problem senare i livet är stor inom gruppen framgår också av Studie II som är avgränsad till klienter som var i missbruksvård under det tidiga 1980-talet, och där deras dödlighet följdes under en 30-årsperiod. Studien visar att 54% av klienterna hade varit placerade under uppväxten, varav hälften hade placerats innan tonåren. De placerade hade oftare hoppat av grundskolan och de hade också en högre dödlighet än övriga klienter. Dödlighetsöverrisken var dock modest bland män och bara statistiskt signifikant bland kvinnor som varit placerade under den tidiga uppväxten (före tonåren). Att ha hoppat av grundskolan hade ett starkt samband med kvinnors överdödlighet även då resultaten justerades för andra faktorer som har starkt samband med dödligheten bland missbrukare.

I Studie III och IV jämförs utbildningsnivå och arbetsmarknadsetablering bland personer som varit placerade under uppväxten i tre nordiska länder: Danmark, Finland, och Sverige. Studie III visar att de som varit placerade saknade gymnasieutbildning i betydligt högre utsträckning än andra jämnåriga i alla tre länder: 76% vs. 24% i Danmark, 57% vs. 14% i Finland och 61% vs. 17% i Sverige. När resultaten justerades för socioekonomiska bakgrundsfaktorer så kvarstod 24–39 procentenheters överrisk att sakna gymnasieutbildning vid 23 års ålder. Studie IV visar att låga skolbetyg var vanligare bland de placerade i alla tre länder, och att detta hade samband med risken att vara långvarigt NEET (varken i arbete eller studier under två av tre år) i ung vuxen ålder (21–23 år). Ungefär en fjärdedel av dem som varit placerade var NEET i Danmark och Sverige, och ungefär en tredjedel i Finland, medan andelen som var NEET bland unga vuxna utan placeringserfarenhet låg mellan 6% och 7% i de tre länderna.

Studie V är avgränsad till långvarigt placerade som bott i samma fosterfamilj under merparten av grundskoletiden (minst fem år). Resultaten visar att sambandet mellan fosterföräldrars utbildning och fosterbarns utbildningsresultat inte är robust. För fosterbarn fanns inte en entydig positiv utbildningseffekt av att vara placerad i en fosterfamilj där fostermamman hade hög utbildningsnivå.

Introduction

The topic of this thesis is educational outcomes among children and youth from out-of-home care, i.e. foster family care or residential care. Out-of-Home Care (hereafter OHC or 'in care') is an intervention used by child welfare services in cases in which children or adolescents are considered to be at risk of impaired health or development due to their home environment, or for adolescents, their own disruptive behavior. About 5% of the Swedish population have experienced OHC in childhood or adolescence (Figure 2A). The OHC population is heterogeneous in regard to age at first entry and total time spent in care. Some enter care at a young age and live in a foster family for most of their childhood, while others stay for only a short period of time, as toddlers or teenagers, once or several times during their upbringing. The OHC population can be defined as one of society's most vulnerable groups (Hessle & Vinnerljung, 1999). Many have faced different types of adverse childhood experiences, and care leavers often experience an accelerated and compressed transition into adulthood without the same support their peers who grew up in their home of origin typically experience (e.g., Stein, 2014).

In Sweden, the context of this thesis, OHC is not only a matter protecting children and youth; it is also intended to improve future opportunities by compensating for adverse upbringing factors. Still, a vast body of international research, including Swedish studies, shows that children and youth from OHC have high levels of poor school performance, low educational attainment as adults, and high excess risks of adverse development (e.g., Berridge, 2012; Kääriälä & Hiilamo, 2017; O'Higgins, Sebba, Gardner, 2017; Fries, Klein, & Ballantyne, 2014; Gypen, Vanderfaeillie, De Maeyer, Belenger, & Van Holen, 2017). This also applies to those who have spent most of their childhood in OHC. Results from Swedish studies show that 40–50% of children from long-term care leave primary school with no, or low, grades (Vinnerljung, Berlin, & Hjern, 2010).

Education has become increasingly important in today's knowledge-based economies, and is the main factor in both upward social mobility and the reproduction of social status between generations (e.g., Hout & DiPrete, 2006). Generally, the Nordic welfare states have been successful in equalizing educational opportunities (e.g., Breen & Jonsson, 2007). However, in the light of previous research, these universal welfare regimes do not seem to have been

sufficient in providing the OHC population opportunities at a level comparable to that of their same-aged peers.

Studies on how upbringing factors affect children have a long tradition in sociology. Yet, children and youth from OHC are seldom considered (Wildeman & Waldfogel, 2014). It is surprising that this group, one of society's most vulnerable, has drawn such little attention outside the field of social work. It is also a relatively large group in number compared to other disadvantaged groups, and constitutes a large proportion in other marginalized groups. Hence, improving future opportunities for children and youth in OHC may have an impact on the prevalence of social problems in society, besides the positive effects for the individuals themselves.

One main question in the research field of educational outcomes among children and youth from OHC is whether OHC merely mediates a marginalized social background and, thus, that the high prevalence of poor school performance is primarily due to circumstances that preceded the placement rather than deficits in the care system itself (e.g., Berger, Bruch, Johnson, James, & Rubin, 2009). This relates to the question of potential improvements to the current systems; i.e., the child welfare system, the educational system, and the general welfare system. Upbringing factors that are known to influence children's future opportunities are not cohesive in the OHC population. The family and school situations may change several times during a child's upbringing, when they change foster family or residential care home, or move back and forth between the family of origin and a foster family.

The research on educational stratification in the OHC setting is still limited. Much of the descriptive statistics are lacking; many studies relying on small and local samples, and longitudinal data are scarce (e.g., Wildeman & Waldfogel, 2014; O'Higgins et al., 2017). In this respect, Sweden and the other Nordic countries are well equipped to make a contribution to this research field through our high-quality population data.

Overall aim and outline of the thesis

The aim of the thesis is to add knowledge on educational outcomes and its potential consequences for children and youth from OHC – and to place one of society's most vulnerable groups into the research fields of social stratification and family complexity. Since the OHC population has not yet drawn much attention outside the social work community, an ambition is that an increased awareness of the present situation for this group of children will motivate other researchers, such as the sociological and demographic communities, to contribute to this research field.

The thesis consists of five individual studies and an introduction, which intends to frame the studies in a larger context and summarize the main findings. The two first sections in the introduction present descriptive statistics;

the first on the child welfare system, the OHC population, and the foster family; and the second on educational attainment in recent decades. The life course perspective used in these studies implies that the study subjects were in OHC, and in school, a few decades ago. This raises the question of whether the study results are still valid, or if the situation has changed since then. The long time series in the descriptive section shows that the patterns in the OHC population have been fairly stable (Figures 9–10).

The next section in the introduction gives an overview of the theoretical framework, and of previous research on educational outcomes in the OHC population. It focuses on social stratification and family complexity, situated in the welfare state, and with a life course perspective. The guiding questions are: What are the potential explanations for the high prevalence of poor educational outcomes in the OHC population? Why is this an important issue, both for society and for children and youth in OHC? This section is followed by a method section describing the study design and the national registers used in the individual studies. The introduction ends with a summary and a discussion of the main findings in these studies.

The five individual studies are included as separate chapters after the introduction. They investigate: how the OHC population manages in the educational system compared to peers in the general population and compared to peers with similar socioeconomic background but without OHC experience; how poor school performance relates to future educational attainment and development in young adulthood; cross-country differences in the OHC population's educational patterns in the Nordic countries; and whether foster parents' educational attainment matters for their foster children's educational outcomes.

Out-of-home care in Sweden

In international comparison, the Scandinavian welfare state regimes are considered to be egalitarian with a low level of income inequality. The redistribution of resources is carried out through taxes and transfers, and through publicly funded services (e.g., Esping-Andersen, 1999; 2016; Esping-Andersen & Wagner, 2012; Samuel & Hadjar, 2016; Powell, Yörük, & Bargu, 2019). Many services are free (e.g., education), while others have a small flat fee (e.g., health care) or an income-tested fee (e.g., child daycare). When the general systems are insufficient in keeping families above the national poverty line they are supplemented with means-tested social assistance, handled by the social services which belong to the social work profession. This is regarded as a support of last resort, and is only available when all other resources within the household have been exhausted (e.g., Björk Eydal, & Kröger, 2011). Poverty is not a reason per se for OHC in Sweden.

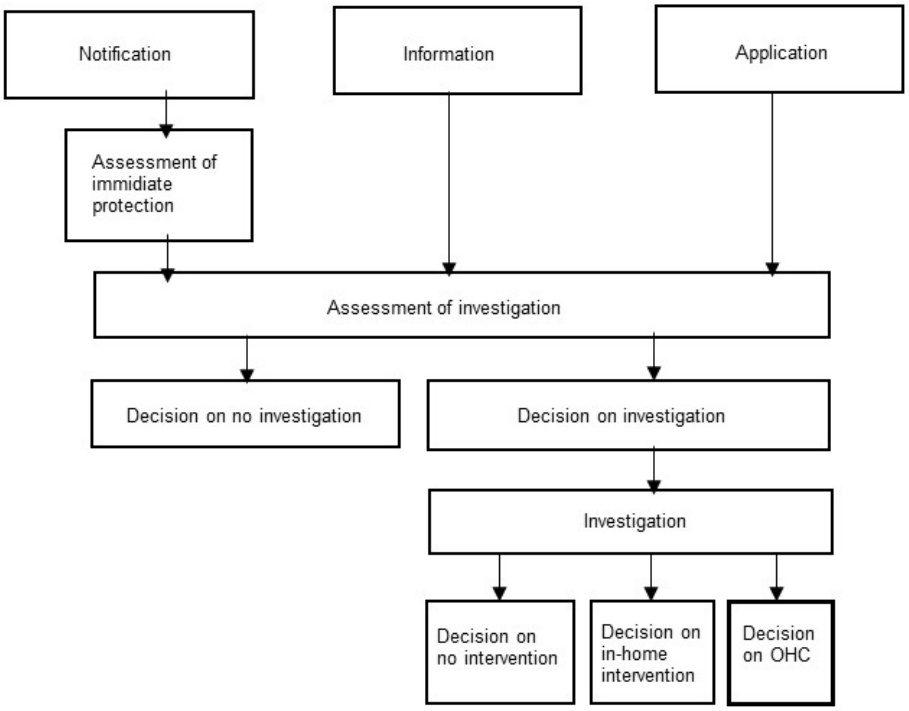
Child welfare is one of the five primary domains of social work, which also includes social assistance, substance misuse treatment, elderly support, and disability support. The first three domains (child welfare, social assistance, and substance misuse treatment) share many features, both legally, organizationally, and professionally. Child welfare is regulated by the Social Services Act (2001:453), but the organizational settings and procedures may vary between municipalities due to their autonomy as well as demographic and socioeconomic differences (Wiklund, 2006a).

The child welfare system

When a child or adolescent (0–17 years) is at risk of impaired health or development due to their home environment or their own disruptive behavior, the child welfare services are to be notified of this. The notification can come from anyone in the child's or adolescent's network – e.g., neighbors, relatives, friends, health care providers, the school, or the police – or the child welfare services can receive information through other sources, e.g. a parallel investigation. Parents, or the children or adolescents themselves, can also apply for an intervention to be carried out (Socialstyrelsen, 2015b). Professionals who have frequent contact with children and adolescents have mandated reporting;

i.e., they are obliged by the Social Services Act (2001:453) to report suspicions of children at risk of impaired health or development due to their domestic conditions. The child welfare system is sometimes described as a 'funnel' (Wiklund, 2006a), whereby the top of the funnel represents the input into the system (i.e., the notifications) and the bottom of the funnel the most severe interventions (i.e., OHC, the topic of this thesis).

Figure 1. *The assessment and investigation process by the child welfare services regarding children and adolescents at risk.*



Source: Adaptation of flowchart in Socialstyrelsen, 2015b (p. 15).

When a notification about a child at risk arrives at the child welfare services, it continues into the funnel through a first assessment (i.e., screening) to determine whether there is a need of immediate protection and custody (Figure 1). If there is such a need, the child or adolescent will be placed in OHC and an investigation will be opened into how this will be continued; i.e., the care plan. If there is no need of immediate protection, there will be a second assessment to determine whether an investigation will be opened. The investigation can result in OHC, an in-home intervention, or no intervention at all. All investigations are to take part in cooperation with the child or youth, depending on their age, and together with the parents. The best interests of the child or youth are to be decisive in the assessment of interventions. The need

of protection and the time until basic needs can be ensured are central in the investigation (Socialstyrelsen, 2013a; 2018a).

Since 1968, all OHC in Sweden is covered by the Child Welfare Intervention Register, CWIR (Socialstyrelsen, 2020a), but due to integrity reasons notifications are not nationally registered (Vårdanalys, 2018). This means that there is no data coverage at the top of the child welfare funnel but only at the bottom, and thus that there are no national data on how often a notification leads to an intervention. Previous rough estimates from local studies suggest that about a third of the children are sorted out at the assessment stage (i.e., no investigation is opened), and that about half of the remaining children are sorted out in the investigation stage (i.e., no intervention is carried out), resulting in approximately a third of the initial referrals leading to an intervention (Wiklund, 2006b). Results from a recent national survey carried out by the National Board of Health and Welfare suggest an increase in notifications to the child welfare services in recent years. In 2018, about 8% of all children (0–17 years) were the subject of at least one referral, two-thirds of them being younger children (0–12 years) and one-third teenagers (13–17 years). About 40% of the notifications came from the police or the schools, and about 17% from dental or health care providers. The reason for notification was most often related to the caregiver (usually the birth parent(s)), in about 39% of the cases to a caregiver's substance misuse or psychiatric disorders, about 20% to violence in the family, and about 8% to 'other' reasons, e.g. housing problems or parental death. In about 33% of the cases, the reason for notification concerned the child's own behavior or problems. A single child can have several notifications of being at risk, from different sources, over time and during an ongoing child welfare investigation. A cautious estimate was that about 38% of all notifications led to an investigation; this estimate was made in relation to notifications and not to individual children (Socialstyrelsen, 2019).

OHC is a measure of last resort in the child welfare system. Other types of interventions are more common and are considered first, and can entail, for instance, structured in-home programs (Wiklund, 2006b). There are no absolute rules regarding when OHC is to be used; every case is assessed individually, and the whole network surrounding the child or youth is taken into consideration. If a less supportive home environment is supplemented by a strong supportive network, and the combination is considered to be good enough, there will not be an OHC intervention. For younger children, the reason for OHC is typically related to deficits in the home environment, e.g. neglect or maltreatment due to parental substance misuse or psychiatric disorders. For adolescents, the reason is typically related to their own disruptive behavior, e.g. delinquency or substance misuse.

Most placements (about 70%) are carried out with the consent of the parent(s) and the child under the Social Services Act, SSA (2001:453), but involuntary placement is legally possible under the Care of Young Persons Act, CYPA (1990:52) when this is considered necessary and the child or parent(s)

do not give consent, or for adolescents and young adults when voluntary interventions have been insufficient and compulsory care is needed. Compulsory OHC is ordered by the Administrative Court (Förvaltningsrätten), after application from social services. Placement with consent under the SSA is possible below the age of 18, but may be prolonged until the child graduates from upper secondary education (Socialstyrelsen, 2015b). Involuntary placement due to home environment under the CYPA is possible below age 18, but may be prolonged with consent from the adolescent under SSA. Involuntary placement due to the adolescent's own behavior under the CYPA is possible below age 21 (Socialstyrelsen, 2020c).

Placement in OHC is a major intervention in a child's or youth's life, affects the entire family, and carries a great responsibility from society's perspective as it takes on the parental role (in loco parentis). The placement is to be safe and secure, and characterized by continuity (SOSFS 2012:11). The Swedish social welfare system is often described as family service-oriented (Gilbert, Parton, & Skivenes, 2011), aimed at early support and intervention in order to avoid removing the child or youth from their home of origin. But when OHC is necessary, the overriding goal is reunification with the family of origin as soon as possible (Khoo, Hyvönen, & Nygren, 2002; Meagher, Cortis, & Healy, 2009; Heimer, Näsman, & Palme, 2018). The emphasis on reunification is based on a relationship-oriented approach, whose premise is that children develop strong bonds with their birth parents and that maintaining this contact is important for children's identity and well-being (Socialstyrelsen, 2014). A priority task for the child welfare services is therefore to support the contact between children and their birth family during OHC in order to preserve close relations and facilitate reunification (Socialstyrelsen, 2013a).

There are different types of OHC: foster family care and residential care homes. Foster homes are generally smaller in number than residential care homes, but the difference is not absolute. Some foster homes are relatively large in number, if the foster parents have many biological or foster children, while some residential care units are small with only a few children in residence (Upprättelseutredningen, 2011). Placement can be either voluntary or involuntary in both foster homes and residential care homes, with younger children typically placed in foster homes and young adults in residential care homes. Some residential care homes have specific profiles, e.g. specializing in substance misuse or criminal behavior. There are also special residential homes that only provide involuntary OHC under the terms of the Care of Young Persons Act (LVU). These are run by the National Board of Institutional Care, and include secure youth care for adolescents and young adults who have committed serious criminal offences and have been sentenced under the Secure Youth Care Act (LSU), implying that the offense is serious enough for prison but that the offender is too young for imprisonment (Statens insti-

tutionsstyrelse, 2019). This is also one reason for the relatively high proportion of teenagers in the Swedish OHC population; i.e., that young offenders are included in the child welfare system (e.g., Thoburn, 2007).

The responsibility for children or youth in OHC is shared between social services and other authorities such as schools and health care providers, and it should not only be protective in the present but also compensate for previous disadvantages and improve future opportunities for children and adolescents. Since the Swedish welfare system is based on voluntariness and individual responsibility, this demands cooperation between different authorities. In recent years, attention has been drawn to the fact that children in OHC are at risk of missing out on specific parts of the general welfare system, e.g. schooling (Socialstyrelsen, 2013a), somatic health, and dental care (Kling, Vinnerljung, & Hjern, 2016a, 2016b; Kling & Nilsson, 2010). The regulations have therefore been improved and today, when a child or youth is placed in OHC an assessment and implementation plan is to be presented, stating what measures should be carried out and by whom, in order to ensure that the child receives appropriate education and access to health care and dental care according to their needs. While the child is in OHC, the home environment, the relationship with the caregivers, the schooling situation, and access to health care and dental care should be monitored continuously (SOSFS 2012:11).

Unlike the other Nordic countries, and other Western countries, Sweden does not have a specific aftercare program for young adults who leave care to live on their own. There is general legislation in the Social Service Act (2001:453) that states that the child welfare services are to provide support – e.g., in respect to education, employment, and accommodation – when youths in OHC reach majority age at 18 and the voluntary OHC formally ends, if the young adult applies for this; e.g., to stay in the foster family until their upper secondary education is completed. But there is no specific information regarding how long this should last or what the support must or may include (Storø, Sjöblom, & Höjer, 2019; Socialstyrelsen, 2015b; Stein, 2014). However, there is an increased national awareness of the deficits in today's aftercare situation, and consequently of the need of improved support in the transition to adulthood.

OHC prevalence during the last decades

The prevalence of OHC is usually measured as the proportion of children in care at some time during a given year (as in Figures 2A and 2B), or as the proportion in care at a given date. Experience of OHC is measured as the proportion who have ever been in care at a certain age; e.g., the proportion of 20-year-olds who have ever been in care at some time during their childhood or adolescence (as in Figures 5A and 5B).

The figures included in this section cover foster care and residential care in 1975–2015 among Swedish residents[1]. There are a few other types of OHC (e.g., school homes), but these were excluded from the figures for reasons of consistency. This does not change the general picture, though, as these other types of OHC are relatively rare (Figures A1 and A2 in Appendix). The registration of OHC in the Child Welfare Intervention Register (CWIR) started in 1968, and as the CWIR holds individuals born in 1960 and onward teen placements were not registered during its first years.

The OHC prevalence in Sweden is similar to the overall rate in Europe (Figure 2A). For a given year, it is estimated that approximately 1% of European children (app. 1 million children) spend time in alternative care. Many stay in residential care institutions, even among the youngest, but due to the lack of data in many countries, not much is known about their living conditions or later outcomes (Eurochild, 2010). In comparison to the United States, Europe places children in OHC more frequently (Gilbert et al., 2011).

However, it is difficult to make international comparisons of OHC prevalence. OHC is registered and administrated differently across nations, and varied types of OHC are included in the child welfare systems. In Sweden, juveniles are handled within the child welfare system up to age 20 and are hence included in the OHC prevalence, which results in a higher proportion of teens in OHC as compared to countries where the juvenile system is handled outside the OHC system. Conversely, children with disabilities who need to temporarily live outside their home of origin are handled outside the OHC system and are not included in the OHC prevalence (Thoburn, 2007; Eurochild, 2010).

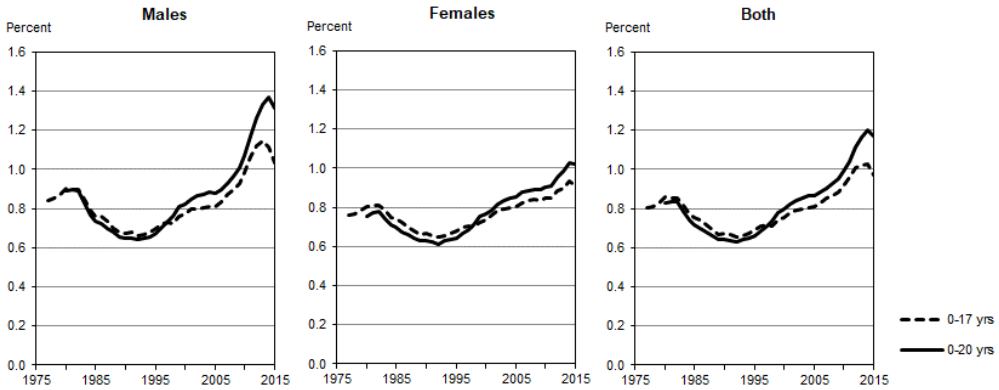
OHC prevalence has been fairly stable among younger children in Sweden since the start of registration in 1968. Below the teenage years, approximately 0.5% in the 0–6 year age group and around 0.7% in the 7–12 year age group spend time in OHC during a given year (Figure 2B). Teenage placements are more common than placements at younger ages, and have also increased in recent decades. This was particularly visible in 1998, due to changes in the Social Services Act (2001:453) when the age limit was extended from 17 to 20 years, and in 2005 due to the increased immigration of unaccompanied asylum seekers. In 2013, unaccompanied asylum seekers (with or without permanent residence) constituted more than half the proportion of teenagers in residential care homes (Socialstyrelsen, 2015a).

This section covers OHC among Swedish residents for the period 1975–2015. Hence, only unaccompanied asylum seekers with permanent residence are included in the figures. However, unaccompanied asylum seekers were not included in the individual studies in this thesis as the study populations were restricted to individuals who had been exposed to the Swedish educational

[1] Since the denominator in the calculation of proportions consisted of Swedish residents in the total population.

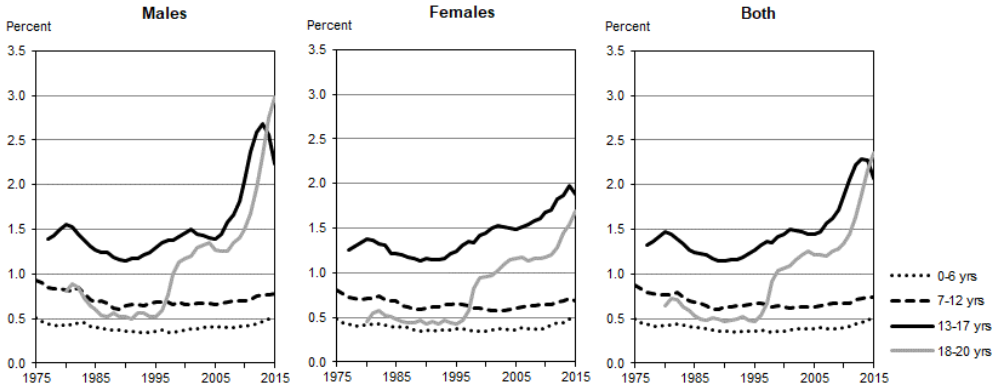
system (i.e., individuals who immigrated after age 7 were excluded in Study I; only domestic-born were included in Studies III and IV; and Study V was restricted to individuals who entered OHC before age 7).

Figure 2A. OHC prevalence by sex
Proportion of children and adolescents in OHC at some time during a given calendar year. Swedish resident by age and sex during the period 1975–2015. Percent.



Source: Child Welfare Intervention Register, National Board of Health and Welfare.

Figure 2B. OHC prevalence by age and sex
Proportion of children and adolescents in OHC at some time during a given calendar year. Swedish resident by age and sex during the period 1975–2015. Percent.



Source: Child Welfare Intervention Register, National Board of Health and Welfare.

The increase in teenage OHC, including unaccompanied asylum seekers with permanent residence, together with an increased population, has caused the

absolute number of individuals who were in OHC at some time during the year to double, from 14,000 in 1990 when the number was at its lowest point to 28,000 in 2014 when it peaked. In 2015, 27,400 (aged 0–20 years) were in OHC at some point during the year, of whom 8,800 had not yet reached their teens and 18,600 were in their teens (Figure A3 in Appendix).

The foster home is the most common type of OHC, especially among younger children. About 15% of those who spent time in foster homes did so in kinship care; i.e., they had a relationship with the foster parents before placement. About 25% spent time in emergency or short-term homes. Placement outside the home municipality (i.e., the social welfare municipality that is responsible for the child) has become more common, with about 50% placed outside the home municipality today (Socialstyrelsen, 2020b). There is no clear distinction between different types of OHC; there is a variety of care homes specializing in different groups of children, e.g. families with small children, or teenagers with certain problems. Most placements are carried out under the Social Services Act (2001:453) with the consent of the parent(s) and the child. In 2015, about a fifth of all placements (ages 0–20 years) were involuntary, under the Care of Young Persons Act (1990:52). Involuntary placement was previously more common, occurring in about a third of cases in 2005–2009, but the proportion has decreased due to the increase in unaccompanied asylum seekers in the OHC population. Involuntary placement is more common among young children. In 2018, 44% of children aged 0–6 years were placed involuntarily. The corresponding rates in the other age groups were 41% among children aged 7–12, 23% among teenagers aged 13–17, and 8% among young adults aged 18–20 (Socialstyrelsen, 2020b).

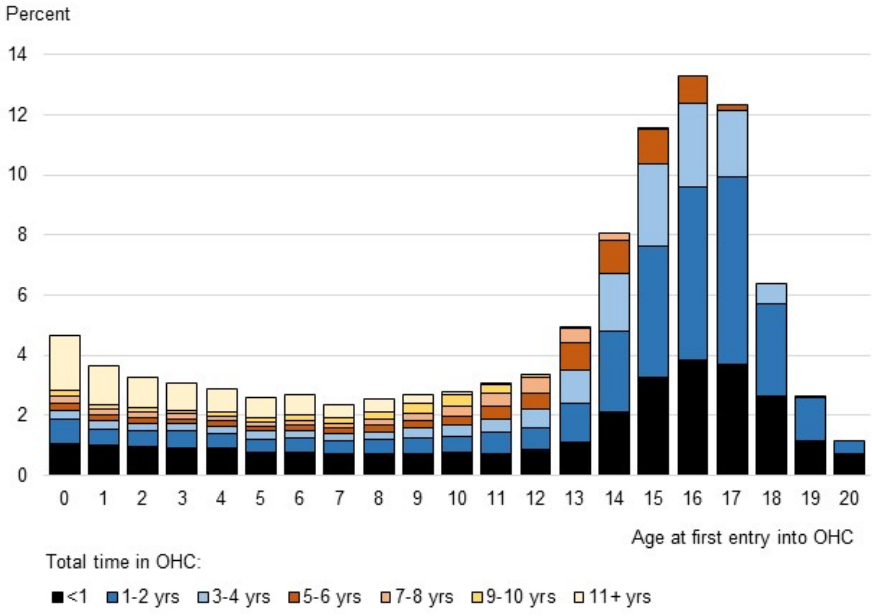
OHC experience during childhood and adolescence

In the individual studies in this thesis, educational outcomes are examined in relation to the individual's care history; i.e., age and total time spent in OHC during their childhood or adolescence. About 5% among younger adult generations have spent time in OHC at some time during their upbringing (Figure 5A). In older generations, the corresponding proportion is approximately 4%. The higher proportion among younger generations is due to the increase in teenage placements and unaccompanied asylum seekers.

The OHC population is heterogeneous in regard to age and time spent in OHC. Figure 3 shows all Swedish residents born in 1980–1994 who spent time in OHC at some time during childhood or their teens, by age at first entry into OHC and total time spent in OHC before age 21 (the stacks in the figure add up to 100%). The most common age at first entry into OHC was 16 years, and close to a third spent less than a year in care. In the total OHC population (born in 1980–1994) about three in ten spent less than a year in OHC, five in ten spent one to four years, one in ten spent five to ten years, and one in ten spent

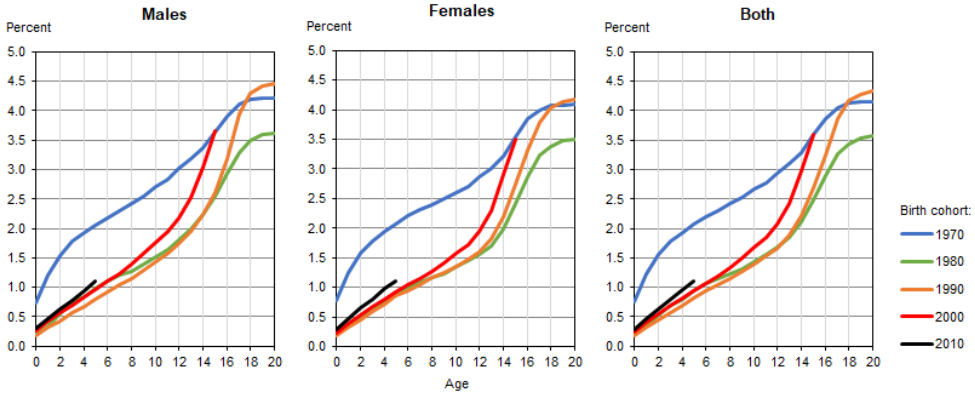
11 years or more. One in four entered care for the first time before school age (0–6 years), one in six in their early school years (7–12 years), half in their early teens (13–17 years), and one in ten in young adulthood (18–20 years).

Figure 3. Care experience in the OHC population
The OHC population born in 1980–1994 by age at first entry into OHC and total time in OHC before age 21. Percent.



Source: Child Welfare Intervention Register, National Board of Health and Welfare.

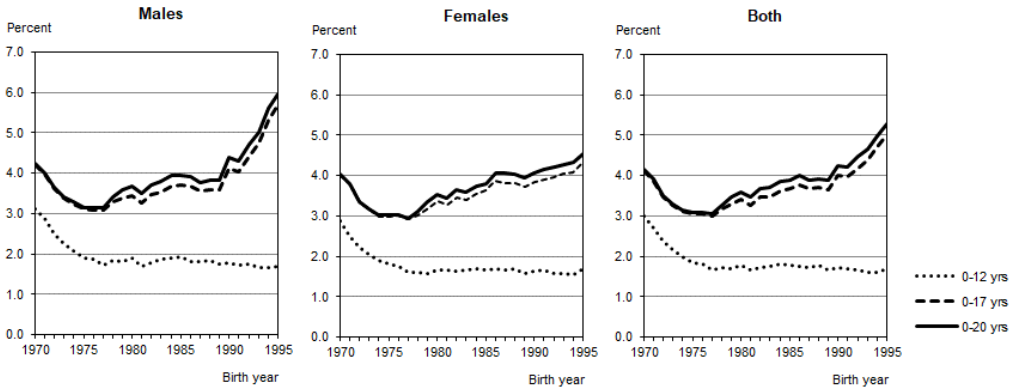
Figure 4. OHC experience by age
Proportion of the population with experience of OHC at different ages, by sex and birth cohort. Percent.



Source: Child Welfare Intervention Register, National Board of Health and Welfare.

In the 1970s, children were a bit younger when they first entered care, but in younger birth cohorts (born in 1980 and later) the age at first entry into care has been fairly stable among those who entered care before their teens (Figure 4). At the start of primary school at age 6–7 about 1% have experienced OHC, and at the start of the teenage years this proportion has increased to 2–2.5%. While OHC experience before the teenage years has remained stable over recent decades, teen OHC has grown rapidly; in younger generations, more than 3% entered OHC for the first time in their teens (Figure 5B).

Figure 5A. OHC experience among 20-year-olds
Proportion of the total population who have ever been in OHC at the end of the year they turn 20 by age at first entry into OHC, sex and birth year. Percent.



Source: Child Welfare Intervention Register, National Board of Health and Welfare.

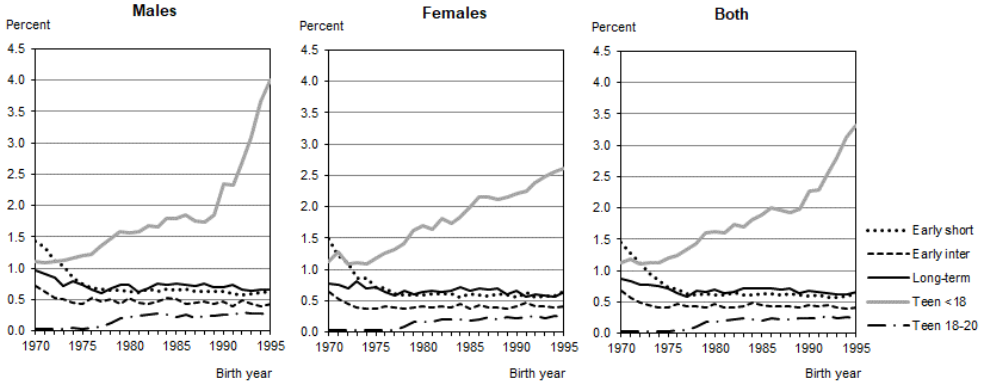
The heterogeneity of the OHC population is handled in different ways in the individual studies. None of the studies include unaccompanied asylum seekers or individuals who immigrated after primary school started, as the studies aim to investigate how children and youth from OHC fare in the Swedish educational system. Two of the studies only include the Long-term group: Study I care leavers from long-term care; and Study V individuals who have lived in the same foster family for at least five years. In the Nordic comparative studies, the OHC population is divided into sub-groups according to age at first entry and total time in care.

With these restrictions the sub-groups become more homogeneous, e.g. in relation to the reason for OHC. Young children are most often placed in care due to a parent's behavior, while teenagers are often placed in OHC due to their own behavior. Society's societal commitment and the child welfare services' possibilities to intervene in the educational situation also vary in relation to the length of time a child or youth has been in care. Many children from long-term care have been in OHC for their entire primary school period, while those in teen care might have already finished primary school when they enter

care. Or, if they enter residential care at the end of their primary school period, their schooling might be handled at the residential care home. In this descriptive section, the OHC population is divided into mutually exclusive sub-groups according to age at first entry and total time in care, as follows:

Early short:	First entry into OHC before teens and total time in OHC less than one year.
Early inter:	First entry into OHC before teens and total time in OHC one year or more but less than five years.
Long-term:	First entry into OHC before teens and total time in OHC more than five years.
Teen <18:	First entry into OHC at age 13–17 years.
Teen 18-20:	First entry into OHC at age 18–20 years.

Figure 5B. OHC experience sub-groups
Proportion of the total population who have ever been in OHC at the end of the year they turn 20 divided into OHC experience sub-groups, by sex and birth year. Percent.

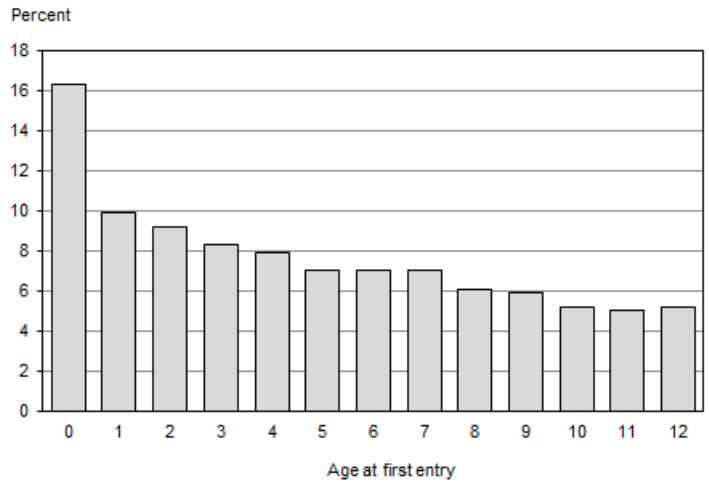


Source: Child Welfare Intervention Register, National Board of Health and Welfare.

The Long-term group

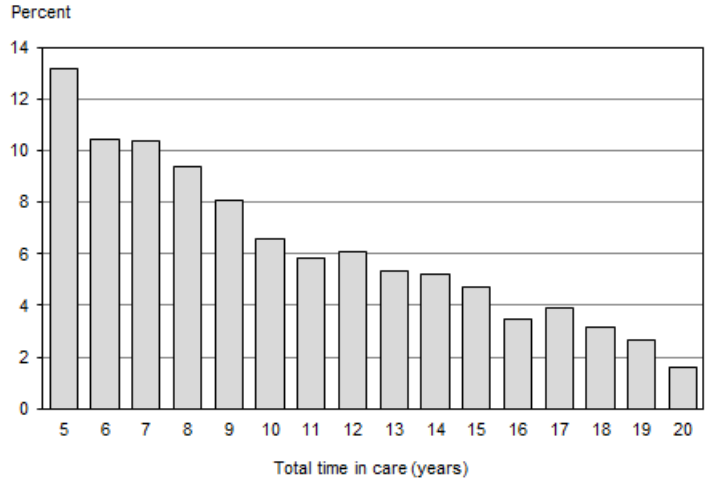
The proportion who have been in long-term care has remained stable, at close to 1%. The majority of children in the Long-term group (according to the definition in this descriptive section, see above), about two in three, were placed in care before primary school started (Figure 6) and about half had spent ten years or longer in OHC (Figure 7). In Studies I and V, the Long-term group was restricted to those who had been placed before primary school started, and the average time spent in care was longer than in the Nordic comparative studies, which follow the OHC sub-groups presented in this descriptive section.

Figure 6. Age at first entry into OHC
Individuals born in 1990–1995 from long-term care by age at first entry into OHC. Percent.



Source: Child Welfare Intervention Register, National Board of Health and Welfare.

Figure 7. Total time in OHC
Individuals born in 1990–1995 from long-term care by total time in OHC. Percent.



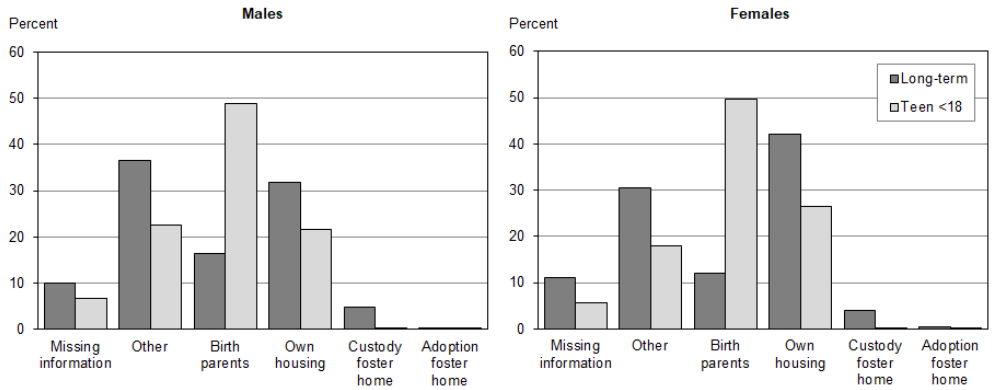
Source: Child Welfare Intervention Register, National Board of Health and Welfare.

Reunification with birth parents as soon as possible has been an overriding goal in Swedish child welfare since the 1960s, when the family service approach began to prevail. This approach aimed at early support and intervention for families in order to avoid removing children from their home of origin. In

line with this, OHC was perceived as a temporary living arrangement. However, since reunification with birth parents is not always possible, many children remain in long-term care under a regulation that is not fully adapted to their circumstances. On the contrary, it may even contribute to instability and uncertainty for this group of children (e.g., Utredningen om tvångsvård för barn och unga, 2015; Socialstyrelsen, 2014). As Figure 8 shows, a minority (12–16%) of youth from long-term care move back to live with their birth parents when they exit care, compared to about half of youth from teen care.

In recent decades, some changes have been made to the regulations in order to promote stability for children in long-term care. New regulations state that transferring custody (without adoption) of a child from birth parents to foster parents is to be considered when the child has been in care for three years or longer. In such cases, the foster family receives compensation in the same way as when the child was in regular OHC, but the OHC is terminated. To date, this has rarely been done. Adoption of foster children is also very rare in Sweden, and its potential for giving children in long-term care a more stable life situation has so far only been the subject of a number of investigations (Socialstyrelsen, 2014).

Figure 8. Living arrangements after OHC
Individuals born in 1990–1995 from long-term care and teen care (< 18 yrs.) who exited OHC at age 16+ years. Percent.



Source: Child Welfare Intervention Register, National Board of Health and Welfare.

The foster family

Most children in care are placed in foster homes, and the social services in each municipality are responsible for recruiting and investigating family homes as well as for providing education and ensuring that children in OHC receive good care. Roughly, foster families are recruited from two different groups: the child's social network, and families who wish to become foster

families. The motives for the latter group vary; there can be economic motives; a desire for a child of their own; a wish to extend their time as parents when their older children have moved out; altruistic or idealistic motives; or mixed motives, which are hard to classify. Previous research has not been successful in identifying what types of motives are the most common, or whether the motives affect the quality of care. Evidence from previous research, both Swedish and international, suggests that foster families on average have lower socioeconomic status than the general population, more often live in rural areas, and more often are farmers (Vinnerljung, 1996).

There is a lack of descriptive data on foster homes as there is no national register on foster homes. What is known about foster families comes from regional or small-scale studies (e.g., Vinnerljung, 1996; Höjer, 2001). However, in Study V on the intergenerational transmission of education in stable long-term care, information on foster parents was retrieved from censuses (three census years were used: 1980, 1985, and 1990). In this section, census data from 1990, the most recent census year in Sweden, were used to give a description of foster families of children in long-term care born in 1972–1981. These were compared to families of same-aged children in the majority population. Three mutually exclusive family groups were created: regular foster families, i.e. foster families who were not related to the foster child (n=2,603); kinship foster families, i.e. foster families in which the foster parents were aunts, uncles, or grandparents of the foster child (n=908); and majority population families, i.e. without foster children in the family (n=889,760).

The descriptive data from the census somewhat supported this evidence, but the kinship foster families differed more from general population families than the regular foster families did (Table 1). Kinship foster parents were on average older than regular foster parents, more often had one child (the foster child) living in the household, were not working, and lived in a rental apartment. Regular foster parents more often lived in a house of their own in a rural area, as compared to kinship foster parents as well as to biological parents. Birth parents of foster children who lived in kinship care were younger than birth parents of foster children in regular foster care. Regular foster families were larger (average number of children in the household), and kinship foster families smaller, than majority population families.

Foster parents had a lower average education than other parents, but not considerably lower, as has sometimes been suggested as an explanation for poor educational outcomes among foster children. Foster parents in kinship care (who were related to the foster child) had a lower average education than foster parents in regular foster families, but were also older (Table 1). The proportion of missing information was higher among fathers, especially those in kinship foster families (which was the reason for only using maternal education in Study V).

Table 1. Descriptive statistics of families

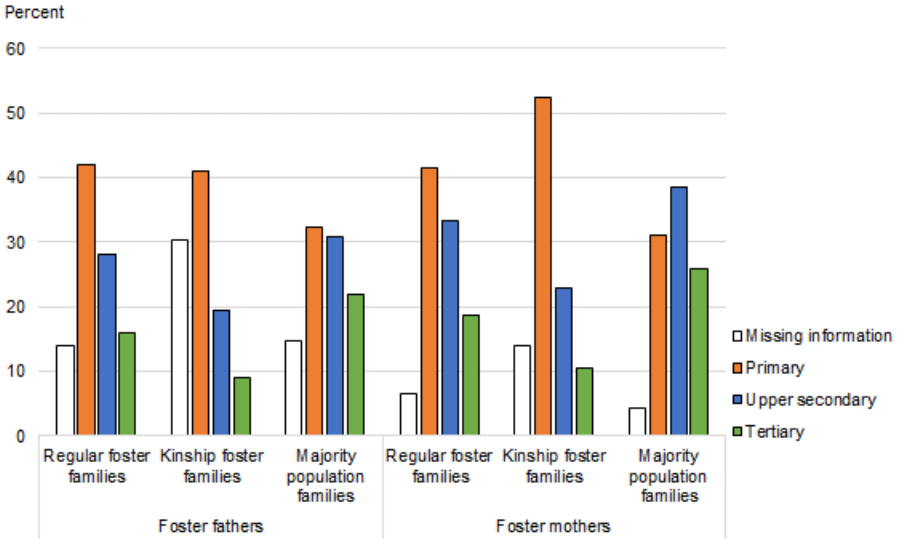
Families with children in long-term care, divided into regular foster families and kinship foster families, and families without foster children (majority population families). Families with at least one child born in 1972–1981 in the census of 1990. Percent.

	Foster families		Majority population families
	Regular	Kinship	
Socioeconomic status (%)			
Not in work force	0.5	8.3	0.9
Manual workers, unskilled	19.2	18.6	13.1
Manual workers, skilled	12.8	13.8	13.6
Non-manual employees, assistant	8.9	11.0	13.9
Non-manual employees, intermediate	20.8	14.1	22.5
Non-manual employees, higher level	9.4	6.9	14.6
Upper-level executives	1.5	1.5	3.8
Self-employed professionals	0.3	0.1	0.3
Self-employed excl. prof. and farmers	7.2	4.1	7.8
Farmers	4.2	1.7	2.5
Unclassified employees	10.5	11.8	2.7
Missing information	4.9	8.2	4.5
Total	100.0	100.0	100.0
Housing (%)			
Own house	81.1	63.8	72.7
Own apartment	3.3	6.7	6.6
Rental apartment	12.8	26.8	18.4
Other	2.3	2.3	1.9
Missing information	0.4	0.4	0.3
Total	100.0	100.0	100.0
Single-parent household (%)	*14.6*	*20.7*	*15.6*
Average age of the older (or only) parent in the household (years)	46.7	52.8	43.6
Number of children in household (%)			
One	18.6	43.3	19.2
Two	28.1	23.9	47.4
Three	25.2	19.2	24.8
Four	16.7	7.9	6.5
Five or more	11.4	5.7	2.1
Total	100.0	100.0	100.0
N	2,603	908	889,760

Sources: Child Welfare Intervention Register, National Board of Health and Welfare; and Population and Housing Census of 1990, Statistics Sweden.

Figure 9. Foster parents' educational level in 1990

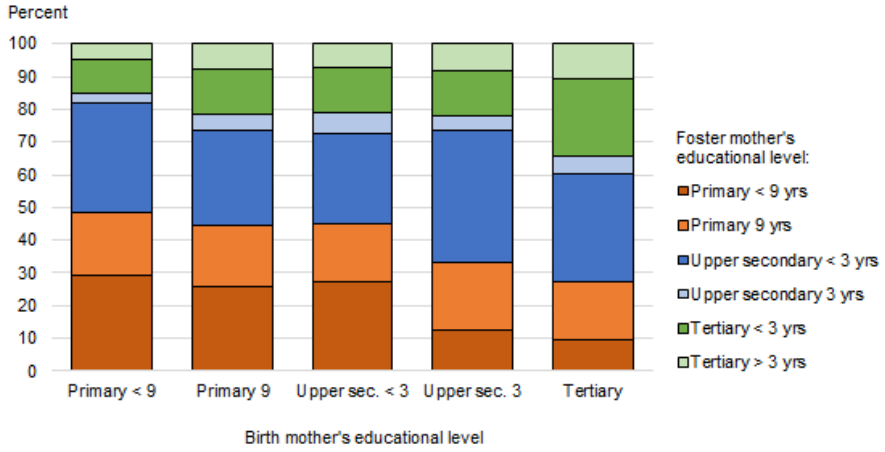
Families with at least one child born in 1972–1981. Children in long-term care, divided into regular foster families and kinship foster families, and families without foster children (majority population families). Percent.



Sources: Child Welfare Intervention Register, National Board of Health and Welfare; and Housing and Population Register and Multi-Generational Register, Statistics Sweden.

Figure 10. Foster mother's education by birth mother's education

Foster mother's educational level by birth mother's education al level in the census of 1990. Foster children in long-term care in regular foster families; i.e., not in kinship care. Percent.



Sources: Child Welfare Intervention Register, National Board of Health and Welfare; and Housing and Population Register and Multi-Generational Register, Statistics Sweden.

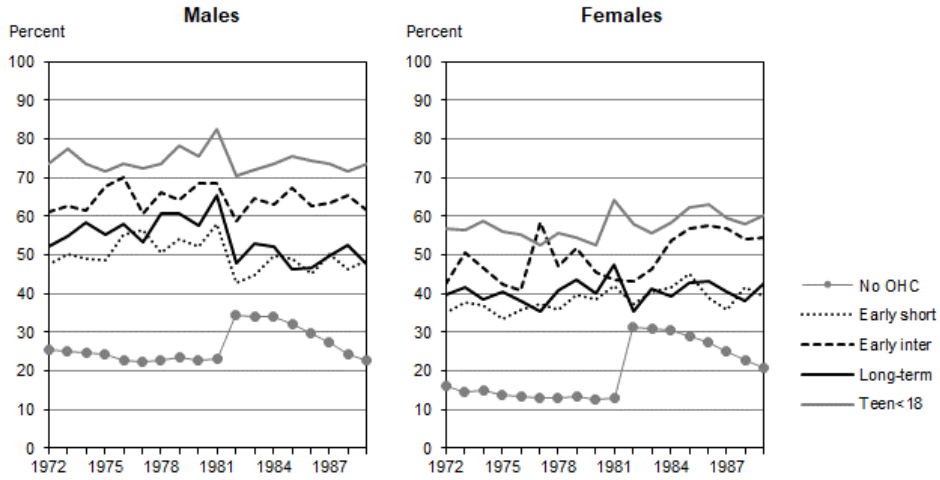
It has been hypothesized that a socioeconomic matching process is involved in the pairing of foster families and foster children, through both social welfare agencies (with or without intent) and the family network. Only regular foster families (not related to the foster child) were included in Figure 10. The figure indicates that there was some sort of matching in the Swedish foster care system, which resulted in foster children whose birth mothers had a higher education being placed in foster families in which the foster mother also had a higher education. In order to control for this matching effect, a combined variable of the birth mother's and the foster mother's educational level was used in Study V on the intergenerational transmission of education in stable long-term care. Without adjusting for the birth mother's educational level, an association between the foster mother's educational level and the foster children's educational outcomes could potentially be an effect of the birth mother's educational level (see Figure 14).

Educational patterns in the OHC population

Poor school performance

The pattern of poor educational outcomes in the OHC population compared to same-aged peers in the general population has remained fairly stable. In the 1972–1989 birth cohorts, the proportion of poor school performance was two to three times higher in the OHC population than in the general population who had never been in care (Figure 11). The Swedish grading system changed in 1994, from a norm-referenced to a criterion-referenced grading system (resulting in a cut in the time series in Figure 11).

Figure 11. Poor school performance in primary school
No or low grades (see the method section) in the last year of primary school, by OHC experience, sex, and birth year. Percent.



Sources: Child Welfare Intervention Register, National Board of Health and Welfare; and National School Register, Statistics Sweden and Swedish School Authority.

Results from a recent Swedish study suggest that this change to the grading system had a negative effect on children and youth from OHC, causing them to receive lower grades (measured as grade point average) as compared to their non-OHC peers in both primary and upper secondary school in the criterion-referenced grading system. The negative effect was stronger in upper second-

ary school than in primary school (Klapp, 2019). However, this is not visualized in Figure 11, where the proportions with poor school performance in the OHC sub-groups are compared with same-aged peers without OHC experience. The change to the grading system resulted in a much clearer deterioration (higher proportion with poor grades) in the general population just around the time when the grading system was changed. For males, the relative differences in the proportion of poor school performance between the OHC sub-groups and peers without OHC experience were about the same among the oldest (born at the beginning of the 1970s) and the youngest birth cohorts (born at the end of the 1980s). Among females, the relative differences decreased due to the higher proportion of poor grades in the general population, although the proportion with poor grades remained stable and high in the OHC population. The proportion of poor school performance was two to four times higher in the OHC sub-groups than among non-OHC peers in the oldest birth cohorts, while the proportion was two to three times higher in younger birth cohorts.

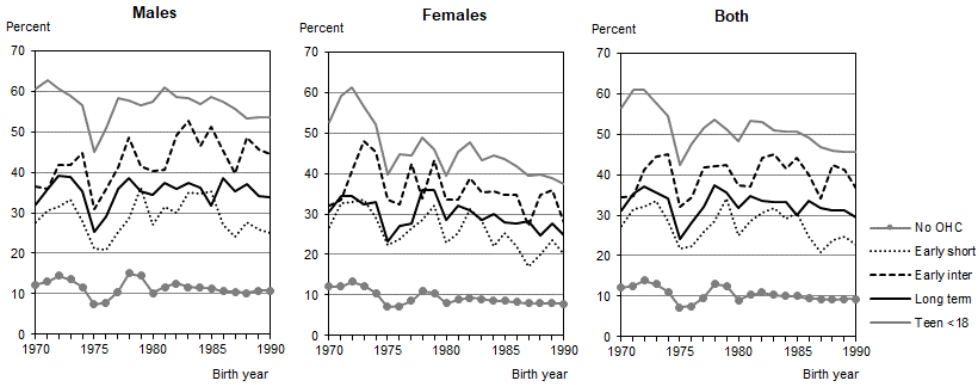
Educational attainment

The proportion of low educational attainment (only primary education at age 25) was two to five times higher in the OHC sub-groups than among their non-OHC peers (Figure 12). The relation between the different OHC sub-groups has been fairly stable, with poor educational outcomes being most common in the Teen care group, followed by the Early intermediate group, the Long-term group, and lastly the Early short group. The relative differences between the OHC sub-groups were slightly greater for low educational attainment than for poor school performance. A small proportion of individuals, 2–6% within the different groups, had missing information on educational level in the registers. If they were included the proportion with low educational attainment would increase slightly, but the patterns would remain similar (Figure A4 in Appendix). In the domestic-born OHC population, mainly among males in the Teen group, the proportion with low educational attainment is slightly higher than in the total OHC population (Figure A5 in Appendix).

In 1991 the upper secondary system changed, with all tracks at this level now lasting three years and preparing students for tertiary education. Enrollment rates at the tertiary level also increased, and the political intention was that at least half of those in every birth cohort was to have enrolled in tertiary education before age 25 (Studiesociala utredningen, 2003). These educational reforms were intended to both equalize educational opportunities between socioeconomic strata and provide the market with better qualified labor (Erikson, 2017).

Figure 12. Only primary education at age 25

Proportion with primary education as the highest completed educational level at age 25 by OHC experience, sex, and birth year. Percent.



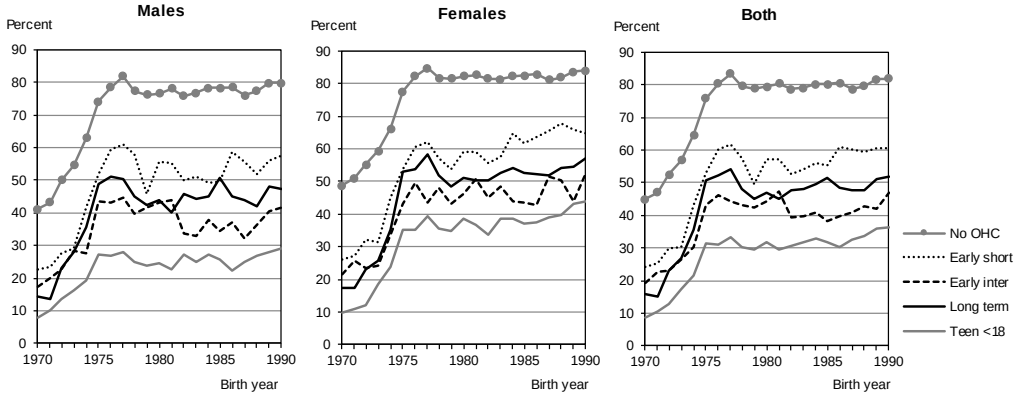
Sources: Child Welfare Intervention Register, National Board of Health and Welfare; and National Educational Register, Statistics Sweden.

The expansion of upper secondary education in 1991 involved the birth cohorts from 1975 onward. Because of the huge shift in proportions that followed the educational expansion, comparisons are made in absolute instead of relative differences. In the general population, the proportions who had at least three years of upper secondary education at age 25 increased by 37 percentage points between the 1970 and 1990 birth cohorts (Figure 13). The increase was almost as great in the Early short and Long-term groups (36 percentage points), while that in the Early intermediate and Teen groups was lower (28 percentage points). However, the increase rate differed between males and females. All male OHC sub-groups had a lower increase rate than males in the general population, while females in the Early short and Long-term groups had a higher increase rate than females in the general population. However, all OHC sub-groups had substantially lower educational attainment (i.e., proportion with at least an upper secondary education at age 25) than their peers without OHC experience.

The OHC population, especially males, did not benefit from the educational expansion of tertiary education to the same degree as their same-aged peers in the general population. In the general population, the proportions who had a tertiary education at age 25 increased by 13 percentage points between the 1970 and 1990 birth cohorts (Figure 14). The increase was higher among females than among males: 20 and 7 percentage points, respectively. The corresponding increase rates among females and males with OHC experience were lower. Females who were in early short OHC (less than one year of OHC before their teens) had the highest increase rate at 12 percentage points. Still, this rate was lower than among females without OHC experience, and the absolute difference between females in the Early short group and females without OHC

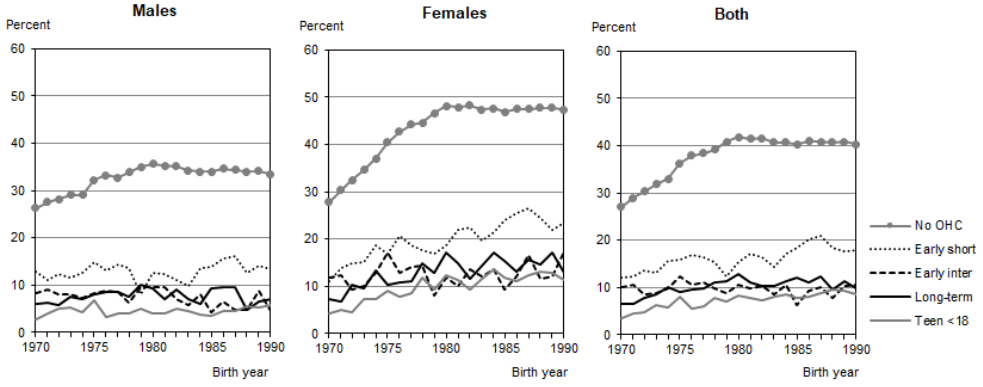
experience increased from 17 to 24 percentage points in the 1970 birth cohort compared to the 1990 birth cohort.

Figure 13. At least three years of upper secondary education at age 25
Proportion with three years of upper secondary education or with tertiary education as the highest completed educational level at age 25 by OHC experience, sex, and birth year. Percent.



Sources: Child Welfare Intervention Register, National Board of Health and Welfare; and National Educational Register, Statistics Sweden.

Figure 14. Tertiary education at age 25
Proportion with tertiary education as the highest completed educational level at age 25 by OHC experience, sex, and birth year. Percent.



Sources: Child Welfare Intervention Register, National Board of Health and Welfare; and National Educational Register, Statistics Sweden.

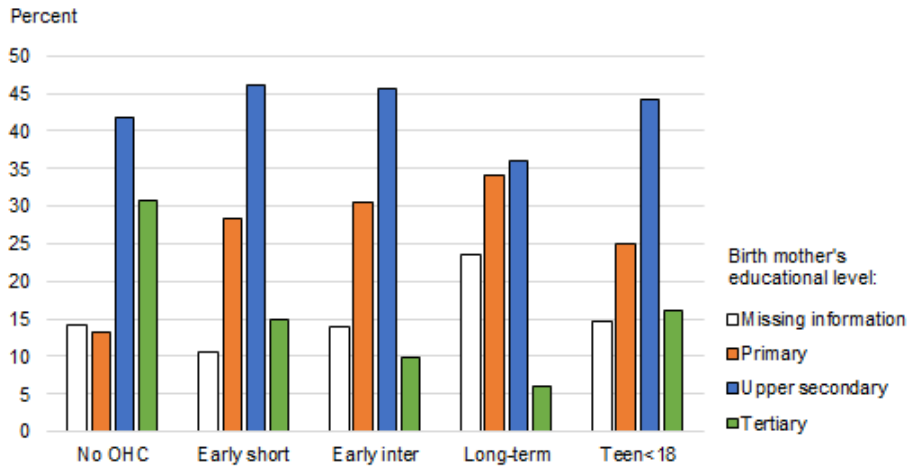
Parental educational attainment

On average, the birth mothers of individuals in the OHC population have a lower educational attainment than birth mothers in the general population,

whose children have never been in OHC (Figure 15). However, in all OHC sub-groups except the Long-term group, a majority have at least an upper secondary education. *Upper secondary education* refers to at least two years at the upper secondary level (as the mothers were in school before the educational reform of 1991 when upper secondary education was extended from two to three years). In the Long-term group a large proportion was missing in the Educational Register, primarily because many of the mothers are deceased (not shown). Parental education is known to be a robust determinant of children's educational outcomes, which is also the case in the OHC population (Figure 16).

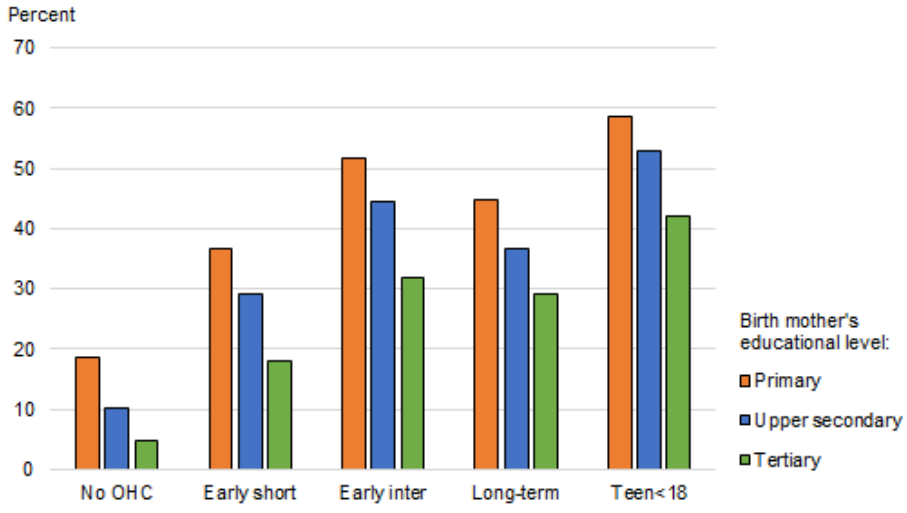
Figure 15. Birth mother's educational level

Birth mother's educational level (at age 25 of OHC individual) among OHC individuals born in 1980–1989. Percent.



Sources: Child Welfare Intervention Register, National Board of Health and Welfare; and National Educational Register, Statistics Sweden.

Figure 16. Only primary education by birth mother's educational level
Proportion with primary education (or missing information) as the highest completed educational level at age 25 among OHC individuals born in 1980–1989 by birth mother's educational level (at age 25 of OHC individual). Percent.



Sources: Child Welfare Intervention Register, National Board of Health and Welfare; and National Educational Register, Statistics Sweden.

Theoretical and empirical framework

This section is guided by three questions: (1) What are the potential explanations for the high prevalence of poor educational outcomes among children and youth from OHC? (2) Why are these patterns important, for both society and the individuals in the OHC population? (3) What do we know from general population studies on social mobility and reproduction of educational attainment?

Social stratification concepts

Many concepts and theories in educational research are rooted in the field of social stratification theory, a discipline that focuses on the distribution of resources between and within population groups, and what causes inequality in the distribution of such resources. Stratification systems can be described as having three basic components: the institutional processes that determine which goods are desirable; the rules of allocation that determine how these goods are to be distributed across occupations or positions; and the mobility mechanisms that link individuals to certain occupations or positions. Inequality in the distribution of resources is produced in the matching process, whereby individuals are allocated to positions that hold different 'reward packages'. From the perspective of society, the matching process ensures that tasks are done in an efficient way to manage a well-functioning society; and from the perspective of individuals, the matching process entitles access to resources that offer opportunities over one's life course (Grusky & Weisshaar, 2014).

Distribution determinants (stratification systems) are roughly divided into two groups: those at the contextual level and those at the individual level. The three main institutions at the contextual level are the welfare system, the educational system, and the labor market, while the family is the main institution at the individual level. The degree to which families reproduce inequality varies depending on the division of responsibilities between the family and the institutional systems at the contextual level (McLanahan & Percheski, 2008; Cantillon, Collado & Van Mechelen, 2017; Lee & Mason, 2011). Sweden and the other Scandinavian countries are typically classified as universal welfare states of a social-democratic model (Powell et al., 2019), with a high degree

of decommodification and de-familialization; i.e., individuals' dependence on the market and the family for satisfying their needs is low (Saraceno & Keck, 2011). Universal welfare regimes are characterized by more comprehensive risk coverage, generous benefit levels, and egalitarianism, and the use of needs-based assistance is minimized (Esping-Andersen, 1999). As the institutional systems have a relatively strong equalizing effect in Sweden, social inequalities are small in international comparison, although they have increased in recent decades (Eriksson & Jonsson, 1996; Esping-Andersen, 2016).

Stratification mechanisms are found to be stronger in the top and bottom strata of the socioeconomic ladder (Blanden, 2013). As most research on social stratification and inequality nevertheless concerns the general structure, population groups at the two ends of the social spectrum, or specific population groups, often become invisible when general structures are examined. The OHC population is primarily concentrated at the bottom of the socioeconomic ladder (e.g., Vinnerljung & Andreassen, 2015), and their origin families are often dependent on needs-based assistance; i.e., support provided by the social welfare authorities, which the universal welfare states actively try to keep at a minimum (Esping-Andersen, 1999).

In stratification theory, inequality is viewed as multidimensional, with different types of assets being exchangeable and used as 'raw material' in the stratification systems. Economic assets (e.g., income, wealth) entail one type of asset, while other groups include: power (e.g., political or workplace authority), cultural (e.g., knowledge or manner), social (e.g., networks), honorific (e.g., occupational or religious merits), civil (e.g., rights), human (e.g., on-the-job training or general schooling), and physical (e.g., somatic or mental health). Some assets are present at birth, while others are achieved through investments over the life course; and some assets are more easily converted than others. Good manners and social networks are examples of assets in which childhood socialization is important, but they also offer an advantage in the process of achieving other types of assets, e.g. employment. Vocational and academic education, which is achieved in the educational system or at the workplace, is defined as a human asset, while knowledge is defined as a type of cultural asset. Depending on how the stratification systems are organized in different societies, the value of assets varies (Grusky & Weisshaar, 2014). For example, in countries where education is free, economic assets have a lower value in the educational system than in countries where education is costly. However, economic assets can be converted into other assets with a higher value in an open educational system; e.g., school performance by hiring tutors to help children with their homework, or school quality by moving to a certain neighborhood.

Four main parameters are typically of interest in research on inequality: (1) the amount of inequality, (2) the rigidity in the inequality, (3) the degree to which traits ascribed at birth determine inequality, and (4) the degree to which

inequality coheres (crystallizes) (Grusky & Weisshaar, 2014). All these parameters are relevant in studies on educational outcomes among children and youth from OHC.

Education – a main factor for social stratification

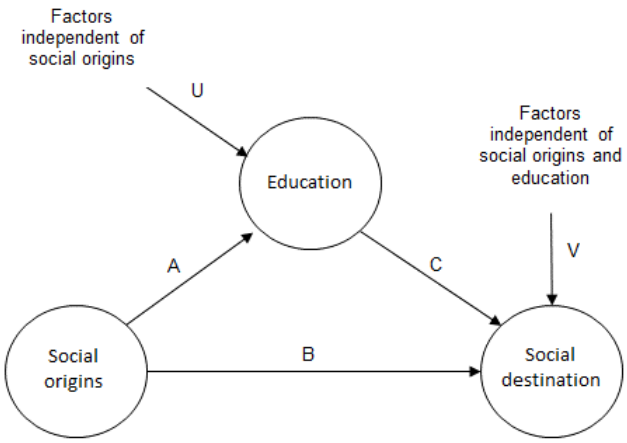
So why is education such an important factor for the distribution of resources within societies? The short answer is: Because it is crucial for entrance onto the labor market and for future occupational achievements, and hence provides means for self-sufficiency and future life opportunities. The importance of education as a determinant of future opportunities has continuously increased in Sweden since the 1950s as a result of the shift from an agricultural economy, in which land was the important asset, towards an advanced industrial and post-industrial economy in which skills achieved in the educational system are regarded as the principal asset in the socioeconomic stratification process (Grusky & Weisshaar, 2014). An effect of this shift was that meritocratic selection became more decisive on the labor market, which may promote social equality if education is accessible for individuals regardless of their social background. This is why an open educational system can be a powerful tool for stimulating social mobility (European Commission, 2010).

A vast body of international research on social stratification and social mobility over the last 50 years has led to a number of empirical generalizations. One is that "Social mobility exhibits a common pattern but varies in strengths across nations and over time" (Hout & DiPrete, 2006, p. 3), and another is that "Education is the main factor in both upward mobility and the reproduction of status from generation to generation" (Hout & DiPrete, 2006, p. 6). These generalizations do indeed appear to be valid for the OHC population. International research shows a similar pattern, across countries and time, of young people from OHC being disadvantaged in the educational system (e.g., Gypen et al., 2017; Trout, Hagaman, Casey, Reid, & Epstein, 2008), and education being a key factor for the OHC population's future opportunities (e.g., Vinnerljung et al., 2010; Forsman, Brännström, Vinnerljung, & Hjern, 2016). However, cross-country OHC comparisons are rare (cf. Cameron et al., 2018), and the variation in the strength of mobility patterns between countries is yet unsettled.

The second statement may be perceived as contradictory, if one assumes that education can only hold one mechanism – either promoting upward social mobility or promoting the reproduction of social status. This was also argued in the early days of educational inequality research, which has today shifted towards Blau-Duncan's status attainment model (Figure 17). This model illustrates that, due to the central role of education on today's labor market, education can promote social mobility if factors independent of social origin have an impact on educational achievement (U). In the case of children and

youth from OHC, such factors might be educational support while in care, or later in the pathway, with after-care support when young people exit care (V). There is plenty of evidence that education is a strong mediator of socioeconomic status in the parent-child link; i.e., that the association is strong both between social origins and education (A) and between education and social destination (C). But upward social mobility can also be promoted in the educational system as long as there is an independent association between education and social destination. The educational system has a stronger stratifying impact in Sweden than in many other Western countries as the influence of social origins, on continuing in education, is mediated by school performance (Jackson, 2013, 2014; Rudolphi, 2013) and the association between education and social destination (C) is strong (Breen, 2010).

Figure 17. The status attainment model
A simplified illustration of Blau-Duncan's status attainment model.



A = the variation in education that comes from social origins. B = the variation in social destination that comes from social origins. C = the variation in social destination that comes from education. U = the variation in education that comes from factors independent of social origins. V = the variation in social destination that comes from factors independent of education and social origins.

Source: Adaptation of illustration in Hout & DiPrete, 2006.

Legalizing socioeconomic differences

Social stratification theory distinguishes between the distribution of resources (or assets; e.g., economic, social, human, physical) and the distribution of opportunities to achieve these resources, whereby the latter is crucial in defining an open and 'fair society' (Breen & Jonsson, 2005; Grusky & Weisshaar, 2014). However, it is debated whether the latter is possible to achieve without the former (Esping-Andersen, 2015).

The impression of fairness is also what makes the educational system such a powerful stratification system, as in the universal welfare regimes where education is perceived to be acquired in fair competition since it is free. Some scholars claim that educational attainment has become a way of justifying inequality, and that low educational attainment today is more stigmatizing than poverty was in the past, as it is perceived as an independent measure of individuals' ability. Therefore, it is potentially more influential to the self-identity (Alon, 2014) especially in state educational system where education is free (Mills & Gales, 2010). Bourdieu's theories on the reproduction of social and cultural inequalities especially emphasize this feature; that the educational system reproduces power and privilege within the privileged classes in a concealed way, which allows its members to view their success as a result of superior ability (Bourdieu & Passeron, 1990).

The fairness of the educational system relates to what causes the high prevalence of poor educational outcomes in the OHC population; i.e., if adverse childhood experiences or factors within the institutional systems are the prevailing determinant of low educational attainment. It is clear that the group is generally disadvantaged when it comes to the availability of resources in their home of origin. In this respect, this group may even be regarded as one of society's most vulnerable (e.g., Vinnerljung & Franzén, 2006; Vinnerljung, 1996). In order to provide children and youth from OHC with 'fair' opportunities, two prerequisites must be met: (1) factors that are independent of social origins (U in Figure 17) must compensate, at least to some degree, for weak resources in the home of origin; and (2) the independent association between education and social destination (C in Figure 17) must be strong.

The educational system

The educational system has been actively used in Sweden as a tool for decreasing social inequality. Sweden is also one of few countries where educational inequality has decreased during the educational expansion (Breen & Jonsson, 2007). In most other advanced industrial countries, the educational expansion has primarily been driven by cohort effects; i.e., by an increase in educational attainment among younger cohorts as compared to older cohorts (Grusky & Weisshaar, 2014; Erikson & Goldthorpe, 2014; Breen, 2014; Breen, 2010). However, gender inequality has declined sharply in all economically advanced countries and even reversed in many countries (Breen & Goldthorpe, 2014). Today, boys generally have lower educational outcomes than girls, in both the OHC population (e.g., O'Higgins et al., 2017), and the majority population (e.g., OECD, 2018). The decrease in educational inequality between social groups in Sweden was primarily an effect of the expansion of primary and upper secondary education half a century ago. In later decades,

when tertiary education was expanded, the development stalled due to a saturation in the socioeconomic upper stratum, and muted mechanisms in the bottom stratum. In recent years, there has even been a tendency of increased educational inequality (Breen & Jonsson, 2007) and increased educational differentials (OECD, 2018).

An open educational system

Individuals' educational decisions are often discussed from the perspective of the rational choice model, whereby proceeding to higher educational levels is dependent on the cost of remaining in education, the (perceived) likelihood of success in continued education, and the (perceived) value of further education (Breen & Goldthorpe, 2014). Three features have been identified as especially important for an open educational system and equal educational opportunities: (1) the degree and timing of tracking (at what age educational choices are made) (Breen & Jonsson, 2005; Brunello & Checchi, 2007; Triventi, Panichella, Ballarino, Barone, & Bernardi, 2016); (2) the cost of education (Beller & Hout, 2006; Birkelund, 2006); and (3) the overall enrollment rates (Breen, 2010; Breen & Jonsson, 2005).

According to these features, Sweden has an open educational system where the degree of inequality in educational opportunities is low from an international perspective (e.g., Jackson, 2014). Education is publicly funded and free at all educational levels. Primary school stretches over ten years (nine years when the study population went to school) and is compulsory from age 6 to age 15–16, while education at higher levels is voluntary. Parents are responsible for economically supporting their children until they complete upper secondary education, though only until they turn 21 years of age (Socialstyrelsen, 2013a). When children reach majority age, the child benefit is replaced with a study benefit until completion of upper secondary school. At the tertiary level, the study benefit is supplemented by study loans at a low interest rate. Students start repaying their loans when they are employed, and payment amounts are set in relation to their yearly income. Admittance to higher education is centralized by governmental authorities, and relies on previous educational achievement. Enrollment rates are high. Most students (98–99%) continue to upper secondary education, to either academic or vocational tracks, and the completion rate is over 80% at age 21 and close to 90% at age 31. About half of all students in younger birth cohorts proceed to the tertiary level (Bäckman, Jakobsen, Lorentzen, Österbacka, & Dahl, 2015; Albæk et al., 2015; OECD, 2019).

Tracking – managing students' heterogeneity

The educational system can be said to have two contradictory goals: it should both stratify students into different positions in society, and simultaneously

promote social integration. Tracking is a way of managing students' academic heterogeneity (Dupriez, Dumay, & Vause, 2008) and linking the educational system to the labor market (Bäckman et al., 2015). It is argued that a high level of tracking increases graduates' labor market relevance, but inequality in educational opportunities tends to increase and the association between socioeconomic background and academic achievement becomes stronger. Evidence shows that the overall academic performance in the population becomes higher when the degree of tracking is low, as a larger proportion of students reach higher academic levels without being sorted out at an early age. However, results from a comparative study of the OECD countries suggest that different tracking systems do not have significant impact on the academic performance of the lowest achievers (Dupriez et al., 2008).

Sweden has a low level of tracking. There are no decisive choices at the compulsory level that affect entry into upper secondary school. Everyone has the right to start an upper secondary education; even without having graduated from compulsory school, through the addition of an extra year at the beginning of upper secondary school to make up for the missed courses. However, admittance to upper secondary education was somewhat restricted in 2011 due to requirements regarding the completion of basic primary level courses, which seems to have had a negative impact on the OHC population's enrollment in upper secondary education (Socialstyrelsen, 2016).

All tracks in upper secondary school, even the vocational ones, give access to the tertiary level. Different tracks at the tertiary level do have different qualification requirements upon completion of specific upper secondary courses, e.g. mathematics at a certain level, but these can be supplemented by admission to the adult education system, which is accessible to all ages. The adult educational system also offers opportunities to improve previously failing grades (Bäckman et al., 2015; Albæk et al., 2015).

The family institution

It is well known that family factors are important for children's future opportunities, but little is known about the influence of foster family factors on foster children. The OHC population is rarely included in studies on family complexity, which typically refer to children living in different family compositions over time due to changes in their parents' partnership behavior (e.g., Chambers, 2012; Carlson & Meyer, 2014; Thomson, 2014). Still, many children and youth from OHC have indeed experienced different family compositions during their upbringing, both in their home of origin and while in care.

Reproduction of inequality

The family is regarded as the key institution for social stratification at the individual level as it is the main organizer of assets among individuals, e.g. instrumental, emotional, or financial. The degree to which families reproduce inequality in societies is dependent on the division of responsibilities between the family, the market, and the welfare state (e.g., Esping-Anderson, 1999; 2016). As with education, the educational system can reduce social inequality if factors independent of social origin have an impact on educational achievement. The Scandinavian welfare states promote gender equality, and one cornerstone has been universal daycare for younger children in order to enable their parents to engage in work outside the home (Saraceno & Keck, 2011; Chambers, 2012). The universal daycare system has also promoted social equality. In the Scandinavian countries, where the vast majority of pre-school children participate in high-quality daycare, differences in pre-school abilities are found to be smaller than in other countries, and the beneficial effect of daycare on later academic achievement to be stronger among children whose parents have lower educational levels (Esping-Anderson, 2016). However, participation in daycare varies among children from different socioeconomic backgrounds, and children in lower socioeconomic strata, e.g. those whose parents are unemployed, have a lower participation rate than children in higher social strata (Skolverket, 2018).

From a vast body of research it is well established that parental social status is one of the strongest and most robust predictors of children's school performance and future educational attainment; i.e., that children from advantaged social backgrounds perform better in school and achieve higher levels of educational attainment in adulthood than children from less advantaged social backgrounds (Breen & Goldthorpe, 2014; Breen & Jonsson, 2005; Hertz et al., 2007; Reardon, 2011). The correlation between parents' social position and their children's social destination is especially strong at the bottom and the top of the social spectrum (Blanden, 2013; Karlson & Holm, 2011; Esping-Andersen, 2012; Sirniö, 2016), as different dimensions of social status, e.g. income, education, wealth, and professional position, overlap and enforce each other (Hällsten & Thaning, 2018). Educational homogamy (that partners have similar educational levels) is also known to be strong in most countries (Kalmijn, 1998), which further enhances the intergenerational transmission of education. Findings from a Danish study suggest that wealthy families invest a great amount of time in socializing and building networks that empower their children in school, in relation to both classmates and teachers (Bach, 2014). Instability in placements, and thus in the home environment, will potentially impair these time-consuming processes. In addition, children in care may need more support in their schoolwork than other children. These resources may not be available in the foster or residential care home.

The transmission of educational opportunities from parents to children involves multiple factors that are intertwined and difficult to disentangle, e.g., genetics, personality traits, academic home environment, educational aspirations, living areas, and school quality. Researchers in several fields have tried to disentangle these factors, and there are many different conceptualizations of the processes and mechanisms that contribute to the strong association between social origins and educational outcomes. Central to many theories is a separation of differences determined by 'ascribed' and 'achieved' characteristics, whereby a strong influence of 'achieved' characteristics is a sign of more equal opportunities (e.g., Gregg, Jonsson, Macmillan, & Mood, 2017). However, these theories are not easily converted into measurable model specifications and variables. The studies in this thesis are dependent on national register data and are consequently limited by variables covered by these registers, e.g. grades and educational level.

One distinction between 'ascription' and 'achievement' (which relates to grades and educational level) is whether educational inequalities are the result of differences in educational ability (performance) or of differences in educational decisions regardless of educational performance (choices), or a combination of the two. In line with this, the intergenerational transmission of educational attainment has been decomposed into one part determined by differences in performance (the primary effect) and one part determined by choices (the secondary effect) (Boudon, 1974; Erikson & Rudolphi, 2010; Jackson, 2013). Generally, a low intergenerational transmission effect indicates a low level of educational inequality, as individuals' educational opportunities are not highly dependent on parental education. Transmission determined by differences in performance (the primary effect) is found to be fairly stable between countries and over time, while transmission determined by differences in choices (the secondary effect) varies to a higher degree and is relatively low in the Nordic countries in international comparison (Erikson & Jonsson, 1996; Jackson, 2014).

The concept of social origins also distinguishes between nature (i.e., genetics, heritability) and nurture (i.e., social ascription, environmentality) (e.g., Nielsen, 2006; 2018), which relates to the case of children growing up with someone other than their birth parents. While children in care have rarely been studied in these fields of research, there are some studies on the intergenerational transmission of educational attainment among adoptees that may be seen as a parallel to the foster care setting, as it involves other caregivers than birth parents. When adoption involves infants, the influence of the birth parents is argued to capture broad pre-birth factors, including genes and prenatal environment, while the effect from adoptive parents captures broad post-birth factors, such as upbringing environment. Previous studies suggest that the transmission effect from adoptive parents is lower than that from birth parents, with approximately a third (Björklund, Lindahl, & Plug, 2006) to a fourth (Sacerdote, 2004) of the transmission effect in the mother–child link among

non-adoptive peers. It has been argued that the assignment of children to adoptive families is not always random, and that some adoption studies are influenced by a positive correlation between the characteristics of birth and adoptive parents (Björklund, Jäntti, & Solon, 2007). This might explain the lower transmission effect in the study by Sacerdote, which involved randomly assigned Korean-American adoptees, as compared to the study by Björklund and colleagues, which involved domestic adoption in Sweden. The joint impact of birth parents and adoptive parents was similar to the single impact of birth parents among non-adoptive peers, indicating that the adoption per se had a negligible effect for adoptees' educational outcomes (Björklund, Lindahl, & Plug, 2006).

Changes in family patterns

Increasing divorce/separation rates have been one key component in the change in family patterns in recent decades towards more dynamic and varied family constellations in which single parents and re-cohabitating couples have become more common (e.g., Härkönen, 2014; Chambers, 2012). Even though these changes might not have influenced the prevalence of OHC per se, as the reason for OHC relates to factors associated with marginalization, it might still have influenced children's living arrangements while they were in care: Firstly, it might have contributed to difficulties in recruiting foster families – which is indeed difficult today (Socialstyrelsen, 2016). It is a great responsibility to include an additional child in one's family, especially since foster children's pre-care experiences may require additional support (Schuengel, Oosterman, & Sterkenburg, 2009; Pears, Kim, & Brown, 2018; Heckman, 2014). A higher proportion of single-parent households and re-cohabitating families in the population, together with the dual-earner family model (Saraceno & Keck, 2011; Chambers, 2012), may have made it more difficult to recruit foster families than it was a couple of decades ago. Secondly, parental separations may also affect foster children while in care and cause instability in placements. Results from a Swedish study suggest that foster parents' divorce is a cause of disruption in placements (Socialstyrelsen, 2012; Vinnerljung, Sallnäs, & Berlin, 2014).

Although data on OHC prior to 1968 are lacking, other sources indicate that foster care was more common in historic times due to a higher prevalence of poverty and premature mortality (Sköld, 2012; Vinnerljung, 1996; Vanvårdsutredningen, 2011). When adults were asked in the 1980s if they had lived with both their birth parents for their entire childhood, only 69% of those born in 1900–1909 answered that they had, compared to 82% among those born in 1950–1959 (Table A1 in Appendix), at the peak of the nuclear family model when parental separation was low and material standards had begun improving (e.g., Cherlin, 2012). At the beginning of the 1900s, parental death was the most common reason for not living with both birth parents. Over time

parental separation became more common, while other reasons like parental illness or unsatisfactory social conditions remained fairly stable through generations. Among individuals born in 1900–1969, the proportion who had lived with foster parents for most of their childhood varied between 1 and 2% (Statistics Sweden, 1992). Among the oldest cohorts, however, due to premature mortality in the OHC population (Manninen Pankakoski, Gissler, & Suvisaari, 2015; Almquist et al., 2018) there might be a selection bias that results in an underestimation.

The family distributes resources in several dimensions

The family distributes resources in several dimensions (e.g., Barclay, Lyngstad, & Conley, 2018); i.e., both within and between families and generations (Figure 18). Some families have more resources than others, which results in differences *between* families at present (e.g., income inequality) and for future generations (e.g., intergenerational transmission of educational opportunities). Furthermore, families also distribute resources *within* the family (e.g., between spouses) and between generations (e.g., parents' interaction with children of different ages or with stepchildren compared to biological children). Factors associated with the reason for OHC, e.g. parental social problems, and with the discontinuity in the family setting may cause the OHC population to come out disadvantaged in these processes – even though the welfare systems even out some of the differences between and within families (McLanahan & Percheski, 2008; Cantillon et al., 2017; Lee & Mason, 2011; Esping-Anderson, 2016; Erikson & Jonsson, 1996).

Figure 18. *Different dimensions of inequality in regard to the family*

	Between families	**Within families**
Within generations	A) E.g. income inequality	C) E.g. houseworks
Between generations	B) E.g. transmission of educational opportunities	D) E.g. sibling differences

Theories on how parental separations affect children's well-being and future opportunities, e.g. educational attainment, share many of the perspectives from studies on children in care. Four theoretical perspectives (mainly involving inequality between different types of families; see Sections A and B in Figure 18) have been particularly influential in research on parental separation (Gähler, 1998): (1) The crisis perspective focuses on the acute stress caused by the dissolution of the family, and the separation from the parent with whom the child will no longer live on a daily basis. This is also valid for children in care, with the difference that children in OHC live with neither of their birth

parents when they have been placed in care. (2) The economic deprivation perspective focuses on the loss of material resources when parents change from sharing the costs of one household to each of them maintaining a household of their own. In contrast to parental separation, foster children are likely to move to a family with a better economic standard than in their home of origin as foster families have been approved by the child welfare services, which consider their material standard. (3) The family structure perspective focuses on changes in the parent-child relationship when one parent leaves the family, which leads to less time with the child, while the other parent may be left with a greater share of the responsibilities, which potentially decreases their attention to the child. In the foster family setting, the family structure is usually more complex and involves relationships between birth parents, foster parents, and the child welfare services. (4) The inter-parental conflict perspective focuses on conflicts between parents after divorce, which might be more influential to children's well-being than the separation itself. Conflicts in the surroundings of children in care are a prevailing problem in many OHC cases, and may have strong influence on the children's well-being.

Studies on family patterns also involve dimensions of the distribution within families (Sections C and D in Figure 18). A less continuous history in the family is found to weaken the emotional bonds between family members (Amato, 2005). Evidence from American studies on the intergenerational exchange of resources (e.g., instrumental, emotional, and financial) shows that there is a strong degree of reciprocity, either explicit (i.e., solidarity) or implicit (i.e., emotional attachment), in the assistance between generations. But that family dissolution is associated with a lower degree of intergenerational exchange, and that the normative responsibly is greater towards kin than step-kin (Ganong & Coleman, 2006; Lee & Mason, 2011), which may apply to foster children as well. It is also argued that families in post-industrial societies are based on emotional bonds ('pure relationships') rather than on the production of necessary goods, as in pre-industrial societies (Chambers, 2012). But it is hard to say how this change has affected foster children's overall situation within foster families. Both in Sweden and internationally, older generations of foster children have testified that they were used as labor and treated very poorly (Vanvårdsutredningen, 2011; Sköld, 2012).

Furthermore, foster families differ from other family constructions, e.g. re-cohabiting families, as the foster family is usually a non-permanent setting. As mentioned, the intention is typically for the child to reunify with his or her birth parents. While the child is in OHC, the foster family is to facilitate a continued relationship between the child and his or her birth parents – as well as maintain contact with the child welfare services. This construction is sometimes referred to as 'three-headed parenting', with the parties sharing the responsibility and mandate in decisions concerning the child (Utredningen om tvångsvård för barn och unga, 2015). This could potentially make it hard to balance between the two childhood dimensions of 'being' and 'becoming';

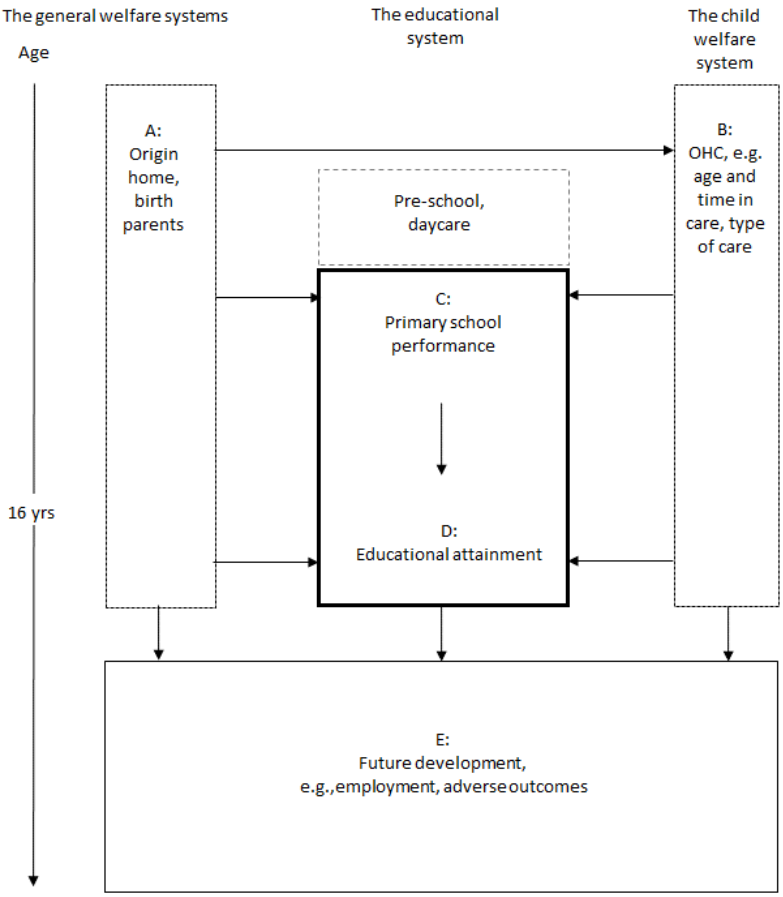
i.e., well-being during childhood and development towards adulthood taking priority over schoolwork, for instance (cf. Ben-Arieh & Frønes, 2011).

The relationships and commitment between the parties depend on many different factors such as the child's age, the time spent in the family, the reason for OHC, the geographical distance, the support from child welfare services, etc (e.g., Toguchi Swartz, 2004). McClung & Gayle (2013) identified trust between individuals in the OHC setting as a key component affecting the degree of transmission of resources within the foster family. That the commitment may be weaker in the foster family setting is also supported by a Swedish study on interruptions in OHC, which showed that parental divorce in foster families sometimes led to neither of the foster parents wanting to continue caring for the foster child, even in cases in which the child had spent many years in the foster family. Biological children in the foster family was also a risk factor for disruption in placements, e.g. because the foster parents felt that their own biological children needed additional support or attention (Socialstyrelsen, 2012; Vinnerljung, Sallnäs, & Berlin, 2014).

A life course perspective

The individual studies in this thesis take a life course perspective and examine social stratification in relation to OHC and the educational system. The life course design can be illustrated by a simplified graph (Figure 19). In the OHC setting, the influence of family and upbringing factors is represented by both A and B, where A represents the home of origin (e.g., parental socioeconomic status, parental substance misuse), and B represents the OHC experience (e.g., age at first entry into OHC, total time in OHC, foster family characteristics). The OHC population is distinguished from other groups of children and youth by the influence of B, where pre-care factors in A led to B and to discontinuity in A (change in home environment during upbringing years). The educational system is represented by C and D, where C represents school performance in primary school, and D represents highest completed educational attainment level at different ages. In the Swedish context, most children attend pre-school from an early age. Evidence show that this has an equalizing effect on the educational stratification process (Esping-Andersen, 2016), but none of the individual studies in this thesis include pre-school factors due to the lack of such national register data. Future development is represented by F, with varying outcomes in the different individual studies (psychosocial problems in Study I, mortality in Study II, and NEET in Study IV).

Figure 19. *Social stratification by education in OHC context.*



Cumulative (dis)advantages

The risk of adverse developments is often an accumulative process whereby different risk factors are linked to each other and add to a process of negative development (Ferraro, Schafer, and Wilkinson, 2016). The central idea in cumulative advantage theory (CA) is that a (dis)advantage of a key resource in the stratification process grows over time and leads to increasing inequality. Another way of describing the accumulation of (dis)advantages over time is through Bourdieu's capital theory, in which he emphasizes early formation (childhood) at the individual level and the educational system at the institutional level (Bourdieu, 1990). As CA magnifies differences over time, individuals or groups that start at a low position will have difficulty catching up, e.g. in educational achievement (DiPrete & Eirich, 2006).

In sectors where formal qualifications (education) are not required, to which individuals with low educational attainment are referred more than others, parental background will be protective as the social network becomes more important (Sirniö, 2016; Breen & Jonsson, 2007). This may be a double disadvantage for children and youth from OHC, who besides having a high risk of poor school performance also often have a weak social network due to inconsistency in their home environment or related socioeconomic factors (e.g., Geiger & Beltran, 2017; Cameron, Jackson, Hauari, & Hollingworth, 2012; Martin & Jackson, 2002).

There are many different approaches to CA, and the concepts depend on the discipline. In common parlance it is often referred to as virtuous cycles or vicious cycles. Two different forms of CA processes are commonly referred to: the strict, or simple, CA implies that the accumulation relates directly to the number of assets available at every given point in time, as with interest on invested money; the path-dependent CA states that the accumulation depends on ascribed attributes, e.g. race in the case of discrimination, and that the degree of accumulation differs between groups depending on such attributes. These different forms of CA are typically hard to separate from each other (DiPrete & Eirich, 2006).

Both the strict and the path-dependent CA processes are potentially present in the case of educational achievement in the OHC population. The pre-care situation is often associated with impaired schooling or low pre-school skills depending on age at first entry and the reason for OHC. Even though Sweden has a low level of 'formal tracking' in the educational system, the mediation effect of previous educational achievement becomes a sort of 'informal tracking', whereby knowledge gaps act as barriers that are hard to overcome. Knowledge gaps are a major obstacle for children in OHC (Tideman, Vinnerljung, Hintze, & Aldenius, 2011; Tordön, Vinnerljung, & Axelsson, 2014; Clemens, Klopfenstein, Lalonde, & Tis, 2018). The adult educational system in Sweden may also be harder for the OHC population to take advantage of, due to the weak support available upon leaving care.

Determinants in the OHC perspective

While sociological research often focuses on structural factors (the macro level), studies on children in care usually concern individual factors (the micro level) that relate to the placement situation. There are two main features specific to the OHC population: the event that brought about the OHC, and the discontinuity in the home environment. Both potentially affect school performance and educational attainment, which rely on previous school achievement (e.g., Erikson & Rudolphi, 2010) and parental support in today's complex and extended transition phase into adulthood (Schoon & Lyons-Amos, 2016; Settersten & Ray, 2010). Previous findings on factors associated with educational

outcomes among children in care can be roughly divided into the significance of pre-care factors, in-care factors, and after-care factors.

Pre-care factors

Many in the OHC population have had a disadvantaged upbringing environment before entering OHC, in socioeconomic terms or due to other adverse childhood experiences. Placement in early years is typically brought about by neglect or maltreatment which may have resulted in injury, developmental delay, poor pre-academic skills, or other problems that have a negative impact on a child's school readiness (Pears et al., 2018), while teen OHC is often related to the youth's own disruptive behavior, e.g. substance misuse or delinquency (Vinnerljung & Andreassen, 2015). But there are also other types of reasons for OHC that are not related to social problems, e.g. parental health problems.

Some scholars have suggested that it is the pre-care experiences that are the pervading determinants of educational outcomes for children in care (Berridge, 2007; Trout et al., 2008). The literature on child development agrees that early family environments are major predictors of cognitive and non-cognitive abilities (e.g., Heckman, 2014). But there is also evidence that shows that cognitive ability is responsive throughout childhood and adolescence, and that children from deprived homes who are exposed to a more stimulating home environment will continuously improve their cognitive skills (Flynn, Tessier, & Coulombe, 2013; Tideman et al., 2011; Duyme, Dumaret, & Tomkiewicz, 1999; Fox, Almas, Degnan, Nelson, & Zeanah, 2011).

Evidence has been mixed as to the link between cognitive ability and poor school performance in the OHC population (O'Higgins et al., 2017): some studies have found strong links (Pears, Fisher, Bruce, Kim, & Yoerger, 2010), while others report weak or no links (Berger et al., 2009; Rees, 2013). Results from Swedish studies show that the OHC population performs at a lower level than peers in the majority population regardless of cognitive ability (Vinnerljung et al., 2010; Johansson & Höjer, 2014; Tideman et al., 2011). Instead, it has been suggested that accumulated knowledge gaps in school subjects are a main factor behind children in OHC performing below their potential. Such knowledge gaps might be the result of frequent absconding from school due to a problematic home situation or one's own disruptive behavior, or of frequent school changes due to moving between different homes or regions (Tideman et al., 2011; Tordön et al., 2014; Clemens et al., 2018; Berger, Cancian, Han, Noyes, & Rios-Salas, 2015).

Recent studies have found a high prevalence of psychiatric problems and the use of psychotropic drugs in the OHC population, both while in care (Socialstyrelsen 2014) and after care (Vinnerljung & Hjern 2014; Zlotnick, Tam, & Soman 2012). The connection between poor school performance and behavior problems is well known (Johnson, McGue, & Ianoco, 2009). This was

also found to be one of the most consistent risk factors for poor school performance in the OHC population in a recent review by O'Higgins and colleagues (O'Higgins et al., 2017). But underachievement and behavior problems function as a two-way street, as poor school performance also causes conduct problems (Gustafsson et al., 2010; Hinshaw, 1992).

There are promising results from studies of different schooling programs targeting children in OHC, which show that educational performance can be influenced and improved while children are in OHC (Forsman, 2019). Some of these studies also show that when school performance is boosted, behavioral problems decrease and interactions with friends and teachers, as well as the children's self-esteem, improve (Tideman et al., 2011; Männistö & Pirttimaa, 2018). However, the field of research on interventions aimed at improving school performance among children and youth in OHC is to date characterized by small and local studies. Little is known about how these interventions would work in full-scale practice. Still, almost every program that has been tested shows positive results on the school performance of children in care (Forsman, 2019). This can be interpreted as a sign of great potential for improvement of the current situation, rather than of all the programs tested being the best possible.

In-care factors

In contrast to scholars who emphasize pre-care factors, others have emphasized the care system itself and the many factors that are responsive throughout childhood and adolescence, including evidence on the parent-child link in educational attainment (Flynn et al., 2013; Jackson, 2007; Jackson & Ajayi, 2007). In-care factors are also of specific importance in studies of children in care, as they can be targeted and are responsive to interventions from society. However, it has been difficult to find strong and consistent in-care factors (protective or risk) associated with educational outcomes. Findings from studies on actual placement conditions, such as age at entry into care, length of time in care, instability in placement, and type of placement, have been mixed but have predominantly resulted in a weak (or no) association with educational outcomes (O'Higgins et al., 2017). Findings on self-reported placement conditions, such as caregiver involvement, caregiver's and children's aspirations, and placement literacy environment, have been more consistent (e.g., Flynn et al., 2013; Jackson & Ajayi, 2007; Cheung, Goodman, Leckie, & Jenkins, 2011). But it is hard to distinguish different factors from each other, as they are intertwined and accumulate over the life course. OHC populations differ among countries. In Sweden, as well as the other Scandinavian countries, special residential care for teenagers in the juvenile delinquency system is included in the OHC system (e.g., Thoburn, 2007). For children in a residential care institution, there may also be limited educational opportunities. When the residential care institutions were investigated in Sweden, major shortcomings

in the access to education were discovered (Skolinspektionen, 2010; Skolverket, 2007).

Discontinuity and uncertainty

For children and youth in OHC, the home environment is changed in a profound way upon placement, which may in itself have a negative effect on school performance by causing, e.g., school interruption (Fuglsang Olsen & de Montgomery, 2018), social network disruption (Perry, 2006), or emotional disruption (Schuengel et al., 2009). It is also suggested that adjusting to a new home environment and new caregivers creates a disturbance in the educational development, even when the child remains at his or her 'old school' (Berger et al., 2015). Placement interruptions can also occur several times during a child's upbringing, and some researchers argue that instability in placements is one of the primary risk factors for a negative development among children in care (O'Higgins et al., 2017; Pecora, 2012; Moore, McDonald, & Cronebaugh-Auld, 2016; Waid, Kothari, Bank, & McBeath, 2016). In Sweden, it has also become more common for children in care to be placed in another municipality than where they lived in prior to the placement (Socialstyrelsen, 2020b), which implies that the responsible social welfare agency is situated in a different municipality than where the child lives and goes to school.

It is not possible to study actual instability in OHC based on the CWIR, as there are no data on where the child is being placed; i.e., in which foster home or residential care home the child is being placed. But when studying placement sequences i.e., placements over a continuous time period in the same type of placement, children in long-term care (born in 1990–1995) have on average 3.5 placement sequences before they exit care (Socialstyrelsen, 2020b). In a local Swedish study, social welfare acts were used to examine the prevalence of 'placement breakdowns' among young children in care (0–10 years of age) and children in long-term care (12-year-olds who had lived in the foster home for at least four years). Placement breakdowns referred to care arrangements that ended prematurely and unintentionally from the perspective of the child welfare services. The results showed that 24% of the long-term placements, and 13% of the placements concerning young children, ended with an 'obvious breakdown'. When 'suspected breakdowns' were included, the prevalence increased to 26% and 21%, respectively. The initiator of the breakdown was most often the foster parents, in 45% of the cases in both groups. In the breakdowns among the young children, the initiator was also often the birth parents (38% of the breakdowns). The birth parents seldom initiated the breakdowns in long-term care; instead, in 28% of the cases the child him- or herself took the initiative for the breakdown. The median time in the foster home at the time of the breakdown was five months among young children and ten years among children in long-term care (Socialstyrelsen, 2012).

Regardless of the time spent in placement and the degree of stability, uncertainty often prevails in the OHC situation, for all parties involved. The placement is re-evaluated on a regular basis, typically every six months (Socialstyrelsen, 2013a), and neither the foster child, the birth parents nor the foster parents are certain as to how long the child will remain in the foster family. This may make it difficult to guide the child in the educational system. While evidence is sparse, there are studies that suggest that caregiver involvement tends to be lower in many foster family settings as compared to continuous family settings. Instability in placement and a lack of information are factors that contribute to difficulties in providing appropriate support for children in care (Pears et al., 2018; Beisse & Tyre, 2013; Munford & Sanders, 2016). The caregivers' school involvement was one of a few consistent factors associated with foster children's educational outcomes, according to a recent review by O'Higgins and colleagues (O'Higgins et al., 2017). Parental involvement in their child's learning has been found to be one of the most robust and causal factors in the parent-child link in the general population (Gorard, Beng, & Davies, 2012).

The uncertainty of permanency may also reduce a child's willingness to invest in his or her new school (if changed), and affect his or her ambition and aspiration concerning educational achievement. Many foster children maintain contact with their birth parents while in care, which might be supportive but could also collide with the foster parents' caregiving ambitions. Previous studies show that birth parents' influence on foster children's aspirations are long-lasting (Martin & Jackson, 2002). The birth parents' involvement may also cause conflicts between them and the foster parents, and contribute to disruption and instability in OHC (Socialstyrelsen, 2012; Vinnerljung, Sallnäs, & Berlin, 2014). Therefore, how the social welfare services handle the contacts with and support for the birth parents is also important for the well-being of children in care. OHC is an intrusive intervention that affects the entire family network. How the parents are affected by their child's OHC often has an indirect impact on the child. Many children describe worrying about their parent(s) while in OHC (Socialstyrelsen, 2013b). The child may have taken on great responsibility for the parent(s) before the placement, which makes them highly aware of the problems they have.

The foster family

Studies including factors on foster parents' educational level or socioeconomic status have shown only a slight (or no) association with foster children's educational outcomes (Heath, Colton, & Aldgate, 1994; Sawyer & Dubowitz, 1994; Wise et al., 2010; Zima et al., 2000). However, these studies were not primarily aimed at investigating parental education and, thus, were not designed for that purpose. Studies using large samples with detailed information on the characteristics of children, and their families, placements, and

environment are lacking in the search for evidence of low educational achievement among children in care (O'Higgins et al., 2017).

It has also been suggested that foster parents have lower educational attainment than parents in general, and hence that foster children more frequently live in non-academic environments and attend low-quality schools, and that this contributes to their low educational achievement (Fries et al., 2014; Cox, 2013; Zetlin, MacLeod, & Kimm, 2012; Cameron et al., 2012). However, this does not seem to be true for Swedish foster parents, who do not have particularly low educational attainment (Figure 9). Further, previous studies show that school contextual factors have a rather modest magnitude: 80–90% of the variation in educational achievement appears to be between families within schools rather than between schools (Breen & Jonsson, 2005). And evidence on increasing performance gaps after school holidays (Downey, von Hippel, & Becket, 2004; Ready, 2010) supports scholars who claim that it is families rather than schools that enforce inequality in educational achievement (Heckman, 2014).

There is also evidence that pessimistic expectations regarding foster children's chances of success in school are common among both foster parents, social workers, and teachers (Egelund, Hestbaek, & Andersen, 2004; Knudsen, 2009; Tideman et al., 2011). Other studies suggest that foster parents' own problems, e.g. health concerns, have a negative influence on foster children's educational outcomes (Cheung et al., 2011: Tarren-Sweeney, 2008). Many foster families are also relatively large (Table 1). Previous studies have shown associations between fewer children in the household and higher academic achievement, for both adoptive children (Sacerdote, 2004) and foster children (Sawyer & Dubowitz, 1994). Kinship foster families are often smaller in size compared to regular foster homes (Table 1). Staying with relatives also might involve a higher degree of continuity, as the child remains in their family network. Evidence from previous studies suggests that foster children who live with relatives generally have fewer problems caused by pre-care experiences, e.g. behavior problems, cognitive ability, or poor pre-school abilities (Cheung et al., 2011).

According to social comparison theory, the feeling of 'being different' might have a negative impact on children's development and could to some extent weaken foster children's gains from otherwise advantageous factors (Cheung et al., 2011; Cheung, Lwin, & Jenkins, 2012; Feinberg, Neiderhiser, Simmens, Reiss, & Heatherington, 2000). In a study on educational success among a group of high achievers who had been in care, nearly everyone stressed the importance of being like everyone else, e.g. having the freedom and financial support to take part in outside hobbies and interests so that they could confidently socialize with their peers (Martin & Jackson, 2002). There are not many studies that have examined the general living standard of children and youth in care in comparison to peers in the general population, but one Swedish study found that teenagers in residential care often had fewer

material resources than peers who lived with their birth parents (Sallnäs, Wiklund, & Lagerlöf, 2010). In another Swedish study among 12- and 15-year-olds, children who did not live with their birth parents (most often foster children) more often reported being bullied and not being able to afford the same clothes and engage in the same activities as their peers (Berlin, 2012a). Children who were not living with their birth parents were worse off in high-performing than in low-performing schools (Berlin, 2012b). Evidence from other studies suggests that a lack of activities outside school affects the schooling situation of children in care, e.g. making it difficult to engage in team activities with classmates (Quarmby, Stanford, & Elliot, 2018).

Post-care factors

Even though education is not the only yardstick for a successful transition into adulthood, there is reason to believe that it is especially important for the OHC population as many leave home early to take on adult roles and responsibilities without the support usually available to peers who grow up in their family of origin (Greeson, 2013; Ejrnæs, Ejrnæs, & Frederiksen, 2011; Geiger & Beltran, 2017; Cameron et al., 2012; Höjer & Sjöblom, 2009; Martin & Jackson 2002; Franzén, Vinnerljung, & Hjern, 2008; Kestilä, Väisänen, Paananen, Heino, & Gissler, 2012), partly because many of their birth parents are dead (Franzén & Vinnerljung, 2006). While for some foster children the contact with their foster family remains after leaving care, others are left to fend for themselves. Some foster families might feel that their responsibility ends there. This may to some extent be in line with international studies showing that where the welfare state is strong, family obligations are moderated (Daatland, Herlofson, & Lima, 2011). The care might also have led to geographic distance from the origin family network. Intergenerational contacts differ between socioeconomic groups: individuals in low socioeconomic strata tend to have more frequent contacts with their family than individuals in high socioeconomic strata, which is partly due to less economic need and higher geographic mobility among the highly educated (Lundholm & Malmberg, 2010). For foster children the need for support can be great, but the distance far and the network weak.

A major factor for foster children's opportunities in future life is therefore the support they receive when they leave care (Mendes, Michell, & Wilson, 2014; Cameron et al., 2018). Whereas many countries have various forms of after-care systems for children from foster care, this is not the case in Sweden, where the general welfare system is expected to cover up for the absence of a family network (Jackson & Cameron, 2012; Höjer & Sjöblom, 2009). However, previous studies show that there is a gap between the needs of young people leaving care and the support they receive (Geiger & Beltran, 2017; Cameron et al., 2012; Martin & Jackson, 2002). Support for children aging out of OHC is found to improve their educational outcomes (Courtney &

Hook, 2017). Studies on the after-care situation for care leavers in Sweden show that they often worry about how to cope with housing, personal finances, and employment (Höjer & Sjöblom, 2009). And furthermore, that even though the social services care and are aware of their responsibility towards young care leavers, often not acknowledge care leavers weak position and need of additional support beyond the general support available to all Swedish citizens (Höjer & Sjöblom, 2011).

Employment outcomes tend to be poor among young adults from OHC, partly as a result of many having low educational attainment (Mendes, 2009; Cameron et al., 2018; Hook & Courtney, 2011; Stewart Kumb, Barth, & Duncana, 2014; Cassarino-Perez, Crous, Goemans, Montserrat, & Castellà Sarriera, 2018; Font, Berger, Cancian, & Noyes, 2018). In labor market segments where other qualifications than education are decisive, social networks and ascribed characteristics become more important, along with qualifications such as having a driver's license or previous work experience (Breen & Jonsson, 2007). Studies from Europe and the US show that having work experience from holiday jobs while still in school was an important factor for progression towards work establishment after care (Arnau-Sabatés & Gilligan, 2015; Stewart et al., 2014; Courtney et al., 2011).

Leaving care without an adequate education is strongly associated with an excess risk of several different adverse outcomes in future life, for example substance misuse and mortality (e.g., Kääriälä & Hiilamo, 2017; O'Higgins et al., 2017; Fries et al., 2014; Gypen et al., 2017; Vinnerljung et al., 2010; Berridge, 2012; Forsman et al., 2016). Almquist and colleagues (2018) found that the differences in survival time between the OHC population and their peers in the majority population corresponded to more than a decade of life lost between ages 20 and 56, and that school failure was strongly associated with excess mortality.

Data and methods

Table 2. Data sources

Holder	Register	Used in Study
Sweden		
Statistics Sweden (SCB)	The Total Population Register	I, III, IV, V
	The Population and Housing Census	I, V
	The Longitudinal Integration Database for Health Insurance And Social Studies	I, III, IV, V
	The Multi-generation Register	I, III, IV, V
SCB and the Swedish School Authority	The National School Register	I, IV, V
The Swedish Board of Health And Welfare	The Child Welfare Intervention Register	I, III, IV, V
	The National Cause of Death Register	I, II, V
	The National Inpatient Register	I, III, IV, V
The Swedish Drug Addict Treatment Evaluation	The SWEDATE Database	II
The National Council for Crime Prevention	The Register of Criminal Offenses	I, II, V
Denmark		
Statistics Denmark	The Population Register	III, IV
	The Register on Children and Youth in out-of-home care	III, IV
	The Education Register	III, IV
	The Register on Income and Social Assistance	III, IV
	The Psychiatric Register	III, IV
Finland		
The Finish Institute for Health and Welfare	The Medical Birth Register	III, IV
	The Social Assistance Register	III, IV
	The Hospital Discharge Register	III, IV
	The Child Welfare Register	III, IV
Centre for Pensions	Employments	IV
The Social Insurance Institution	Study Grants	IV
Statistics Finland	The Education Register	III, IV
The Finnish Population Register Centre	The Population Register	III, IV

Population register data have been used in all five studies. Four of the studies are based entirely on register data, whereof two also include register data from Denmark and Finland. One study (Study V) is based on interview data linked to register data. Table 2 presents the data sources for each study. The different registers were linked using the unique ten-digit ID numbers (PIN) given to all residents of Sweden (as well as Denmark and Finland) at birth or immigration. The overall quality of the registers used in this study is regarded as high.

The Swedish Child Welfare Intervention Register

The descriptive section and four of the five studies in the thesis are based on the Swedish Child Welfare Intervention Register (CWIR), held by the Swedish National Board of Health and Welfare. The register covers all individuals, born in 1960 and onward, who have received OHC through the local child welfare services at any time from 1968 onward (Figure 20). Until 1997, the register also included all individuals who were issued a contact person or contact family by the child welfare services. This is an in-home intervention that is still used by the child welfare services. A contact person is a support person with whom the child meets on a regular basis while still living at home. A contact family is a support family with whom the child spends time on a regular basis, e.g. every other weekend.

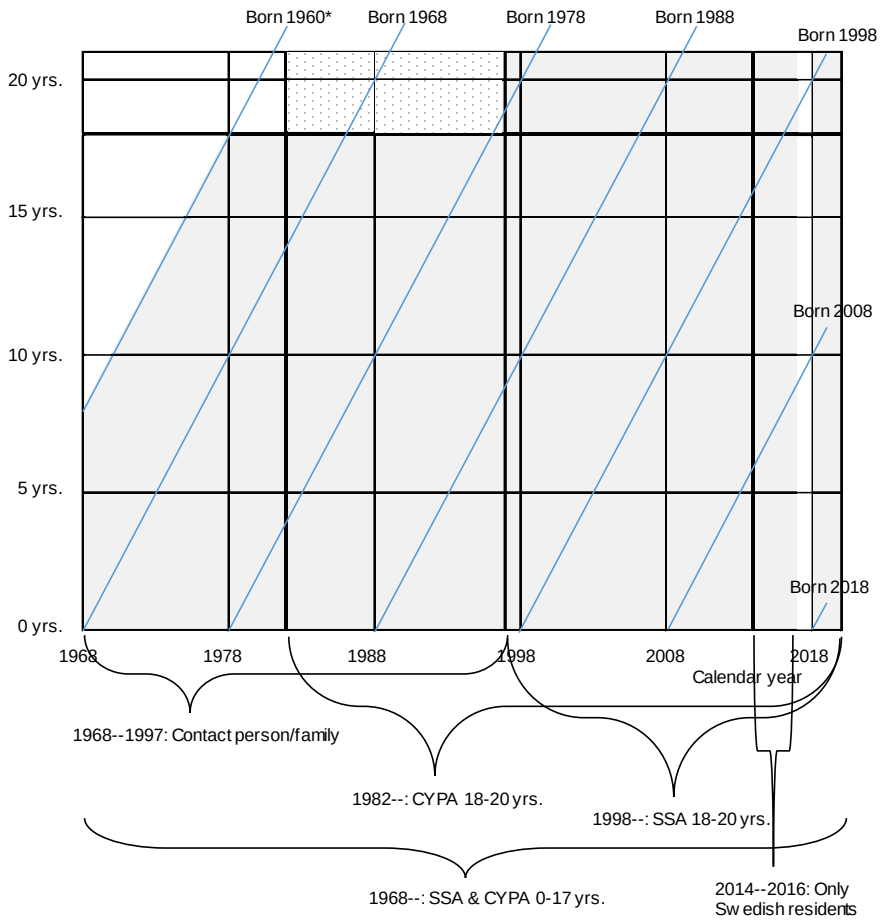
The OHC population includes unaccompanied asylum seekers. Until 2013, all OHC was included in the CWIR, even OHC among unaccompanied asylum seekers without permanent residence. During the period 2014–2016, only Swedish residents were included in the CWIR. Data are missing for 2017, when the data registration system was changed. From 2018, unaccompanied asylum seekers are included in the CWIR regardless of residency. In 2018 about a third of all individuals in OHC were unaccompanied asylum seekers, but the proportion varied considerably in different age groups. Among the youngest, 0–6 years, less than 1% were unaccompanied asylum seekers. The corresponding rates in the other age groups were 7% among children aged 7–12 years, 29% among teenagers aged 13–17 years, and 45% among young adults aged 18–20 years (Socialstyrelsen, 2020b).

The CWIR is used mainly for administrative purposes[2], but the register is also available for research under certain conditions. It offers good opportuni-

[2] Variables in the CWIR: identification number (PIN); date of birth; sex; country of birth (until 2013); calendar year of last immigration (until 2013); birth parents' countries of birth (until 2013); date of entry and exit of measure; type of measure (from 1990 onward); date of decision of measure; type of placement; number of days in measure; person(s) having custody at entry and exit of measure; specification of measure; where the person went upon exit from measure (from 1998 onward); municipality of responsible social welfare agency; municipality of placement.

ties for longitudinal register-based research, and can be linked to other population registers through the individual ID number (PIN). Data on age and time spent in OHC are of fairly high quality, but for privacy reasons there is limited additional information beside the dates and legal jurisdiction of placement. The register does not hold information on the family or the residential care institution where the child stayed but rather only the type of care home it was; i.e., foster home or residential care home, with or without restrictions.

Figure 20. Coverage in CWIR 1968–2018



* Earliest birth cohort in the register.

Voluntary placements (SSA) under the Social Services Act (2001:453) applied to children (0–17 years) during the period 1968–1997, and children and young adults (0–20 years) from 1998 onward. Involuntary placements (CYPA) under the Care of Young Persons Act (1990:52) applied to children (0–17 years) during the period 1968–1981, and to children and young adults (0–20 years) from 1982 onward. Contact person or contact family is an in-home intervention still used by child welfare services, but which was only registered until 1997. A contact person is a support person with whom the child meets on a regular basis while still living at home. A contact family is a support family with whom the child stays on a regular basis, e.g. every other weekend.

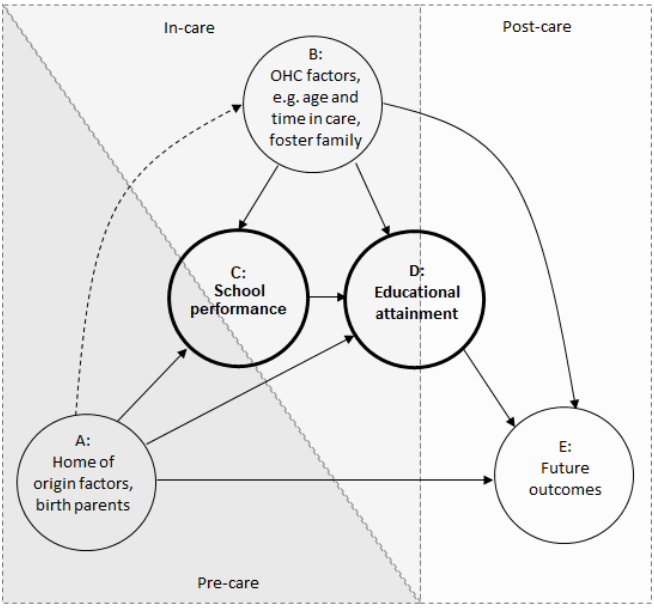
The register holder was Statistics Sweden during the period 1968–1993, Statistics Sweden in collaboration with the Swedish Board of Health and Welfare in 1994, and the Swedish Board of Health and Welfare since 1995. The data collection was carried out by Statistics Sweden during 1968–2013, and by the Swedish Board of Health and Welfare since 2014. Data are incomplete for 2017 due to a change in the data collection procedure.

Study design

The individual studies in this thesis are designed with a life course perspective. As all studies except one (Study V on intergenerational transmission of education in stable long-term care) involve comparison groups without care experience, the care history was captured by creating stratified study groups rather than covariates for, e.g., age at first entry and total time in care. The studies follow an approach whereby several regression analyses were carried out in different steps over the life course, in order to examine the relation between different factors (cf. Baron & Kenny, 1986). The simplified graph below (Figure 21) is a conceptual model of the study design: Study groups and background factors represent the home of origin (A) and the OHC experience (B). Educational outcomes were represented by school performance in primary school (C) and educational attainment at different ages (D). Future outcomes (E) were measured as different life events in young adulthood; i.e., psychosocial problems (Study I), mortality (Study II), and NEET (Study IV). The design is similar to the status attainment model by Blau-Duncan (Figure 17), in which home of origin (A) represents social origins, future outcomes (E) represents social destination; school performance and educational attainment (C and D) represent education; and OHC factors (B) represent factors independent of social origins.

Factors associated with educational outcomes among children in care can be roughly divided into pre-care factors, in-care factors, and post-care factors. Besides the issue of causality, one prevailing ‘research problem’ is that these factors are seldom clear-cut; entry into care takes place at different ages, and some spend a long time there while others only stay a few days. There can be several episodes of OHC, and some move back and forth between their home of origin and a foster family, or between different foster families and care homes (as illustrated by the cover picture). When in care, continuous contact with the home of origin is generally promoted, with some children living in kinship care whereby they remain in their origin network.

Figure 21. Conceptual model of the study design



Study population

The issues of differences in causality between pre-care and in-care factors as well as of heterogeneity in OHC experience were approached primarily by restricting the study populations and creating specific study groups in accordance with each research question. Study characteristics are shown in Table 3 at the end of this chapter.

In order to ensure that the study populations had been in the Swedish educational system during the entire primary school period (age 7–15 years) and during follow-up, the study populations were constrained in different ways. The first study (I) was restricted to individuals born in 1972–1981 who had not immigrated or emigrated after school started at age 7 and they were followed until 2005, i.e. age 24–33 years. In the second study (II), event history analysis was used and restrictions were handled through censoring. The study population was followed from their exit from substance misuse treatment in the early 1980s (ages 15–35 years) until 2013. The two Nordic comparative studies (III and IV) were restricted to domestic-born individuals, due to the differences in immigration rates between the Nordic countries. Due to data restrictions, the study population consisted of individuals born in 1987 who were followed until 2010 when they were 23 years old.

The long-term care group

Long-term care was of specific concern in the studies in this thesis because the OHC situation has had a great influence on these children's lives. The majority had been in OHC for most of their childhood, and society has taken up a long-term societal commitment of assumed parental responsibilities; i.e., *in loco parentis*. In Study I, care leavers from long-term care were compared with the majority population, and with two comparison groups with background characteristics similar to those of the care leavers, but without OHC experience and thus assumed to have had more stable living arrangements. The care leavers had entered care before primary school started, and exited care in their late teens (all had turned at least 17 years of age when they left care). With these restrictions, the average time spent in care was 11 years.

Study V consisted of individuals who had been in stable long-term care, as the aim was to investigate the influence of foster parents' education on foster children's school performance and educational attainment. This required consistent exposure from foster parents during primary school years, which was done by restricting the study population to individuals who had lived with the same foster family for two consecutive censuses (with five years between). Their average time spent in care was 14 years. In the Nordic comparative studies (III and IV), the Long-term group was one of four OHC sub-groups.

OHC sub-groups

The OHC population is heterogeneous and the length of time in care ranges from days to entire childhoods, which reflects the varying responsibility society assumes over these individuals' lives. Age at first entry into care is also related to the reason for OHC. When first entry occurs at a young age, the reason is normally related to parental behavior. When it occurs in the teenage years, the higher the age the more often the reason for OHC relates to the youth's own disruptive behavior (Vinnerljung, 1996). Those who have been placed at an early age are also known to make up a more homogeneous OHC sub-group than those who entered care for the first time in their teens (Sallnäs, Vinnerljung, & Kyhle-Westermark, 2004).

By dividing the population into sub-groups based on age at first entry into care and total time spent in care, more homogeneous sub-groups can be created (Triselotis, 1989). In the Nordic comparative studies (III and IV), the OHC population was divided according to age at first entry and total time in OHC. This way of dividing the OHC population into mutually exclusive groups has proven constructive in previous Swedish register-based research. The study groups were: Early short care (first entry into OHC before 13 years of age, total time in OHC < 1 year); Early intermediate care (first entry into OHC before 13 years of age, total time in OHC at least one year but less than five years); Long-term care (first entry into OHC before 13 years of age, total

time in OHC at least five years); and Teen care (first entry into OHC at 13 years of age or older).

In studies on educational outcomes, first entry and total time in care are also relevant for the schooling situation. Among those who entered care for the first time in their teens, many had already left primary school and the child welfare services might have had little impact on their schooling situation. Many in the OHC population have also been subjected to different in-home interventions by the child welfare services, but these interventions have limited coverage in the CWIR and are thus not possible to investigate in any depth (Study I included a comparison group who had had early in-home interventions but no OHC experience).

Comparison groups

Study I included two comparison groups that were known to have a social background similar to that of the care leavers from long-term care, individuals who had been subjected to in-home interventions by child welfare services in young adulthood, and national adoptees (Vinnerljung et al., 2010).

Study V compared substance misusers with and without OHC experience. Since the entire population had been in substance misuse treatment, the comparison group (substance misusers without OHC experience) was assumed to be similar to the OHC group in regard to background factors associated with substance misuse, e.g. psychosocial factors (Stone, Becker, Huber, & Catalano, 2012).

Educational outcomes

The studies were primarily concentrated at the bottom stratum of the educational differential; i.e., poor school performance and low educational attainment. Poor school performance covered the comprehensive level in the educational system, while educational attainment at higher ages involved the choice to continue to higher education (cf. primary and secondary effect in the section on reproduction of inequality). In the examination of the transition through the educational system, poor school performance was used as a control variable for continuing to higher education (Studies I, IV, V). Hence, poor school performance was used as both an outcome and a control variable in the study design.

Poor school performance referred to the individuals' grades from their last of in compulsory school, i.e. the ninth grade in primary school, from which Swedish students typically graduate at age 15–16. Using the mean and the standard deviation in the study populations a relative measurement (a category variable) was constructed (details provided in the separate articles), which could be used regardless of differences in the grading system or curriculum, between birth cohorts or between the Nordic countries (Denmark, Finland,

and Sweden). The grading levels at different schools in Sweden are monitored by the Swedish School Authority through annual national tests in order to maintain a uniform grading policy, as grades are a determinant of continuing to higher education.

No grades and low grades were often combined in the studies. *No grades* is defined as being missing in the National School Register (NSR), while *Low grades* is defined by a grade point average (GPA) below the mean minus one standard deviation. The coverage rate in NSR is high, with only a few percent missing in the total population. However, the proportion differs substantially between the OHC population and peers without care experience. Being missing in the NSR can be the result of dropping out or frequently absconding from school, or of attending a school that does not report its grades to the Swedish authorities; i.e., some schools at residential care institutions and schools for students with special needs (e.g., due to learning disabilities). It is not possible to identify the reason for missing values in the NSR.

In the studies, low educational attainment refers to not having completed an educational level at the upper secondary level according to the National Educational Register. Today, upper secondary education is regarded as crucial for entrance onto the labor market. In Sweden, almost all students enter upper secondary education: by age 20 about 80% have completed an education at the upper secondary level, and ten years later, at age 30, about 90% have completed this level.

Future development outcomes

In Study I, poor school performance (no or low grades in the final year of the primary school system) was the outcome in the first step; upper secondary education despite poor school performance was the outcome in the second step; and different types of psychosocial problems were the outcomes in the third step. Besides poor school performance, outcomes were measured in young adulthood (from age 20 to the calendar year of 2005). *Suicide attempts* referred to admittance to hospital as a result of attempted suicide or suspected attempted suicide. *Drug abuse* referred to conviction of drug offenses, or having died/been hospitalized due to a drug-related diagnosis. *Alcohol abuse* referred to conviction of drunk driving, or having died/been hospitalized due to an alcohol-related diagnosis. *Serious criminality* referred to having been sentenced to probation, prison, or forensic psychiatric care. *Welfare dependency* referred to more than 50% of one's disposable annual income at age 25 consisting of social welfare. *No indications of psychosocial problems* referred to no registered suicide attempts, drug abuse, alcohol abuse, or serious criminality after one's 20th birthday, not being dependent on social welfare at age 25, and still being alive in 2006.

In Study II, mortality was the outcome. In Study III, having only primary education at age 23 was the outcome. In Study IV, NEET was the outcome. In

Study V, poor school performance (no or low grades in the final year of primary school system) was the outcome in the first step, and having only a primary education at age 26 was the outcome in the second step.

Control variables

All studies except Study V on intergenerational transmission of education in stable foster care compared the OHC population with peers without OHC experience, and hence, OHC factors could not be included in the models as covariates. The life course perspective was handled by the study design, with variables measured at different stages of the life course; e.g., birth parents' characteristics were regarded as proxies for early childhood factors that have been identified as risk factors for OHC (Simkiss, Stallard, & Thorogood, 2013), and grades in the last year of primary school were regarded as proxies for the schooling situation during the compulsory school years. This obviously does not cover the entire complexity of individual factors during the life course. The national population registers have the benefit of covering the entire population, but at the cost of merely holding administratively collected information.

The proxies for early childhood factors were: In Study I, birth mother's educational attainment as well as birth parents' substance abuse and psychiatric care; in Study II, self-reported conditions on parental alcohol abuse during childhood; in Studies III and IV, birth mother's educational attainment, long-term social assistance, indication of substance abuse, and psychiatric care; and in Study V, birth mother's educational attainment (in combination with foster mother's educational attainment), birth country, year of birth, indication of substance abuse, and psychiatric care.

Study II includes control variables on self-reported conditions before admittance to substance misuse treatment: vocational training, regular employment > 1 year, psychiatric care and/or suicide attempts, daily contact with non-addict and addict friends, and predominant drug before intake to treatment. Crime active years and years in prison were also retrieved from registers.

Study V includes control variables on OHC experience (age at entry into care and total time in care) and foster family characteristics (foster mother's educational attainment [in combination with birth mother's educational attainment], birth country, and year of birth, as well as the foster family's household size, relationship with the foster child, and whether the household had the same two foster parents in both censuses).

Grade point average (GPA), poor school performance, or school failure was used as a control variable for later outcomes in Studies I, II, IV, and V.

Table 3. Study characteristics

Research question	Study population	Variables and statistical methods
Study I. Relation between school performance, educational attainment, and psychosocial problems in young adulthood.	Swedish residents born 1972–1981 (n=913,207). Individuals who emigrated or immigrated after age 7, or died before age 17, were excluded from the study. Follow-up until ages 24–33 in 2005.	*Outcomes*: Grades in primary school. Secondary education despite poor school performance. Psychosocial problems in young adulthood (suicide attempts, drug abuse, alcohol abuse, serious criminality, welfare dependency). *Exposure*: Care leavers from long-term care, national adoptees, and children who received in-home interventions before their teens. *Control variables*: Sex, year of birth, birth mother's (BM's) education, and birth parents' psychiatric care and substance abuse. *Statistical method*: Cox regression, survival analysis, attributable risks.
Study II. Mortality in relation to early school failure and OHC among people treated for substance misuse.	Substance misusers in residential care treatment 1982–1983 (n=1,036). Ages 15–35 years at entry into treatment. Follow-up until 2013.	*Outcome*: Death. *Exposure*: OHC experience, school failure. *Control variables*: Age at entry into treatment, parental alcohol abuse, study subject's vocational training, regular employment, psychiatric care, suicide attempts, predominant drug misuse, daily contact with addicts, crime active years, years in prison. *Statistical method*: Cox regression, sex-specific models.
Study III. National variation in early school leaving in three Nordic countries.	Domestic-born in 1987 in Denmark (n=55,995 of whom 3,056 in OHC); Finland (n=58,855 of whom 1,884 in OHC); and Sweden (n=100,152 of whom 3,209 in OHC). Follow-up until age 23 in 2010.	*Outcome*: Only primary education at age 23. *Exposure*: OHC experience. *Control variables*: Sex, year of birth, BM's educational attainment, social assistance, psychiatric disorders, and alcohol and drug abuse. *Statistical method*: Logistic regression. Country data analyzed separately.
Study IV. National variation in NEET in relation to poor school performance in three Nordic countries.	Domestic-born in 1987 residing 2008–2010 in: Denmark (n=54,269 of whom 2,997 in OHC); Finland (n=55,751 of whom 1,835 in OHC); and Sweden (n=99,499 of whom 3,188 in OHC). Follow-up until age 21–23 in 2008–2010.	*Outcome*: NEET at age 23. *Exposure*: OHC experience and poor school performance. *Control variables:* Sex, year of birth, grades in primary school, BM's educational attainment, social assistance, psychiatric disorders, and alcohol and drug abuse. *Statistical method*: Logistic regression. Country data analyzed separately.
Study V. Intergenerational transmission of education from foster parents.	Foster children born 1972–1978, who entered OHC < age 7 and stayed in OHC > 5 years, and lived with the same foster mother (FM) in 2 consecutive censuses (with 5 years between) (n=2,167). Individuals who emigrated or immigrated after age 7, or died before age 17, were excluded from the study. Follow-up until age 26 in 2005.	*Outcomes*: Poor school performance in primary school (age 15-16). Only primary education at age 26. *Exposure*: Combined maternal education, BM's and FM's. *Control variables*: Year of birth, age at first placement, total time in care, BM/FM born abroad, household size, age of BM/FM, kinship care, adoption, two foster parents in household, and BM's substance abuse and psychiatric care. *Statistical method*: Logistic regression, sex-specific models.

Contribution and summary of main findings

It has long been acknowledged by the child welfare profession that many children in care have a problematic school situation that inflicts consequences on their future opportunities. Studies visualizing the extent of the problem were previously sparse, partly due to a lack of data (e.g., Jackson, 1994). Even though a vast body of international research has now shown that the high prevalence of poor school performance and low educational attainment in the OHC population cuts across countries and time, many studies still rely on small, local samples (e.g., O'Higgins et al., 2017). In this respect, Sweden and the other Nordic countries can make an important contribution to the research field through our high-quality data sources, which are longitudinal and cover the entire population. The Swedish Child Intervention Register, started in 1968, now contains half a century of OHC data.

The main focus of this thesis is educational stratification in the OHC setting. The individual studies investigated: how the OHC population manages in the educational system compared to peers in the general population and compared to peers with similar socioeconomic background but without OHC experience; how poor school performance relates to future educational attainment and development in young adulthood; cross-country differences in the OHC population's educational patterns in the Nordic countries; and whether foster parents' educational attainment matters for their foster children's educational outcomes. The description in the introductory section examined the educational patterns in the OHC population during the last decades.

Summary of the individual studies

Study I.

School performance in primary school and psychosocial problems in young adulthood among care leavers from long-term foster care

Study I had an overall perspective on educational stratification among care leavers from long-term care, compared to their majority population peers and two comparison groups: national adoptees and children who had received early in-home interventions. Care leavers refers to youths who exited care to

live on their own (83% of all 18-year-olds with long-term care experience were care leavers). The comparison groups, national adoptees and the in-home intervention group, had socioeconomic background factors similar to those of the care leavers, but more stable living arrangements (Vinnerljung et al., 2010). The analyses were performed in three steps; the first examined the risk of poor school performance in primary school (i.e., no or low grades at graduation); the second examined the chance of upper secondary education in relation to poor school performance; and the third examined the risk of different psychosocial problems in young adulthood (i.e., suicide attempts, alcohol abuse, drug abuse, serious criminality, and welfare dependency) in relation to poor school performance, separately and in a summarized category.

The results showed that 60% of males and 42% of females among care leavers had poor school performance upon graduation from primary school. When sex and year of birth were adjusted for, the risk of poor school performance was about three times higher among care leavers than among their majority population peers. The two comparison groups had about twice the risk of poor school performance as their majority population peers. Adjustment for factors related to the birth parents (i.e., maternal education and indications of parents' substance abuse and psychiatric disorders) decreased the excess risks of poor school performance in all groups, by close to 30% in the comparison groups and close to 50% in the care leavers' group.

The results also showed that care leavers had lower chances of completing upper secondary education and higher risks of adverse development, especially as compared to their majority population peers but also as compared to the comparison groups, even among those with poor school performance. Care leavers from long-term care had 6–11 times higher risks of suicide attempts, substance abuse, serious criminality, and long-term social assistance as compared to their peers in the majority population. Up to 55% of the excess risks of future psychosocial problems among youth who age out of long-term foster care were statistically attributable to their dismal school performance. Most of the effect from factors related to birth parents were accounted for by grades in primary school. Care leavers excess risks were considerably higher than in the other comparison groups. The excess risks were 2–3 times higher among national adoptees, and 3–6 times higher among the in-home intervention group, than among the majority population.

Study I was a continuation of a previous population study on school performance among Swedish children (Vinnerljung et al., 2010) that included the entire long-term care group (more than 5 years in care, on average 11.5 years in OHC). These results had shown that children were sorted early in the Swedish educational system. Most of the influence from socioeconomic background factors on later outcomes was mediated by grades in primary school. Poor school performance was a strong risk factor for adverse development in the entire child population, but had a substantially stronger influence on the Long-term group's development as school failure was highly prevalent among

them. The Long-term group also received lower grades, and had lower educational attainment, than peers with the same cognitive capacity (only males were compared, based on cognitive tests upon military conscription), and had lower chances of completing a secondary education when their grades were poor. The notion that the link between poor school performance and adverse development in the OHC population allows for causal interpretations was later supported by another Swedish national cohort study (Forsman et al., 2016).

An important remark in regard to the high risk of adverse development among children and youth from OHC is that, in adulthood, they constitute a large share of disadvantaged population groups. In this study they constituted 18–21% of the young adults with the studied adverse outcomes (i.e., suicide attempts, substance abuse, and serious criminality), even though they only constituted 3% of the total study population (Figure A7 in Appendix).

Study II.

The relation between out-of-home care, early school failure, and premature mortality: A 30-year follow-up of people treated for substance misuse in Sweden

The high risk of adverse development in the OHC population was indeed confirmed in Study II. Here, the study population consisted of clients (15–35 years of age) in residential treatment for substance misuse in the early 1980s. This population was estimated to comprise somewhere between 50% and 75% of the serious substance misusers in Sweden at the time (Olsson, 1988). The treatment focused on substance misuse, including poly drug misuse and also in combination with alcohol misuse. The data, originating from a research project called SWEDATE (Swedish Drug Addict Treatment Evaluation), consisted of interview data collected at the time of treatment, which had been linked with register data covering the period from treatment until 2013. The main focus of the study was to examine whether early school failure differed between clients with and without OHC experience, and whether early school failure was related to their risk of premature mortality when controlling for life course factors associated with mortality among people with substance misuse problems. This was done in a life course perspective drawing on the theory of cumulative disadvantage.

The data set provided a good opportunity for studying OHC, because the study population was both fairly homogenous in regard to background factors and offered an adequate comparison group for the OHC population. Furthermore, it covered a period of OHC that was not included in the CWIR (1945–1967) and had a long follow-up (30 years). The study aimed do deal with, to some extent, the criticism that OHC in general population studies merely mediates a marginalized social upbringing rather than the effects of OHC. The

interview data was also rich, in terms of information both on upbringing factors (e.g., home of origin, and OHC experience) and on future development in adulthood. This made it possible to control for a number of life course factors that are not available in the register data, and offered the opportunity to study adverse development from the perspective of cumulative (dis)advantage, whereby factors on, e.g., previous work experience, substance misuse, and criminality were included in the analysis. The underlying hypothesis of the study was that school failure, besides being a mediator of all sorts of problems during the compulsory school years, was also a likely confounder for a less successful transition into adulthood and, thus, for greater difficulties in recovering from substance misuse.

The results showed that 54% of substance misusers had been placed in OHC as children, half in early care (at age 0–12 years) and half in teen care (at age 13–17 years). Clients with OHC experience had a higher prevalence of school failure (dropout from compulsory school) than other clients, and an unadjusted excess mortality risk, albeit only statistically significant for females from early OHC. School failure was strongly associated with the excess mortality in females, and adjusted for half of the excess mortality in the overall OHC population. The strong association between school failure and mortality among females remained after adjusting for additional background factors known to be associated with mortality among people with substance misuse, while almost none of the excess mortality risk associated with early OHC remained.

The relation between childhood OHC, school failure, and premature mortality differed between the female and male clients. For females, there was an excess mortality associated with early OHC which seemed to be mediated through school failure, parental alcohol abuse, own alcohol or opiate misuse, and criminality. For males, childhood OHC and school failure were not significantly associated with an excess mortality, instead the significant risk factors were no regular employment, psychiatric care and/or suicide attempts, own alcohol or opiate misuse, and criminality. A limitation in this study was that the substance misusers were followed from a specific treatment occasion rather than over the entire life course. Evidence from other mortality studies in the OHC population suggests that the mortality risk increases shortly after exit from OHC (Manninen et al., 2015), which might explain the lower excess mortality among males.

Study III.

Early school leaving by children in out-of-home care: A comparative study of three Nordic countries

The main focus of Study III was to investigate Nordic cross-country differences in educational attainment among young adults from OHC compared to

same-aged peers without OHC experience. The impact of national-level factors on the OHC population's educational outcomes has been sparsely researched. In this study we had the entire 1987 national birth cohorts for Denmark, Finland, and Sweden, and the study populations were restricted to domestic-born individuals, which also gives a lower OHC rate as compared to national official statistics. The study examined the effect of OHC on early school leaving (not completed upper secondary education at age 23) when adjusting for a set of maternal factors (i.e., educational attainment, long-term social assistance, and indication of substance abuse and psychiatric disorders). The OHC population was divided into mutually exclusive study groups in regard to OHC experience (i.e., first entry into OHC before the teenage years combined with short-, intermediate-, and long-term care, and teenage placement).

While the child welfare systems are similar among the Nordic countries, Denmark and Finland have specific after-care support programs for care leavers while Sweden does not. The educational systems are also similar among the countries, but differ in the arrangement of vocational education at upper secondary level. This is argued to primarily target students from lower socioeconomic background, and students with lower academic achievements, since they are more likely to enter vocational tracks compared to students from higher socioeconomic background who are more likely to enter academic tracks. Vocational tracks are also more common among youth from OHC than academic tracks (Jackson & Cameron, 2012). Denmark has a long tradition of apprenticeship-based training while Finland and Sweden have school-based vocational education, which serves as preparation for tertiary education.

The results showed that young people from OHC were 24–39 percentage points more likely to lack upper secondary education compared to their peers without OHC experience, when results were adjusted for maternal background factors. The OHC population's excess risk of early school leaving was higher in Denmark than in Finland and Sweden. However, the apprenticeship system in Denmark made the comparison somewhat biased, as vocational training there is partly registered as employment and stretches over a longer time. Due to data restriction, the study population could only be followed until age 23. In the study on NEET (below), employment and higher education were combined.

Study IV.

Long-term NEET among young adults with experience of out-of-home care: A comparative study of three Nordic countries

Study IV was a continuance of Study III, starting earlier in the educational system with school performance in primary school and including lack of em-

ployment in young adulthood (age 21–23 years). Besides dealing with the registration of students in apprenticeship employment in Denmark, the study's aim was to examine a crucial phase of the school-to-work transition in relation to poor school performance across the Nordic countries. This was done not only by focusing on higher education but also by including other paths to labor force establishment and self-sufficiency. It originated from the question of whether the OHC population finds other paths to labor market attachment in light of their low educational attainment. This was done by studying long-term NEET (Not in Employment, Education, or Training) as an outcome, measured as having no income related to education or employment in two out of three subsequent years. This indicates a severe form of inactivity whereby individuals stand far from the common transition paths.

Similar to Study II (which examined the relation between OHC experience, school failure, and premature mortality among substance misusers), it elaborated on cumulative (dis)advantages. In this study, poor school performance was expected to have a stronger impact on the OHC population's risk of long-term NEET than on that of their non-OHC peers, as previous studies show that youth from OHC often have weak support networks (Höjer & Sjöblom, 2009; Greeson, 2013; Ejrnæs et al., 2011; Franzén et al., 2008; Kestilä et al., 2012), which are known to be important in labor market segments where non-formal qualifications are more decisive for employment (Breen & Jonsson, 2007). The OHC population was divided into study groups in the same way as in Study III, and was compared with same-aged peers without care experience within the countries.

As expected, the results showed that the proportion in long-term NEET was substantially higher among young adults from OHC as compared to their same-aged peers. About a fourth in Denmark and Sweden, and about a third in Finland, were NEET in the OHC population, as compared to 6–7% among their peers without care experience. When all background variables (i.e., sex and birth mother's education, social assistance, psychiatric care, and substance abuse) were adjusted for, the study showed that the excess risk of NEET was especially elevated among those with both OHC experience and poor school performance in all three countries. Compared to peers without OHC experience and poor school performance, the excess NEET risk was 11–14 percentage points for young OHC adults *without* poor school performance, and 32–34 percentage points for young adults from OHC *with* poor school performance.

All OHC sub-groups had a high prevalence of poor school performance and NEET. This includes the Early long-term group, in which individuals in average had entered care at 5–6 years of age and had been in care an average of 9–11 years during childhood. In Sweden, they even had the highest excess risks. In all three countries, those who were in care for less than a year at a young age (Early short) had the lowest risk of NEET among the OHC sub-groups.

They also had a lower prevalence of poor school performance, and those who had above low grades in primary school had almost no excess risk of NEET.

The linkage between the educational system and the labor market differs among the countries. For instance, Denmark has stronger educational stratification and weaker employment protection legislation than Sweden and Finland. However, evidence from general population studies suggests that these differences mainly apply to those who complete upper secondary education (Bäckman et al., 2015; Albæk et al., 2015). This was also supported by the results in this study, with the OHC population's adjusted risk of being NEET being similar across countries, although there was a tendency that poor school performance was more decisive for the risk of being NEET in Sweden while OHC experience was more decisive in Denmark, and in Finland it was in between.

Study V.

Educational Outcomes of Children from Long-term Experience of Foster Care: Does Foster Parents' Educational Attainment Matter?

Study V investigated intergenerational transmission of education in the foster care setting. To our knowledge, this has not been done previously in either a large sample or a full cohort study, in either international or Swedish studies, as data are typically lacking on foster family characteristics. In this study, censuses were used to link foster children in long-term care to the household where they lived during their primary school years. In the general population, parental education is known to be a strong and robust factor for children's educational outcomes (e.g., Breen & Goldthorpe, 2014; Hertz et al., 2007), and there is also an association between birth parents' educational level and their children's educational outcomes in the OHC population (Figure 15). It has also been hypothesized that there is a matching effect when foster children are placed in foster care i.e., that foster children whose parents have a higher education are placed with foster parents who also have a higher education. This was somewhat supported by analyses performed in connection with the final study (Figure 10). For these reasons, we conditioned on birth parents' education by creating a combined maternal education variable that separated the effect from that of the foster parents.

A number of analyses preceded this study. We performed an analysis similar to the adoption studies referred to in the theory chapter (Sacerdote, 2004; Björklund, Lindahl, & Plug, 2006), in which the effect of birth mother's educational level in the majority population was compared with the independent effects of birth mother's and foster mother's educational level among foster children. In these adoption studies, the influence from birth parents was argued to capture broad pre-birth factors, including genes and prenatal environment, while the influence from adoptive parents was argued to capture broad

post-birth factors, such as childhood environment. The influences are usually not as distinct in the foster care setting. In the study presented here, the foster children had stayed with their birth mothers up to six years before first entry into OHC, and may also have lived with their birth mother for some period of time during primary school years. Similar to the evidence from the adoption studies, the intergenerational transmission coefficient was weaker for foster mothers than for birth mothers (presented in Table A3 in Appendix). But contrary to the adoption studies, the total intergenerational transmission effect from birth mothers and foster mothers (the sum of the coefficients) were weaker than the effect from birth mothers in the majority population, which may indicate that the placement situation was influencing educational outcomes negatively

However, a combined maternal education variable was used in the final. We were searching for an educational gradient – a pattern – in foster children's educational outcomes in regard to foster mothers' educational attainment, where school performance measured their achievements at the comprehensive level while educational attainment measured their tendency to continue to higher education. While the results showed a weak gradient between foster mother's educational level and foster children's educational outcomes, the pattern was not consistent or robust. Our results for females and males differed, and the transmission effect was stronger among males than females on poor school performance in primary school, while the opposite was true for educational attainment (only primary education at age 26), whereby the transmission effect was stronger among females than males. This may be in line with females' higher educational attainment in the overall population and previous studies indicate that boys benefit more than girls do from an advantageous home environment in terms of school performance – that is, GPA (Brenøe & Lundberg, 2018) – and that later educational choices are same-sex correlated; i.e., that the mother's education is more important for daughters while the father's education is more important for sons (Humlum, Nandrup, & Smith, 2019).

The strength of the study was that we were able to use foster family characteristics in a full cohort study, but this was limited to the census years. While we were able to control for a number of foster family characteristics (the full model is given in Table A2 in the Appendix), we did not know how long the foster children had lived in the foster family since the last census. The variable that provides information on where the foster child goes after placement was not included in the CWIR for the birth cohorts included in the study (see the section on the CWIR).

An important understanding from the results is that the construction of stable long-term care is done in retrospect. Upon placement, neither the parents (birth and foster) nor the child knew if the placement would remain stable. In addition to the weak gradient, the overall performance was also low in the study population; hence, the gradient appeared at a lower level as compared

to the general population. This is also visualized in Figures 11–14 in the section on educational patterns in the OHC population. All OHC groups, including those who were in OHC for most of their childhood, have substantially lower educational achievement and attainment than the general population. This was also supported by the Nordic studies (Studies II and V), in which all OHC groups were substantially disadvantaged in comparison to the general population. The conclusion from the results of the study was that living in a better educated foster family does not have a robust compensating effect in the foster family setting.

Discussion

The five individual studies in this thesis investigated different aspects of the transition through the educational system towards adult life among children and youth from OHC. The studies were framed in social stratification theory and their design relate to the status attainment model (Figure 17). The findings show that the OHC population was disadvantaged in both stages of the status attainment model: in the first stage by having lower chances of achieving an education; and in the second by being more disadvantaged in other domains of life when educational outcomes are poor. Furthermore, the intergenerational transmission of education was rather weak and inconsistent in the foster care setting; living in a foster family where the foster mother had a higher educational level was not as protective against poor educational outcomes as in the general population. The overall pattern of poor educational outcomes was similar in the three Nordic countries of Denmark, Finland, and Sweden.

The prevailing difficulty of separating the influence of pre-care factors from that of in-care factors was dealt with by comparing the OHC population to different comparison groups with similar socioeconomic backgrounds but without OHC experience, controlling for birth parents' characteristics, and dividing the OHC population into study groups in accordance with care history. The results suggest that the OHC population was more disadvantaged than the comparison groups and that birth parents' characteristics adjusted for some of the risk of poor school performance, but that a significant excess risk remained.

There were some differences in educational outcomes between the OHC sub-groups. Generally, those who had been in early short and in long-term care had lower risks of poor educational outcomes than those who had been in early intermediate and teen care. However, all OHC groups, including those who had spent most of their childhood in care, had a substantially higher prevalence of poor educational outcomes than their peers without OHC experience, and these patterns were stable across the time period covered. Still, an important remark is that the results in the thesis refer to the OHC population

as a group and according to register data. Even though certain adverse outcomes are more common among children and youth from OHC, even much more common, this does not mean that individuals with OHC experience are predetermined to develop these adverse outcomes (e.g., poor school performance). In the research field of children and youth in vulnerable situations, a general problem is balancing between detecting disadvantages in order to make a change and the risk of stigmatizing an entire group. This is indeed relevant regarding the OHC population.

Causality versus selection effects

Even though several measures were carried out in order to control for pre-care factors it was not possible, with accuracy, to separate the selection effect from the causal effect of OHC. The findings may support the importance of both in-care factors and pre-care factors. The comparison groups of individuals who experienced early in-home interventions, national adoptees, and substance misusers without OHC experience all had better educational outcomes than the OHC population. These groups were chosen because they had social background factors similar to those of the OHC population. However, the fact that they were not subjected to OHC may also indicate that their home environment was not as disadvantaged as the OHC population's to begin with. Results were adjusted for parental background factors, but these were only rough constructions that most likely do not capture the entire real-life variety of early childhood factors. Hence, some of the OHC population's excess risk (compared to the comparison groups) may still be due to their pre-care experiences rather than their in-care situation.

The interpretation of the differences between the OHC sub-groups in the Nordic comparative studies carries the same difficulties in separating the causal from selection effects. The Teen group had the highest risk of poor educational outcomes (and NEET in Study IV), but as they were subjected to OHC rather late, in adolescence (average age 15), the influence of in-care factors on school performance was limited. Furthermore, in the Teen group, the reason for OHC is most often related to the youth's own disruptive behavior, and an adverse development may already have started before they entered care. The other three sub-groups, who entered care before their teens, were divided into groups according to total time in care, i.e. the length of their exposure to in-care factors. This may also correlate with the degree of adverse home environment, with those who spent a long time in care having had a more adverse home environment (as they could not move back home) than those who spent only a short time in care. This was somewhat supported by the prevalence of maternal psychosocial problems in the Nordic comparative study on NEET (see Table 3 in Study IV).

Education is responsive

However, several considerations speak to an influence from in-care factors on educational outcomes among children and youth in care. First, it is unlikely that such high rates of poor school performance among children in care are predetermined. Many in the Long-term group had spent most of their childhood in OHC (Figure 7), and even though fetal or early childhood experiences might have resulted in an elevated prevalence of cognitive or behavior problems within the group, this does not automatically lead to school failure.

Evidence from studies of foreign-born adoptees suggests that a good and stable home environment has a compensating effect for weaker cognitive ability on school performance (Lindblad, Dalen, Rasmussen, Vinnerljung, & Hjern, 2009). Other studies have also shown that cognitive ability is responsive through stimulation, both among foster children in Sweden (e.g., Tideman et al., 2011), internationally among children from orphanages (e.g., Fox et al., 2011), and among adoptees (e.g., Duyme, Dumaret, & Tomkiewicz, 1999; Schiff et al., 1978). Furthermore, Study I was a continuation of a previous study on school performance among children from different social backgrounds, in which the results among males were adjusted for cognitive ability from tests upon military conscription. These results suggested that males from long-term care had significantly lower average grades in primary school, and lower chances of achieving an upper secondary education, compared to other males with similar cognitive test results (Vinnerljung et al., 2010). Several studies have found that knowledge gaps in school subjects rather than cognitive ability is a main factor behind children in OHC performing below their potential, and that educational support that helps them to fill these gaps increases their school performance (Tideman et al., 2011; Tordön et al., 2014; Clemens et al., 2018).

It is sometimes argued that the high prevalence of behavior problems and mental health problems among children in care explains the high rates of poor school performance within the group. However, the causal mechanisms are complex and go both ways. It is well known that behavior problems can cause poor school performance (Johnson et al., 2009), but poor school performance also affects children's behavior and well-being (Gustafsson et al., 2010). This is also supported by the promising results from recent testing of different school support programs aimed at children in care. This holds both for improvements in school performance (Gottfredson, Wilson, & Najaka, 2002; Harden, Brunton, Fletcher, & Oakley, 2009; Voisin & Neilands, 2010; Zingraff, Leiter, Johnsen, & Myers, 1994) and for positive side-effects these programs have had on children's self-esteem and strengthening of their relationships with their teachers, classmates, and foster parents (Tideman et al., 2011).

Instability and uncertainty in placements

OHC is by definition a move from the home of origin, but with the purpose of providing a better home environment for the child. However, instability and uncertainty of the living arrangements of children in care is a well-known problem (e.g., Utredningen om tvångsvård för barn och unga, 2015) that may certainly affect their ability to perform in school. Reunification with birth parents is promoted in Swedish child welfare, and the placement is reconsidered every six months (Socialstyrelsen, 2013a). For some children, this might result in moving back and forth between the home of origin and a foster home.

The CWIR does not allow for measuring actual instability in placements as the register does not hold information on individual foster homes or residential care homes. But rough measurements can be done by studying the number of placement sequences they have had, i.e. placements over a continuous time period in a certain type of placement. This shows that half of all children in long-term care (born in 1990–1995) have had three or more placement sequences by the time they age out of care (Socialstyrelsen, 2020b). This might have resulted in a number of school changes and potential knowledge gaps, due to e.g. different curricula and instructional settings, and new teachers (Fuglsang Olsen & de Montgomery, 2018; Pears, Kim, Buchanan, & Fisher, 2015). But even if the child is able to continue in the same school, frequent change of home environment and caregivers may also impair the academic progress as the child struggles with adjusting to a new environment (Berger et al., 2015; Clemens et al., 2018).

In the studies included in this thesis, *children in long-term care* was also a construction that was made in retrospect. The individuals concerned – i.e. the foster children, birth parents, foster parents, social network, and child welfare professionals – did not know whether that particular placement would be a long-term placement. Both instability and uncertainty will potentially weaken foster parents' ability to support and guide the foster child in the educational system, as well as the child's motivation to commit to the schooling. While evidence is sparse, studies suggest that caregiver involvement is often lower in foster family settings compared to birth family settings, and that several factors contribute to, e.g., instability in placements and lack of information, which make it more difficult to provide appropriate support (Pears et al., 2018; Beisse & Tyre, 2013; Munford & Sanders, 2016). One of few consistent factors associated with foster children's educational outcomes, according to a recent review by O'Higgins and colleagues (O'Higgins et al., 2017), was that of the caregivers' school involvement.

In studies on step-families, a less continuous history within the family is found to diminish the intergenerational exchange of resources, e.g. instrumental, emotional, and financial (Amato, 2005; Ganong & Coleman, 2006). The notion that the commitment may be weaker in the foster family setting than in regular families is supported by a Swedish study on interruptions in OHC,

which showed that divorce in foster families sometimes led to neither of the foster parents wanting to continue caring for the foster child; this held even when the foster child had spent many years in the foster family. Biological children in the foster family also served as a risk factor for disruption in placements, e.g. because the foster parents felt that their biological children needed additional support or attention. Conflicts between foster parents and birth parents formed another risk factor for disruption in care (Socialstyrelsen, 2012; Vinnerljung, Sallnäs, & Berlin, 2014).

Three-headed parenting

OHC is not only a matter of protecting children and youth; it is also intended to improve their future opportunities by compensating for adverse upbringing factors. In this regard, the foster family may be perceived as a hybrid between being a 'normal family' and a 'treatment method', whereby the foster parents are responsible for providing a good home environment, supporting the child's development, and ensuring that the child maintains a good relationship with his or her birth parents (Höjer, 2001).

Many parents recognize the difficulties involved in giving their children educational support, and the OHC context often comprises additional challenges whereby the involved parties (i.e., the birth parents, the foster parents, and the child welfare) share the mandate and responsibilities (Utredningen om tvångsvård för barn och unga, 2015; Järvinen & Tankred Luckow, 2020). For the birth parents, it is obviously difficult to support a child who lives in another family or in a residential care home. The birth parents have also been judged not to be equipped to take care of the child, and may feel inferior compared to the foster parents and the child welfare professionals (Höjer, 2009; Bryson, 2016), which may also affect their ability to guide and support him or her in schooling. Furthermore, if the child does not enjoy studying, it is easily understood why the birth parents do not engage in schoolwork during the time they spend with him or her.

The same goes for the foster parents, who may prioritize building a good relationship with the foster child without the negativity that could result from struggling with homework (e.g., Forsman, 2017). The foster parents may also have other obligations associated with supporting the foster child, e.g. keeping appointments with different professionals and maintaining contact with birth parents and child welfare services, which may take a great deal of energy (Höjer, 2001). For the foster child, it may be hard to adjust to the new environment and not knowing what the future will bring. The lack of information is known to be a concern for children in care that can cause anxiety and impaired well-being (Socialstyrelsen, 2013b). It is also suggested that a lack of trust between foster parents, birth parents, and foster children is a key component that impairs the transmission of resources, including educational support, in the OHC setting (McClung & Gayle, 2013).

Education is influential

The process of achieving education is both carried out at home and in school (Heckman, 2014). For children who are placed in long term care, a large part of this process is carried out in the foster family. However, there are several factors that might impair the educational process in the OHC setting and the findings in the individual studies suggest that additional support is needed to compensate for that. Sweden's educational system has a strong stratifying impact (Rudolphi, 2013; Breen, 2010), and without sufficient support early in the educational process, children in care are at risk of having any previous poor performance acting as a disadvantage that accumulates through the system.

Despite the low level of formal tracking in the educational system, previous performance serves as a form of informal tracking as it influences the motivation and ability to further one's academic achievement. Since admission to higher education is centralized and accessed by previous educational achievement, parents will put a great deal of effort into facilitating their children's educational achievement (e.g., Bach, 2014). This process continues over the life course and is usually cohesive, from pre-school skills in early childhood to support in higher education, resulting in an accumulation of advantages or disadvantages. The findings suggest that poor school performance in primary school had a great impact on future opportunities for children in care, both in achieving higher education (Studies I–11, IV–V) and in inflicting greater disadvantage in future life (Studies I, II, IV). At the end of primary school most of the educational sorting is already done (Rudolphi, 2013), and therefore the grades in primary school account for a great part of the effect of socioeconomic background factors on future outcomes (Vinnerljung et al., 2010).

However, the mediating potential of the Swedish educational system could also be used in favor of the OHC population. As social background is primarily mediated in the educational system, interventions targeting educational achievement are likely to have a significant impact on future opportunities (Rudolphi, 2013; Breen & Jonsson, 2007). But previous research suggests that such interventions need to be systemized and customized to the OHC population's specific situation, as general favorable factors seem to have no or weak effect, e.g. attending a high-achieving school (Berlin, 2012b) or living in a highly educated foster home (Study V).

This is also the case in arrangements meant to increase educational opportunities in the general population. Evidence shows that the adult educational system, constructed to increase adults' opportunities to re-enter education, is not used as frequently by young adults from OHC as by other groups (Vinnerljung et al., 2010). The results in Study II, among substance misusers in treatment, also showed that different types of vocational training in adulthood were less common in the OHC population. The Nordic comparative studies indicated that the differences in arrangement of vocational training across

countries did not affect the OHC population's risk of NEET, but might explain the OHC population's higher risk of not completing upper secondary education in Denmark (Study III). An apprenticeship system may disfavor young adults with weaker social networks as they have problems finding apprenticeships (Roth, 2014; Helland & Støren, 2006; Schmidt, 2010; Brahm, Euler, & Steingruber, 2014), which might explain the OHC population's risk of dropping out of upper secondary education in such a system (Daehlen, 2017).

Accelerated and compressed transition into adulthood

The school-to-work transition is seldom a straight path for young people in today's society which has resulted in an extended transition phase and prolonged parental dependence (Billari & Liefbroer, 2010; Buchmann & Kriesi, 2011; Schoon & Lyons-Amos, 2016; Settersten & Ray, 2010). However, many young people from long-term care have an accelerated and compressed transition into adulthood, without the amount of support peers who were brought up in their homes of origin usually have (Greeson, 2013; Ejrnæs et al., 2011; Franzén et al., 2008; Kestilä et al., 2012). Sweden does not yet have a systemized after-care program for care leavers, and there are no national statistics on what kind of support they usually receive. While they are in care they can apply for continued care until they finish upper secondary education. It is also stipulated that the need for support is to be assessed well in advance of exit from care (e.g., financial, housing, studies, or work), but there are no specifics on what support they are entitled to, or for how long (Socialstyrelsen 2012a; Storø et al., 2019). Both international and Swedish studies show that there is a gap between the needs of young people leaving care and the support they receive from the social services (Geiger & Beltran, 2017; Cameron et al., 2012; Höjer & Sjöblom, 2009; Martin & Jackson, 2002).

In educational theory, the choice to pursue higher education is sometimes described from the perspective of rational choice, whereby individuals weigh the costs and returns (real or perceived) against each other, implying that the cost for individuals from privileged backgrounds is low and the return is high while the reverse applies to individuals from less privileged backgrounds. The choice to continue to higher education also depends on the perceived likelihood of success in continued education (Breen & Jonsson 2005; Breen & Goldthorpe, 2014). For foster children, the cost of continuing to higher education might be too high and the returns too uncertain when there are no systemized care-leaving services and they have to rely on the general welfare service systems. The findings in the individual studies suggest that youths from OHC were considerably more disadvantaged by poor school performance and low educational attainment than other groups (Studies I, II, IV). Study IV suggested that the risk of NEET was slightly higher even for those in the OHC population without poor school performance in primary school; i.e., when their grades were above low.

For children in care there can be a strong desire to leave the child welfare system as soon as possible, which makes them less eager to apply for continued care in order to complete upper secondary school. If they want to continue their education later in life, at the upper secondary level or at higher levels, they are referred to the same general system as anyone else which, despite providing free education and favorable student loans, is often supplemented by additional support from parents. The welfare assistance system for adults is seldom a solution for students, as it is strict regarding who is entitled to assistance. Several studies have identified this lack of a systemized after-care program as a deficit in the Swedish child welfare system (e.g., Höjer & Sjöblom, 2011; SOU, 2015:71; Storø et al., 2019). However, studies of the after-care programs in the other Nordic countries (Frederiksen & Lausten, 2018; Paulsen, Höjer, & Melke, 2018) as well as the results from the Nordic comparative studies in this thesis (Studies III and IV) show that such programs are not sufficient by default. Their construction needs to be evaluated and well adapted to young people's circumstances in order to offer sufficient support (Stein, 2019; Häggman-Laitila, Salokekkilä, & Karki, 2018). The period of length that after-care is available and the type of support offered are likely decisive for the success of such programs.

Greater than average inputs

The increased importance of education in today's society makes for an influential factor that can be targeted by child welfare services and other relevant actors, in order to improve the opportunities for this group of young people. The OHC population is heterogeneous in terms of age and time in care, which is decisive for the design of possible support measures. About a third (born in 1980–1994) stayed in care for less than a year, while about half stayed up to five years and about a fifth stayed in long-term care, i.e. five years or more (Figure 3). Nonetheless, early assessment and targeted interventions are important for the best possible educational progress (e.g., Heckman, 2014).

The debate on reunification versus continuity and stability in care has been long-lived in Sweden. When the Social Service Act was introduced in the 1980s, reunification with the birth parents was the overriding goal, aimed at providing a comprehensive living situation for children in care. This was based on evidence from international research suggesting that maintaining parental contacts had a favorable impact on the development of children in care. In recent decades, however, it has been acknowledged that the strong reunification principle has also jeopardized the continuity and stability of care for many children, and some changes have been made in order to enforce the latter. The reconsideration of the placement every six months has been the most prevalent measure for emphasizing the reunification principle (Utredningen om tvångsvård för barn och unga, 2015), but new regulations has been established, stating that transfer of custody is to be considered when a child has

been in care for three years or longer. The issue of adoption in order to ensure continuity and stability for children in care has so far merely been the subject of a number of investigations; to date, no changes to the regulations in order to encourage adoption have been implemented. Still, transferring custody to foster parents as well as adoption are still rare in Sweden (Socialstyrelsen, 2014).

In universal welfare regimes like Sweden, it has been taken for granted that the general welfare systems will provide sufficient support to all children. However, evidence has shown that children who do not live continuously with their parents or caregivers are at risk of missing out on these comprehensive systems, such as the general health and dental care programs (Kling & Nilsson, 2010; McMahon et al., 2018; Randsalu & Laurell, 2017; Berlin et al., 2018). Swedish studies have also identified that child welfare services have not sufficiently monitored the educational situation of children in care (Vinnerljung, Öman, & Gunnarsson, 2005; Vinnerljung et al., 2010), or the aftercare support provided by child welfare services (Höjer & Sjöblom, 2009; 2011; Storø et al., 2019). This has raised an awareness of the urgent need to improve the cooperation between relevant actors (Socialstyrelsen, 2018b) and to improve the child welfare system in order to ensure that children in OHC receive the same support other children do (e.g., SOU, 2015:71; Socialstyrelsen & Skolverket, 2013).

Conclusion and contribution

The aim of this thesis was to add knowledge on the prevalence, patterns, and consequences of educational outcomes among children and youth from OHC. The findings extend previous research on poor educational outcomes, and contribute to these findings: by covering the entire Swedish OHC population since the start of registration; by following the OHC population through the educational system; by comparing the OHC population with other comparison groups; by making a cross-country comparison of three Nordic countries; and by examining the influence of foster family factors on educational outcomes.

The thesis shows that the patterns of poor educational outcomes have remained stable over time, with poor educational outcomes being a disadvantage for the OHC population in the status attainment process, even in comparison with other groups with similar family backgrounds but without OHC experience. Furthermore, it shows that their high excess risk of adverse development makes them constitute a large share in general disadvantaged groups as adults, e.g. among substance misusers. In international comparison, the Nordic welfare regimes have been efficient in reducing inequality in general (e.g., Breen & Jonsson, 2007), but these findings suggest that they have not been successful in providing opportunities to the OHC population at a level comparable to that of their non-OHC peers.

Education is a main factor for upward social mobility, and can be used in the process of improving the OHC population's future opportunities. However, regardless of the reason for the high prevalence of poor educational outcomes among children and youth from OHC, adequate support is needed in order to ensure that this vulnerable group has the same educational opportunities other young people do (Vinnerljung et al., 2015). Furthermore, supportive measures should be carried out early in the educational career since previous school performance accumulates through the educational system (e.g., Heckman, 2014; Rudolphi, 2013). The studies in this thesis suggest that, even for children in stable long-term care in which the foster mothers were highly educated, additional support is needed. The conclusion from the studies can be summarized by a statement by Heath and colleagues (1994): "when 'average' educational inputs are given to children with 'above average' educational needs, they fail to make 'greater than average' educational progress".

Future research

There is clearly a need for more research on how to improve the educational opportunities for children and youth in OHC. On the positive side, an awareness of the high prevalence of poor educational outcomes has increased among relevant actors. A number of initiatives have been taken in recent years to improve the schooling situation for children in care through information and guidelines, e.g. on how to improve the transmission of information between schools (Socialstyrelsen, 2018b), and assessing the educational situation for children in care (Socialstyrelsen & Skolverket, 2013). It will be important to evaluate if these measures will have any impact by following the development of educational outcomes in the OHC population. However, there is an urgent need for efficient intervention programs aimed directly at improving children's cognitive development and school performance. The same goes for programs supporting and encouraging children in care to continue to higher education. This calls for a great deal of research on what type of interventions could be successfully implemented in the child welfare system on a regular basis. The problem of instability in placements and the lack of systemized after-care programs also call for further studies. Overall, this is a research field where many questions remain to be addressed.

References

Albæk, K., Asplund, R., Barth, E., Lindahl, L., von Simson, K., & Vanhala, P. (2015). *Youth unemployment and inactivity: A comparison of school-to-work transitions and labour market outcomes in four Nordic countries*. TemaNord 2015:548. Copenhagen, Denmark: Nordic Council of Ministers.

Almquist, Y. B., Jackisch, J., Forsman, H., Gauffin, K., Vinnerljung, B., Hjern, A. & Brännström, L. (2018). A decade lost: does educational success mitigate the increased risks of premature death among children with experience of out-of-home care? *Journal of Epidemiology and Community Health, 72*(11), 997–1002.

Alon, S. (2014). *Toward a Theory of Inequality in Higher Education*. In D. B. Grusky & K. R. Weisshaar (Eds.), Social Stratification: Class, Race, and Gender in Sociological Perspective (4 ed., pp. 569–577). Boulder, CO, USA: Westview Press.

Amato, P. R. (2005). The Impact of Family Formation Change on the Cognitive, Social, and Emotional Well Being of the Next Generation. *The Future of Children, 15*(2), 75–96.

Arnau-Sabatés, L., & Gilligan, R. (2015). What helps young care leavers to enter the world of work? Possible lessons learned from an exploratory study in Ireland and Catalonia. *Children and Youth Services Review, 53*, 185–191.

Bach, D. (2014). Parenting among wealthy Danish families: a concerted civilizing process. *Ethnography and Education, 9*(2), 224–237.

Barclay, K., Lyngstad, T., & Conley, D. (2018). *The Production of Inequalities Within Families and Across Generations: The Intergenerational Effects of Birth Order and Family Size on Educational Attainment*. Stockholm Research Reports in Demography 2018:13. Stockholm: Stockholm University.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173–1182.

Beisse, K., & Tyre, A. (2013). *Caregiver Involvement in the Education of Youth in Foster Care: An Exploratory Study*. Ch 1 – SSW Journal March 2013. Chicago, IL, USA: Lyceum Books, Inc.

Beller, E., & Hout, M. (2006). Welfare states and social mobility: How educational and social policy may affect cross-national differences in the association between occupational origins and destinations. *Research in Social Stratification and Mobility, 24*, 353–365.

Ben-Arieh, A., & Frønes, I. (2011). Taxonomy for child well-being indicators: A framework for the analysis of the well-being of children. *Childhood, 18*(4), 460–476.

Berger, L. M., Bruch, S. K., Johnson, E. I., James, S., & Rubin, D. (2009). Estimating the "impact" of out-of-home placement on child well-being: Approaching the problem of selection bias. *Child Development, 80*, 1856–1876.

Berger, L. M., Cancian, M., Han, E., Noyes, J., & Rios-Salas, V. (2015). Children's academic achievement and foster care. *Pediatrics, 135*, 109–116.

Berlin, M. (2012a). *Kapitel 6. Barn som inte bor med föräldrar* [Children who do not live with their birth parents]. In Socialstyrelsen (Ed.) Skolans betydelse för barns och ungas psykiska hälsa – en studie baserad på den nationella totalundersökningen i årskurs 6 och 9 hösten 2009 (pp. 81–101). Stockholm: Socialstyrelsen.

Berlin, M. (2012b). Kapitel 7. *Utsatthet i högpresterande skolor* [Vulnerable children in high achiving schools]. In Socialstyrelsen (Ed.) Skolans betydelse för barns och ungas psykiska hälsa – en studie baserad på den nationella totalundersökningen i årskurs 6 och 9 hösten 2009 (pp. 102–117). Stockholm: Socialstyrelsen.

Berlin, M., Mensah, T. Lundgren, F., Klingberg, G., Hjern, A., Vinnerljung, B., & Cederlund, A. (2018). Dental healthcare utilisation among young adults who were in societal out-of-home care as children: A Swedish National Cohort Study. *International Journal of Social Welfare*. DOI: 10.1111/ijsw.12334.

Berridge, D. (2007). Theory and explanation in child welfare: education and looked-after children. *Child & Family Social Work, 12*, 1–10.

Berridge, D. (2012). Educating young people in care: What have we learned? *Children and Youth Services Review, 34*, 1171–1175.

Billari, F. C., & Liefbroer, A. C. (2010). Towards a New Pattern of Transition to Adulthood? *Advances in Life Course Research, 15*, 59–75.

Birkelund, G. E. (2006). Welfare states and social inequality: Key issues in contemporary cross-national research on social stratification and mobility. *Research in Social Stratification and Mobility, 24*, 333–351.

Björk Eydal, G., & Kröger, T. (2011). *Nordic family policies: constructing contexts for social work with families in Social Work and Child Welfare Politics*. In H. Forsberg & T. Kröger (Eds.). Through Nordic Lenses (pp. 11–28). The Policy Press, Bristol: UK.

Björklund, A., Jäntti, M., & Solon, G. (2007). Nature and Nurture in the Intergenerational Transmission of Socioeconomic Status: Evidence from Swedish Children and Their Biological and Rearing Parents. *The B.E. Journal of Economic Analysis & Policy, 7*(2 Advances), Article 4.

Björklund, A., Lindahl, M., & Plug, E. (2006). The origins of intergenerational associations: Lessons from Swedish adoption data. *The Quarterly Journal of Economics, August*, 999–1028.

Blanden, J. (2013). Cross-Country Rankings in Intergenerational Mobility: A Comparison of Approaches from Economics and Sociology. *Journal of Economic Surveys, 27*(1), 38–73.

Boudon, R. (1974). *Education, Opportunity, and Social Inequality: Changing Prospects in Western Society*. New York: Wiley.

Bourdieu, P. (1990). *The Logic of Practice. Book I.* Critique of theoretical reasons (pp. 1–141). Cambridge: Polity Press.

Bourdieu, P., & Passeron, J-C. (1990). *Reproduction in education, society and culture* (2nd ed.). London: Sage.

Brahm, T., Euler, D., & Steingruber, D. (2014). Transition from school to VET in German-speaking Switzerland. *Journal of Vocational Education & Training, 66*(1), 89–104.

Breen, R. (2010). Educational Expansion and Social Mobility in the 20th Century. *Social Forces, 89*, 365–388.

Breen, R. (2014). *Social Mobility in Europe*. In D. B. Grusky & K. R. Weisshaar (Eds.), Social Stratification: Class, Race, and Gender in Sociological Perspective (4 ed., pp. 464–479). Boulder, CO, USA: Westview Press.

Breen, R., & Goldthorpe, J. H. (2014). *Explaining Educational Differentials*. In D. B. Grusky & K. R. Weisshaar (Eds.), Social Stratification: Class, Race, and Gender in Sociological Perspective (4 ed., pp. 524–535). Boulder, CO, USA: Westview Press.

Breen, R., & Jonsson, J. O. (2005). Inequality of opportunity in comparative perspective: Recent Research on Educational Attainment and Social Mobility. *Annual Review of Sociology, 31*, 223–243.

Breen, R., & Jonsson, J. O. (2007). Explaining Change in Social Fluidity: Educational Equalization and Educational. *American Journal of Sociology, 112*(6), 1775–1810.

Brenøe, A. A., & Lundberg, S. (2018). Gender gaps in the effects of childhood family environment: Do they persist into adulthood? *European Economic Review, 109*, 42–62.

Brunello, G., & Checchi, D. (2007). Does school tracking affect equality of opportunity? New international evidence. *Economic Policy, October*, 781–861.

Bryson, S. A. (2016). A Credit Check of Maternal Assets: 'Care Capital' and the Construction of the 'Good Enough Family' by Child Welfare Caseworkers and Courts. *British Journal of Social Work, 46*, 2070–2087.

Buchmann, M. C., & Kriesi, I. (2011). Transition to adulthood in Europe. *Annual Review of Sociology, 37*, 481–503.

Bäckman, O., Jakobsen, V., Lorentzen, T., Österbacka, E., & Dahl, E. (2015). Early school leaving in Scandinavia: Extent and labour market effects. *Journal of European Social Policy, 25*(3), 253–269.

Cameron, C., Hollingworth, K., Schoon, I., van Santen, E., Schröer, W., Ristikari, T., … Pekkarinen, E. (2018). Care leavers in early adulthood: How do they fare in Britain, Finland and Germany? *Children and Youth Services Review, 87*, 163–172.

Cameron, C., Jackson, S., Hauari, H., & Hollingworth, K. (2012). Continuing educational participation among children in care in five countries: some issues of social class. *Journal of Education Policy, 27*(3), 387–399.

Cantillon, B., Collado, D., & Van Mechelen, N. (2017). *The Structural Nature of the Inadequate Social Floor for Single-Parent Families.* In R. Nieuwenhuis & L. C. Maldanado (Eds.). The triple bind of single parent families (pp. 401–422). Bristol: Policy Press, Open Acess.

Carlson, M. J., & Meyer, D. R. (2014). Family Complexity: Setting the Context. *The Annals of the American Academy, 654*, 6–11. DOI: 10.1177/0002716214531378.

Cassarino-Perez, L., Crous, G., Goemans, A., Montserrat, C., & Castellà Sarriera, J. (2018). From care to education and employment: A meta-analysis. *Children and Youth Services Review, 95*, 407–416.

Chambers, D. (2012). *A Sociology of Family Life: Change and Diversity in Intimate Relations*. Cambridge, UK: Polity Press.

Cherlin, A. J. (2012). Goode's World Revolution and Family Patterns: A reconsideration at fifty years. *Population and Development Review, 38*(4), 577–607.

Cheung, C., Goodman, D., Leckie, G., & Jenkins, J. M. (2011). Understanding contextual effects on externalizing behaviors in children in out-of-home care: Influence of workers and foster families. *Children and Youth Services Review, 33*, 2050–2060.

Cheung, C., Lwin, K., & Jenkins, J. M. (2012). Helping youth in care succeed: Influence of caregiver involvement on academic achievement. *Children and Youth Services Review, 34*, 1092–1100.

Clemens, E. V., Klopfenstein, K., Lalonde, T. L., & Tis, M. (2018). The effects of placement and school stability on academic growth trajectories of students in foster care. *Children and Youth Services Review, 87*, 86–94.

Courtney, M., Dworsky, A., Brown, A., Cary, C., Love, K., & Vorhies, V. (2011). *Midwest Evaluation of the Adult Functioning of Former Foster Youth: Outcomes at Age 26*. Chicago, IL: Chapin Hall at the University of Chicago.

Courtney, M. E., & Hook, J. L. (2017). The potential educational benefits of extending foster care to young adults: Findings from a natural experiment. *Children and Youth Services Review, 72*, 124–132.

Cox, T. L. (2013). Improving Educational Outcomes for Children and Youths in Foster Care. *Children & Schools, 35*, 59–62.

Daatland, S. O., Herlofson, K., & Lima, I. A. (2011). Balancing generations: on the strength and character of family norms in the West and East of Europe. *Ageing & Society, 31*, 1159–1179.

Dæhlen, M. (2017). Transition from school-based training in VET. *Education and Training, 59*(1), 47–60.

DiPrete, T. A., & Eirich, G. M. (2006). Cumulative advantage as a mechanism for inequality: A review of theoretical and empirical developments. *Annual Review of Sociology, 32*, 271–297.

Downey, D. B., von Hippel, P. T., & Beckett A. B. (2004). Are Schools the Great Equalizer? Cognitive Inequality during the Summer Months and the School Year. *American Sociological Review, 69*, 613–635.

Dupriez, V., Dumay, X., & Vause, A. (2008). How Do School Systems Manage Pupils' Heterogeneity? *Comparative Education Review, 52*(2), 245–273.

Egelund, T., Hestbaek, T-D., & Andersen, D. (2004). *Små børn anbragt uden for hjemmet. En forløbsundersøgelse af anbragte børn født i 1995*. Rapport 04:17. Köpenhamn: Socialforskningsinstituttet.

Ejrnæs, M., Ejrnæs, M., & Frederiksen, S. (2011). Risk factors of entry in out-of-home care: An empirical study of Danish birth cohorts, 1981–2003. *Child Indicators Research, 4*(1), 21–44.

Erikson, J. (2017). A School for all or a School for the Labour Market? Analyzing the Goal Formulation of the 1991 Swedish Upper Secondary Education reform. *Scandinavian Journal of Educational Research, 61*(2), 139–154.

Erikson. R., & Goldthorpe, J. H. (2014). Trends in Class Mobility. The Post-War European Experience. In D. B. Grusky & K. R. Weisshaar (Eds.), Social Stratification: Class, Race, and Gender in Sociological Perspective (4 ed., pp. 453–464). Boulder, CO, USA: Westview Press.

Erikson, R., & Jonsson, J.O. (1996). Can Education be Equalized? The Swedish case in comparative perspective. Westview Press.

Erikson, R., & Rudolphi, F. (2010). Change in Social Selection to Upper Secondary School – Primary and Secondary Effects in Sweden. *European Sociology Review, 26*(3), 291–305.

Esping-Andersen, G. (1999). Comparative Welfare Regimes Re-Examined. Social Foundations of Postindustrial Economies. *Oxford Scholarship Online*. DOI: 10.1093/0198742002.003.0005.

Esping-Andersen, G. (2015). Welfare regimes and social stratification. *Journal of European Social Policy, 25*(1), 124–134.

Esping-Andersen, G. (2016). *Families in the 21st Century*. Stockholm: SNS Förlag.

Esping-Andersen, G., & Wagner, S. (2012). Asymmetries in the opportunity structure. Intergenerational mobility trends in Europe. *Research in Social Stratification and Mobility, 30,* 473–487.

Eurochild. (2010). *Children in alternative care*. National Surveys, 2nd Edition, January 2010. Retrieved from http://ec.europa.eu/employment_social/progress/index_en.html.

European Commission (2010). *Europe 2020: A European Strategy for Smart, Sustainable and Inclusive Growth*. Brussels: European Commission.

Feinberg, M., Neiderhiser, J., Simmens, S., Reiss, D., & Heatherington, M. (2000). Sibling comparison of differential parental treatment in adolescence: Gender, self-esteem, and emotionality as mediators of the parenting–adjustment association. *Child Development, 71,* 1611–1628.

Ferraro, K. F., Schafer, M. H., & Wilkinson, L. R. (2016). Childhood disadvantage and health problems in middle and later life: early imprints on physical health? *American Sociological Review, 81,* 107–133.

Flynn, R.J., Tessier, N.G., & Coulombe, D. (2013). Placement, protective and risk factors in the educational success of young people in care: cross-sectional and longitudinal analyses. *European Journal of Social Work, 16*(1), 70–87.

Font, S. A., Berger, L. M., Cancian, M., & Noyes, J. L. (2018). Permanency and the Educational and Economic Attainment of Former Foster Children in Early Adulthood. *American Sociological Review, 83*(4), 716–743.

Forsman, H. (2017). Foster carers' experiences of a paired reading literacy intervention with looked-after children. *Child and Family Social Work, 22,* 409–418.

Forsman, H. (2019). *Adressing poor educational outcomes among children with out-of-home care experience. Studies on impact, pathways, and interventions*. (Doctoral thesis in Social Work at Stockholm University, Sweden).

Forsman, H., Brännström, L., Vinnerljung, B., & Hjern, A. (2016). Does poor school performance cause later psychosocial problems among children in foster care? Evidence from national longitudinal registry data. *Child Abuse & Neglect, 57,* 61–71.

Fox, N. A., Almas, A. N., Degnan, K. A., Nelson, C. A., & Zeanah, C. H. (2011). The effects of severe psychosocial deprivation and foster care intervention on cognitive development at 8 years of age: findings from the Bucharest Early Intervention Project. *Journal of Child Psychology and Psychiatry*, *52*(9), 919–928.

Franzén, E., & Vinnerljung, B. (2006), Foster children as young adults: many motherless, fatherless or orphaned: a Swedish national cohort study. *Child & Family Social Work, 11*, 254–263.

Franzén, E., Vinnerljung, B., & Hjern, A. (2008). The epidemiology of out-of-home care for children and youth: A national cohort study. *British Journal of Social Work, 38*(6), 1043–1059.

Frederiksen, S., & Lausten, M. (2018). Use of aftercare in Denmark. *Nordic Social Work Research, 8*(S1), 94–103.

Fries, L., Klein, S., & Ballantyne, M. (2016). Are foster children's schools of origin always best? School quality in birth vs. foster parent neighbourhoods. *Child & Family Social Work, 21*, 317–327.

Fuglsang Olsen, R., & de Montgomery, C. J. (2018). Revisiting out-of-home placed children's poor educational outcomes—Is school change part of the explanation? *Children and Youth Services Review, 88*, 103–113.

Ganong, L., & Coleman, M. (2006). Patterns of exchange and intergenerational responsibilities after divorce and remarriage. *Journal of Ageing studies, 20*, 265–278.

Geiger, J. M., & Beltran, S. J. (2017). Readiness, Access, Preparation, and Support for Foster Care Alumni in Higher Education: A Review of the Literature. *Journal of Public Child Welfare, 11*(4–5), 487–515.

Gilbert, N., Parton, N., & Skivenes, M. (2011). *Child protection systems*. International trends and orientations. New York: Oxford University Press.

Gorard, S., Beng, H. S., & Davies, P. (2012). *The impact of attitudes and aspirations on educational attainment and participation*. York: Joseph Rowntree Foundation. Retrieved from http://www.jrf.org.uk/sites/files/jrf/education-young-peopleparents-full.pdf.

Gottfredson, D., Wilson, D., & Najaka, S. S. (2002). *School bases crime prevention*. In L. Sherman, D. Farrington, B. Welsh, & D. L. MacKenzie (Eds.), Evidence-based crime prevention (pp. 56–164). London: Routledge.

Greeson, J. K. (2013). Foster youth and the transition to adulthood: The theoretical and conceptual basis for natural mentoring. *Emerging Adulthood, 1*(1), 40–51.

Gregg. P., Jonsson, J. O., Macmillan, L., & Mood, C. (2017). The Role of Education for Intergenerational Income Mobility: A comparison of the United States, Great Britain, and Sweden. *Social Forces, 96*(1), 121–152.

Grusky. D. B., & Weisshaar, K. R. (2014). *The Question We Ask About Inequality*. In D. B. Grusky & K. R. Weisshaar (Eds.), Social Stratification: Class, Race, and Gender in Sociological Perspective (4 ed., pp. 1–25). Boulder, CO, USA: Westview Press.

Gustafsson, J-E., Allodi Westling, M., Alin Åkerman, B., Eriksson, C., Eriksson, L., Fischbein, S., . . . Ogden, T. (2010). *School, learning and mental health: A systematic review*. Stockholm: Kungl. Vetenskapsakademien. Retrived from http://su.diva-portal.org/smash/get/diva2:317965/FULLTEXT01

Gypen, L., Vanderfaeillie, J., De Maeyer, S., Belenger, L., & Van Holen, F. (2017). Outcomes of children who grew up in foster care: Systematic-review. *Children and Youth Services Review, 76*, 74–83.

Gähler, M. (1998). *Life after divorce. Economic, social and psychological well-being among Swedish adults and children following family dissolution*. (Doctoral thesis in Sociology at Stockholm University, Sweden).

Harden, A., Brunton, G., Fletcher, A., & Oakley, A. (2009). Teenage pregnancy and social disadvantage: Systematic review integrating controlled trials and qualitative studies. *British Medical Journal.* DOI: 101136/bmj.b4254.

Heath, A. F., Colton, M. J., & Aldgate, J. (1994). Failure to Escape: A Longitudinal Study of Foster Children's Educational Attainment. *The British Journal of Social Work, 24*(3), 241–260.

Heckman, J. J. (2014). *Skill formation and the Economics of Investing in Disadvantaged Children*. In D. B. Grusky & K. R. Weisshaar (Eds.), Social Stratification:

Class, Race, and Gender in Sociological Perspective (4 ed., pp. 412–416). Boulder, CO, USA: Westview Press.
Heimer, M., Näsman, E., & Palme, J. (2018). Vulnerable children's rights to participation, protection, and provision: The process of defining the problem in Swedish child and family welfare. *Child & Family Social Work, 23*, 316–323.
Helland, H., & Støren, L.A. (2006). Vocational education and the allocation of apprenticeships: equal chances for applicants regardless of immigrant background? *European Sociological Review, 22*(3), 339–351.
Hertz, T, Jayasundera, T., Piraino, P., Selcuk, S., Smith, N., & Verashchagina, N. A. (2007). The Inheritance of Educational Inequality: International Comparisons and Fifty-Year Trends. *The B.E. Journal of Economic Analysis & Policy, 7*(2), Art. 10.
Hessle, S., & Vinnerljung, B. (1999). *Child welfare in Sweden: An overview*. Stockholm University, Department of Social Work.
Hinshaw, S. P. (1992). Externalizing Behavior Problems and Academic Underachievement in Childhood and Adolescence: Causal Relationships and Underlying Mechanisms. *Psychological Bulletin, 111*(1), 127–155.
Hook, J. L., & Courtney, M. E. (2011). Employment outcomes of former foster youth as young adults: The importance of human, personal, and social capital. *Children and Youth Services Review, 33*(10), 1855–1865.
Hout, M., & DiPrete, T. A. (2006). What we have learned: RC28's contribution to knowledge about social stratification. *Research in Social Stratification and Mobility, 24*, 1–20.
Humlum, M. K., Nandrup, A. B., & Smith, N. (2019). Closing or reproducing the gender gap? Parental transmission, social norms and education choice. *Journal of Population Economics, 32*, 455–500.
Häggman-Laitila, A., Salokekkilä, P., & Karki, S. (2018). Transition to adult life of young people leaving foster care: A qualitative systematic review. *Children and Youth Services Review, 95*, 134–143.
Hällsten, M., & Thaning, M. (2018). *Wealth vs. education, occupation and income. Unique and overlapping influences of SES in intergenerational transmissions*. The Department of Sociology Working Paper Series, no 35. Stockholm: Stockholm University.
Härkönen, J. (2014). *Divorce: Trends, patterns, causes, consequences*. In J. K. Treas, J. Scott & M. Richard (Eds.). The Wiley-Blackwell Companion in the Sociology of Families (pp. 303–322). Chichester: John Wiley & Sons.
Höjer, I. (2001). *Fosterfamiljens inre liv* [The inner life of the foster family]. (Doctoral thesis in Social Work at the University of Gothenburg, Sweden).
Höjer, I. (2009). Birth parents' perception of sharing the care of their child with foster parents. *Vulnerable Children and Youth Studies, 4*(2), 161–168.
Höjer, I., & Sjöblom, Y. (2009). Young people leaving care in Sweden. *Child and Family Social Work, 15*, 118–127.
Höjer, I. & Sjöblom, Y. (2011). Procedures when young people leave care – Views of 111 Swedish social services managers. *Children and Youth Services Review, 33*, 2452–2460.
Jackson, M. (2013). *How Is Inequality of Educational Opportunity Generated? The Case for Primary and Secondary Effects*. In M. Jackson (Ed.). Determined to succeed? (pp. 1–33). Stanford University Press.

Jackson, M. (2014). *Determined to succeed.* In D. B. Grusky & K. R. Weisshaar (Eds.), Social Stratification: Class, Race, and Gender in Sociological Perspective (4 ed., pp. 562–569). Boulder, CO, USA: Westview Press.

Jackson, S. (1994). Educating children in residential and foster care: An overview. *Oxford Review of Education, 20*, 267–279.

Jackson, S. (2007). Progress at last? *Adoption & Fostering, 31*(1), 3–5.

Jackson, S., & Ajayi, S. (2007). Foster care and higher education. *Adoption & Fostering, 31*(1), 62–72.

Jackson, S., & Cameron, C. (2012). Leaving care: Looking ahead and aiming higher. *Children and Youth Services Review, 34*(6), 1107–1114.

Johansson, H., & Höjer, I. (2014). *Sweden: A long and winding road*. In S. Jackson & C. Cameron (Eds.), Improving the participation of young people in care in further and higher education: European research and practice (pp. 215–250). London: Jessica Kingsley Publishers.

Johnson, W., McGue, M., & Ianoco, W. (2009). School performance and genetic and environmental variance in antisocial behavior at the transition from adolescence to adulthood. *Developmental Psychology, 45*, 973–987.

Järvinen, M., & Tankred Luckow, S. (2020). Sociological Ambivalence: Relationships between Birth Parents and Foster Parents. *Sociology*. DOI:10.1177/0038038519896937.

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

Karlson, K. B., & Holm, A. (2011). Decomposing primary and secondary effects: A new decomposition method. *Research in Social Stratification and Mobility, 29*, 221–237.

Kestilä, L., Väisänen, A., Paananen, R., Heino, T., & Gissler, M. (2012). Kodin ulkopuolelle sijoitetut nuorina aikuisina. Rekisteripohjainen seurantatutkimus Suomessa vuonna 1987 syntyneistä [Children placed in out-of-home care as young adults. A register-based follow-up study on children born in 1987 in Finland]. *Yhteiskuntapolitiikka, 77*(6), 599–620.

Khoo, E., Hyvönen, U., & Nygren, L. (2002). Child welfare or child protection uncovering Swedish and Canadian orientations to social intervention in child maltreatment. *Qualitative Social Work, 1*(4), 451–71.

Klapp, A. (2019). Differences in educational achievement in norm- and criterion-referenced grading systems for children and youth placed in out-of-home care in Sweden. *Children and Youth Services Review, 99*, 408–417

Kling, S. & Nilsson, I. (2010). *Fosterbarns hälsa - det medicinska omhändertagandet av samhällsvårdade barns hälsa i Malmö 2010* [Health of children in foster care in Malmö]. Göteborg, Sweden: Nordiska Högskolan för Folkhälsovetenskap.

Kling, S., Vinnerljung, B., & Hjern, A. (2016a). Somatic assessments of 120 Swedish children taken into care reveal large unmet health and dental care needs. *Acta Paediatrica, 105*, 416–420.

Kling, S., Vinnerljung, B., & Hjern, A. (2016b). *Hälsokontroll för SiS-ungdomar. En studie av hälsoproblem och vårdbehov hos ungdomar på fyra särskilda ungdomshem*. [A study of health problems and health care needs among youth in four secure residential homes]. Stockholm, Sweden: SiS.

Knudsen, L. (2009). *Børn og unge anbragt i slægten*. Rapport 09:26. Köpenhamn: Socialforskningsinstituttet.

Kääriälä, A., & Hiilamo, H. (2017). Children in out-of-home care as young adults: A systematic review of outcomes in the Nordic countries. *Children and Youth Services Review, 79*, 107–114.

Lee, R. D., & Mason, A. (2011). Generational economics in a changing world. *Population and Development Review, 37*(s1), 115–142.

Lindblad, F., Dalen, M., Rasmussen, F., Vinnerljung, B., & Hjern, A. (2009). School performance of international adoptees better than expected from cognitive test results. *European Journal of Child and Adolescent Psychiatry, 18*, 301–308.

Lundholm, E., & Malmberg, G. (2009). Between elderly parents and grandchildren – Geographic proximity and trend in four-generation families. *Population Ageing, 2*, 121–137.

Manninen, M., Pankakoski, M., Gissler, M., & Suvisaari, J. (2015). Adolescents in a residential school for behavior disorders have an elevated mortality risk in young adulthood. *Child and Adolescent Psychiatry and Mental Health, 9*(46), 1–7.

Martin, P.Y., & Jackson, S. (2002). Educational success for children in public care: advice from a group of high achievers. *Child and Family Social Work, 7*, 121–130.

McClung, M., & Gayle, V. (2013). Social capital as a mechanism for exploring the low educational achievements of looked after children. *Journal of Children's Services, 8*(1), 52–64.

McLanahan, S., & Percheski, C. (2008). Family structure and the reproduction of inequalities. *Annual Review of Sociology, 34*, 257–276.

McMahon, A. D., Elliott, L., Macpherson, L., Sharpe, K. H., Connelly, G., Milligan, I., . . . Conway, D. I. (2018). Inequalities in the dental health needs and access to dental services among looked after children in Scotland: A population data linkage study. *Archives of Disease in Childhood, 103*, 39–43.

Meagher, G., Cortis, N., & Healy, K. (2009). *Strategic Challenges in Child Welfare Services: A Comparative Study of Australia, England and Sweden.* In K. Rummery, I. Greener & C. Holden. Social Policy Review 21: Analysis and Debate in Social Policy, Bristol: Policy Press.

Mendes, P. (2009). Young people transitioning from state out-of-home care. Jumping hoops to access employment. Australian Institute of Family Studies. *Family Matters, 83*, 31–38.

Mendes, P., Michell, D., & Wilson, J. Z. (2014). Young People Transitioning from Out-of-home Care and Access to Higher Education: A Critical Review of the Literature. *Children Australia, 39*(4), 243–252.

Mills, C., & Gale, T. (2010). *Schooling in Disadvantaged Communities. Playing the Game from the Back of the Field*. Springer Science+Business Media B.V.

Moore, T. D., McDonald, T. P., & Cronbaugh-Auld, K. (2016). Assessing Risk of Placement Instability to Aid Foster Care Placement Decision Making. *Journal of Public Child Welfare, 10*(2), 117–131.

Munford, R., & Sanders, J. (2016). Foster parents: an enduring presence for vulnerable youth. *Adoption & Fostering, 40*(3), 264–278.

Murray, S., & Goddard, J. (2014). Life after Growing Up in Care: Informing Policy and Practice through Research. *Australian Social Work, 67*(1), 102–117.

Männistö, I. I., & Pirttimaa, R. A. (2018). A review of interventions to support the educational attainments of children and adolescents in foster care. *Adoption & Fostering, 42*(3), 266–281.

Nielsen, F. (2006). Achievement and Ascription in Educational Attainment: Genetic and Environmental Influences on Adolescent Schooling. *Social Forces, 85*(1), 193–216.

Nielsen, F. (2018). *Genes and status achievements*. In: Oxford Handbook of Evolution, Biology, and Society, edited by Rosemary L. Hopcroft. England: Oxford University Press.

OECD. (2018). *Equity in Education: Breaking Down Barriers to Social Mobility*. Paris: PISA, OECD Publishing.

OECD (2019). *Society at a Glance 2019: OECD Social Indicators*. Paris: OECD Publishing. Retrieved from https://doi.org/10.1787/soc_glance-2019-en.

O'Higgins, A., Sebba, J., & Gardner, F. (2017). What are the factors associated with educational achievement for children in kinship or foster care: A systematic review. *Children and Youth Services Review, 79,* 198–220.

Olsson, B. (1988). *Klienter i narkomanvård* [Clients in substance abuse treatment]. Report on the SWEDATE-project. Working reports, Department of Education, Uppsala University No 136.

Paulsen, V., Höjer, I., & Melke, A. (2018). Editorial 'leaving care in the Nordic Countries', *Nordic Social Work Research, 8*(sup1), 1–7.

Pears, K. C., Fisher, P. A., Bruce, J., Kim, H. K., & Yoerger, K. (2010). Early elementary school adjustment of maltreated children in foster care: The roles of inhibitory control and caregiver involvement. *Child Development, 81*(5), 1550–1564.

Pears, K. C., Kim, H. K., Buchanan, R., & Fisher, P. A. (2015). Adverse consequences of school change for children in foster care: A prospective longitudinal study. *Child Development, 86*, 1210–1226.

Pears, K. C., Kim, H. K., & Brown, K. L. (2018). *Factors affecting the educational trajectories and outcomes of youth in foster care*. In E. Trejos-Castillo & N. Trevino-Schafer (Eds.). Handbook of Foster Youth (pp. 208–222). New York: Routledge.

Pecora, P. J. (2012). Maximizing educational achievement of youth in foster care and alumni: Factors associated with success. *Children and Youth Services Review, 34*, 1121–1129.

Perry, B. L. (2006). Understanding social network disruption: the case of youth in foster care. *Social Problems, 53*, 371–391.

Powell, M., Yörük, E., & Bargu, A. (2020). Thirty years of the Three Worlds of Welfare Capitalism: A review of reviews. *Social & Policy Administration, 54*, 60–87.

Quarmby, T., Sanford, R., & Elliot, E. (2018). "I actually used to like PE, but not now": understanding care-experienced young people's (dis)engagement with physical education. *Sport, Education and Society*, DOI: 10.1080/13573322.2018.1456418.

Randsalu, L. S., & Laurell, L. (2017). Children in out-of-home care are at high risk of somatic, dental and mental ill health. *Acta Paediatrica, 107*, 301–306.

Ready, D. D. (2010). Socioeconomic Disadvantage, School Attendance, and Early Cognitive Development: The Differential Effects of School Exposure. *Sociology of Education, 83*(4), 271–286.

Reardon, S.F., (2014). T*he Widening Academic Achievement Gap Between the Rich and the Poor*. In D. B. Grusky & K. R. Weisshaar (Eds.), Social Stratification: Class, Race, and Gender in Sociological Perspective (4 ed., pp. 536–550). Boulder, CO, USA: Westview Press.

Rees, P. (2013). The mental health, emotional literacy, cognitive ability, literacy attainment and 'resilience' of 'looked after children': A multidimensional, multiple-rater population based study. *British Journal of Clinical Psychology, 52*, 183–198.

Roth, T. (2014). Effects of social networks on finding and apprenticeship in the German vocational training system. *European Societies, 16*(2), 233–254.

Rudolphi, F. (2013). *Ever-Declining Inequalities? Transitions to Upper Secondary and Tertiary Education in Sweden, 1972–1990 Birth Cohorts*. In M. Jackson (Ed.). Determined to succeed? (pp. 185–227). Stanford University Press.

Sacerdote, B. (2004). *What happens when we randomly assign children to families?* National Bureau of Economic Research, Working Paper No. 10894.

Sallnäs, M., Vinnerljung, B., & Kyhle-Westermark, P. (2004). Breakdown of teenage placements in Swedish foster and residential care. *Child and Family Social Work, 9*, 141–152.

Sallnäs, M., Wiklund, S., & Lagerlöf, H. (2010). Social barnavård ur ett välfärdsperspektiv [Out-of-home care from a general welfare perspective]. *Socialvetenskaplig tidskrift, 1*, 5–27.

Samuel, R., & Hadjar, A. (2016) How Welfare-State Regimes Shape Subjective Well-Being Across Europe. *Social Indicators Research, 129*, 565–587.

Saraceno, C., & Keck, W. (2011). Towards an integrated approach for the analysis of gender equity in policies supporting paid work and care responsibilities. *Demographic Research, 25*, 371–406.

Sawyer, R.J., & Dubowitz, H. (1994). School performance of children in kinship care. *Child Abuse & Neglect, 18*(7), 587–597.

Schiff, M., Duyme, M., Dumaret, A., Stewart, J., Tomkiewicz, S., & Feingold, J. (1978). Intellectual status of working class children adopted early into upper-middle class families. *Science, 30*, 1503–1504.

Schmidt, C. (2010). Vocational education and training (VET) for youths with low levels of qualification in Germany. *Education+Training, 52*(5), 381–390.

Schoon, I., & Lyons-Amos, M. (2016). Diverse pathways in becoming an adult: The role of structure, agency and context. *Research in Social Stratification and Mobility, 46*, 11–20.

Schuengel, C., Oosterman, M., & Sterkenburg, P.S. (2009). Children with disrupted attachment histories: Interventions and psychophysiological indices of effects. *Child and Adolescent Psychiatry and Mental Health, 3*(26). DOI:10.1186/1753-2000-3-26.

Settersten, R. A., & Ray, B. (2010). What's Going on with Young People Today? The Long and Twisting Path to Adulthood. *The Future of Children, 20*(1), 19–41.

Simkiss, D. E., Stallard, N., & Thorogood, M. (2013). A systematic literature review of the risk factors associated with children entering public care. *Child: Care, Health and Development, 39*(5), 628–642.

Sirniö, O. (2016). *Constrained life chances. Intergenerational transmission of income in Finland*. Publications of the Faculty of Social Sciences 26. Sociology Department of Social Research, University of Helsinki.

Skolinspektionen (2010). *Undervisning vid Hem för vård och boende, HVB. Elever får inte den undervisning de har rätt till*. Retrieved from https://www.skolinspektionen.se/globalassets/publikationssok/granskningsrapporter/kvalitetsgranskningar/2010/hvb/slutrapport-undervisning-hvb.pdf.

Skolverket (2007). *Utbildningsinspektion av Statens institutionsstyrelses skolverksamhet vid de särskilda ungdomshemmen*. Dnr 59-2007:458.
Skolverket (2018). *Deltagande i förskola*. Dnr: 2018:12. Retrieved from https://www.skolverket.se/getFile?file=4023.
Sköld, J. (2012). *Fosterbarnens ö. Prins Carls uppfostringsinrättning och verksamheten på Gålö 1830–1939*. Stockholm: Stockholmia förlag.
Socialstyrelsen. (2012). *Oplanerade avbrott i familjehemsplaceringar av yngre barn och långvarigt placerade barn* [Disruptions in foster family care among younger children and children in long-term care]. Retrieved from https://www.socialstyrelsen.se/globalassets/sharepoint-dokument/artikelkatalog/ovrigt/2012-11-28.pdf.
Socialstyrelsen. (2013a). *Barn och unga i familjehem och HVB. Handbok om socialnämndens ansvar och uppgifter* [Children and youth in foster and residential care. Handbook on the social committee's responsibilities and tasks]. Västerås, Sweden: Edita Västra Aros AB.
Socialstyrelsen. (2013b). Ett hem att växa i – familjehemmets bok. Grundutbildning för jour- och familjehem [A home to grow in – the foster family book. Basic training for foster families].Västerås, Sweden: Edita Västra Aros.
Socialstyrelsen. (2014). *Nationella adoptioner av barn i familjehem. En kartläggning av hur socialnämnderna uppmärksammar frågan* [National adoptions of children in foster family care. A study on how the social committee addresses the issue]. Retrieved from https://www.socialstyrelsen.se/globalassets/sharepoint-dokument/artikelkatalog/kunskapsstod/2014-3-11.pdf.
Socialstyrelsen. (2015a). *Tillståndet och utvecklingen inom hälso- och sjukvård och socialtjänst. Lägesrapport 2015* [The state and development of health care and social services. Progress report 2015]. Retrieved from https://www.socialstyrelsen.se/globalassets/sharepoint-dokument/artikelkatalog/ovrigt/2015-2-51.pdf.
Socialstyrelsen. (2015b). *Utreda barn och unga. Handbok för socialtjänstens arbete enligt socialtjänstlagen* [Investigate children and adolescents at risk. Handbook on the social services work according to the Social Services Act]. Falun: Sweden. Edita Bobergs AB.
Socialstyrelsen. (2016). *Individ- och familjeomsorg. Lägesrapport 2016* [Individual and family support. Progress report 2016]. Retrieved from https://www.socialstyrelsen.se/globalassets/sharepoint-dokument/artikelkatalog/ovrigt/2016-2-22.pdf.
Socialstyrelsen. (2018a). *Grundbok i BBIC – Barns behov i centrum* [Manual for 'looked after children']. Falun, Sweden: Åtta.45 Tryckeri AB.
Socialstyrelsen. (2018b). *SAMS. Samverkan socialtjänst skola. Obruten skolgång för placerade barn och unga* [SAMS. Collaboration between the child welfare service and schools. Uninterrupted schooling for children and youth in out-of-home care]. Retrieved from https://www.socialstyrelsen.se/globalassets/sharepoint-dokument/artikelkatalog/ovrigt/2018-6-13.pdf.
Socialstyrelsen. (2019). *Anmälningar om barn som far illa eller misstänks fara illa. Nationell kartläggning 2018* [Notifications of children at risk. National survey 2018]. Retrieved from https://www.socialstyrelsen.se/globalassets/sharepoint-dokument/artikelkatalog/ovrigt/2019-12-6502.pdf.
Socialstyrelsen. (2020a). *Registret över insatser till barn och unga* [The Child Welfare Intervention Register]. Retrieved from https://www.socialstyrelsen.se/statistik-och-data/register/alla-register/barn-och-unga/

Socialstyrelsen. (2020b). *Statistical fact sheet on out-of-home care in Sweden 1975–2018*. Socialstyrelsen, unpublished.
Socialstyrelsen. (2020c). *LVU. Handbok för socialtjänsten* [CYPA. Handbook for the social services]. Retrieved from https://www.socialstyrelsen.se/globalassets/sharepoint-dokument/artikelkatalog/handbocker/2020-3-6642.pdf.
Socialstyrelsen & Skolverket (2013). *Placerade barns skolgång och hälsa – ett gemensamt ansvar* [Education and health for children in out-of-home care – a shared responsibility]. Västerås, Sweden: Edita Västra Aros AB.
SOSFS 2012:11. *Socialstyrelsens föreskrifter och allmänna råd om socialnämndens ansvar för barn och unga i familjehem, jourhem eller hem för vård eller boende. Socialstyrelsens författningssamling*. Västerås, Sweden: Edita Västra Aros.
Statens institutionsstyrelse. (2019). *The Swedish National Board of Institutional Care*. Retrieved from https://www.stat-inst.se/om-sis/om-webbplatsen/other-languages/the-swedish-national-board-of-institutional-care/.
Statistics Sweden. (1992). *Familj i förändring* [Family in transition]. Levnadsförhållanden. Rapport nr 71. Örebro, Sweden: SCB-Tryck.
Stein, M. (2014). Young People's Transitions from Care to Adulthood in European and Postcommunist Eastern European and Central Asian Societies. *Australian Social Work, 67*(1), 24–38.
Stein, M. (2019). Supporting young people from care to adulthood: International practice. *Child & Family Social Work, 24*, 400–405.
Stewart, C. J., Kumb, H-C., Barth, R. P., & Duncana, D. F. (2014). Former foster youth: Employment outcomes up to age 30. *Children and Youth Services Review, 36*, 220–229.
Stone, A. L., Becker, L. G., Huber, A. M., & Catalano, R. F. (2012). Review of risk and protective factors of substance use and problem use in emerging adulthood. *Addictive Behaviors, 37*(7), 747–775.
Storø, J., Sjöblom, Y., & Höjer, I. (2019). A comparison of state support for young people leaving care in Norway and Sweden: Differences within comparable welfare systems. *Child & Family Social Work, 24*, 393–399.
Studiesociala utredningen. (2003). *Studerande och trygghetssystemen* (SOU 2003:130) [The students and the economic security systems]. Retrieved from https://www.regeringen.se.
Tarren-Sweeney, M. (2008). The mental health of children in out-of-home care. *Current Opinion in Psychiatry, 21*, 345–349.
Thoburn, J. (2007). *Globalisation and child welfare: Some lessons from a cross-national study of children in out-of-home care*. Norwich, UK: University of East Anglia Social Work Monographs.
Thomson, E. (2014). Family Complexity in Europe. *The Annals of the American Academy, 654*, 245–258. DOI: 10.1177/0002716214531384.
Tideman, E., Vinnerljung, B., Hintze, K., & Aldenius, A. (2011). Improving foster children's school achievements: Promising results from a Swedish intensive study. *Adoption & Fostering, 35*, 44–56.
Toguchi Swartz, T. (2004). Mothering for the State: Foster Parenting and the Challenges of Government-Contracted Carework. *Gender and Society, 18*(5), 567–587.
Tordön, R., Vinnerljung, B., & Axelsson, U. (2014). Improving foster children's school performance: A replication of the Helsingborg study. *Adoption & Fostering, 38*, 37–48.

Triseliotis, J. (1989). Foster care outcomes: a review of key research findings. *Adoption & Fostering, 13*(3), 5–17.

Triventi, M., Panichella, N., Ballarino, G., Barone, C., & Bernardi, F. (2016). Education as a positional good: Implications for social inequalities in educational attainment in Italy. *Research in Social Stratification and Mobility, 43*, 39–52.

Trout, A. L., Hagaman, J., Casey, K., Reid, R., & Epstein, M. H. (2008). The academic status of children and youth in out-of-home care: A review of the literature. *Children and Youth Services Review, 30*(9), 979–994.

Upprättelseutredningen. (2011). *Barnen som samhället svek – åtgärder med anledning av övergrepp och allvarliga försummelser i samhällsvården* (SOU 2011:9) [The children whom society failed – measures due to abuse and serious neglect in out-of-home care]. Regeringskansliet. Stockholm, Sweden: Elanders Sverige AB.

Utredningen om tvångsvård för barn och unga. (2015). *Barns och ungas rätt vid tvångsvård. Förslag till ny LVU. Del A. Slutbetänkande av Utredningen om tvångsvård för barn och unga* (SOU 2015:71) [Children's and young people's right during involuntary out-of-home care. Proposal for a new Care of Young Persons Act (CYPA). Part A. Final report of the Inquiry into involuntary out-of-home care for children and young people]. Retrieved from https://www.regeringen.se.

Vanvårdsutredningen. (2011). *Vanvård i social barnavård. Slutbetänkande av Utredningen om vanvård i den sociala barnavården* (SOU 2011:61) [Neglect within the child welfare system. Final report of the Inquiry into neglect in out-of-home care]. Regeringskansliet. Stockholm, Sweden: Elanders Sverige AB.

Vinnerljung, B. (1996). *Svensk forskning om fosterbarnsvård. En översikt*. Falköping, Sweden: Gummessons Tryckeri AB.

Vinnerljung, B., & Andreassen, T. (2015). *Forskning i korthet: Barn och unga i samhällets vård – Forskning om den sociala dygnsvården* [Research in brief: Children and young people in societal care – Research on out-of-home care]. Stockholm: Forte.

Vinnerljung, B., Berlin, M., & Hjern, A. (2010). *Skolbetyg, utbildning och risker för ogynnsam utveckling hos barn* [School performance, education, and risks for unfavourable development among children]. In Socialstyrelsen (Ed.), Social Rapport 2010 (pp. 228–266). Stockholm: Edita Nordstedts Tryckeri.

Vinnerljung, B., & Hjern, A. (2014). Consumption of psychotropic drugs among adults who were in societal care during their childhood — A Swedish national cohort study. *Nordic Journal of Psychiatry, 68*, 611–619.

Vinnerljung, B., Forsman, H., Jacobsen, H., Kling, S., Kornør, H., & Lehmann, S. (2015). Barn kan inte vänta: Översikt av kunskapsläget och exempel på genomförbara förbättringar. Stockholm: Nordens Välfärdsenter.

Vinnerljung, B., & Franzén, E. (2006). *Utsatthet bland barn och unga. Barn i familjehems- och institutionsvård* [Vulnerability among children and youth. Children in foster family care and residential care]. In Socialstyrelsen (Ed.), Social Rapport 2006 (pp. 270–283). Stockholm: Socialstyrelsen.

Vinnerljung, B., Sallnäs, M., & Berlin, M. (2014). Placement breakdowns in long-term foster care – a regional Swedish study. *Child and Family Social Work.* DOI: 10.1111/cfs.12189.

Vinnerljung, B., Öman, M., & Gunnarson, T. (2005). Educational attainments of former child welfare clients. *International Journal of Social Welfare, 14*, 265–276.

Voisin, D., & Neilands, T. (2010). Low school engagement and sexual behaviors among African-American youth: Examining the influences of gender, peer norms and gang involvement. *Children and Youth Services Review, 32*, 51–57.

Vårdanalys (2018). *Fatta läget. Om systematisk uppföljning av den sociala dygnsvården för barn och unga*. Rapport 2018:9. Retrieved from https://www.vardanalys.se/wp-content/uploads/2019/05/2018-9-fatta-laget-web-tag.pdf.

Waid, J., Kothari, B. H., Bank, L., & McBeath, B. (2016). Foster care placement change: The role of family dynamics and household composition. *Children and Youth Services Review, 68*, 44–50.

Wiklund, S. (2006a). Signs of child maltreatment. The extent and nature of referrals to Swedish child welfare agencies. *European Journal of Social Work, 9*(1), 39–58.

Wiklund, S. (2006b). Barnavårdsinsatser – en studie av kommunala skillnader. [Child welfare interventions – a study of differences between municipalities]. *Socialvetenskaplig tidskrift, 3*, 244–259.

Wildeman, C., & Waldfogel, J. (2014). Somebody's Children or Nobody's Children? How the Sociological Perspective Could Enliven Research on Foster Care. *Annual Review of Sociology, 40*, 599–618.

Zetlin, A., MacLeod, E., & Kimm, C. (2012). Beginning Teacher Challenges Instructing Students Who Are in Foster Care. *Remedial and Special Education, 33*, 4–13.

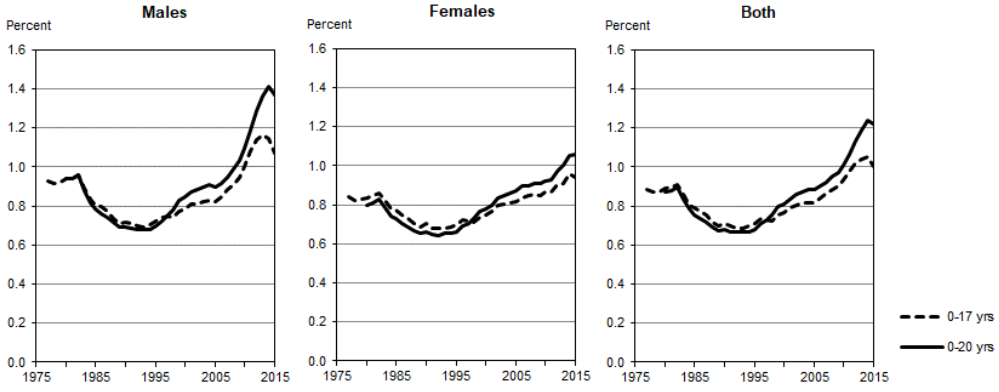
Zima, B.T., Bussing, R., Freeman, S., Yang, X., Belin, T.R., & Forness, S.R. (2000). Behavior Problems, Academic Skill Delays and School Failure Among School-Aged Children in Foster Care: Their Relationship to Placement Characteristics. *Journal of Child and Family Studies, 9*(1), 87–103.

Zingraff, M., Leiter, J., Johnsen, M., & Myers, K. (1994). The mediating effect of god school performance on the maltreatment–delinquency relationship. *Journal of Research in Crime and Delinquency, 31*, 62–91.

Zlotnick, C., Tam, T. W., & Soman, L. A. (2012). Life course outcomes on mental and physical health: The impact of foster care on adulthood. *American Journal of Public Health, 102*(3), 534–540.

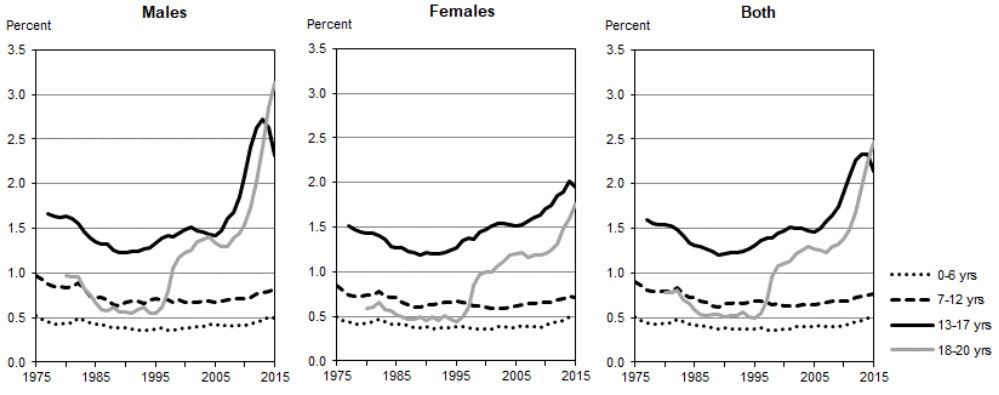
Appendix: Additional descriptive statistics

Figure A1. *Proportion of children and adolescents in OHC at some time during a given calendar year. Swedish resident by age and sex during the period 1975–2015. All types of OHC included. Percent.*



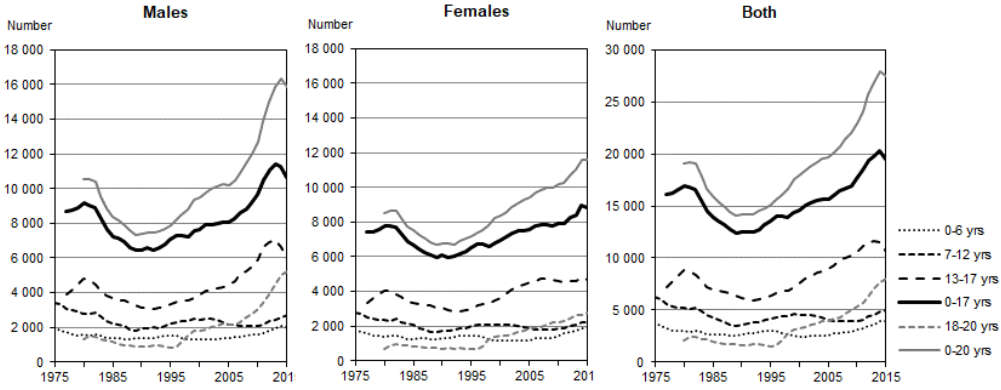
Source: Child Welfare Intervention Register, National Board of Health and Welfare.

Figure A2. *Proportion of children and adolescents in OHC at some time during a given calendar year. Swedish resident by age and sex during the period 1975–2015. All types of OHC included. Percent.*



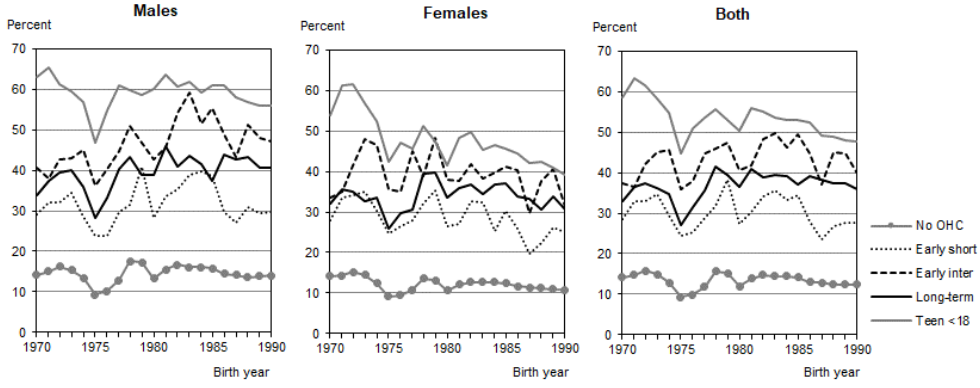
Source: Child Welfare Intervention Register, National Board of Health and Welfare.

Figure A3. *Children and adolescents in OHC at some time during a given year, by age and sex during the period 1975–2015. Foster and residential care. Numbers.*



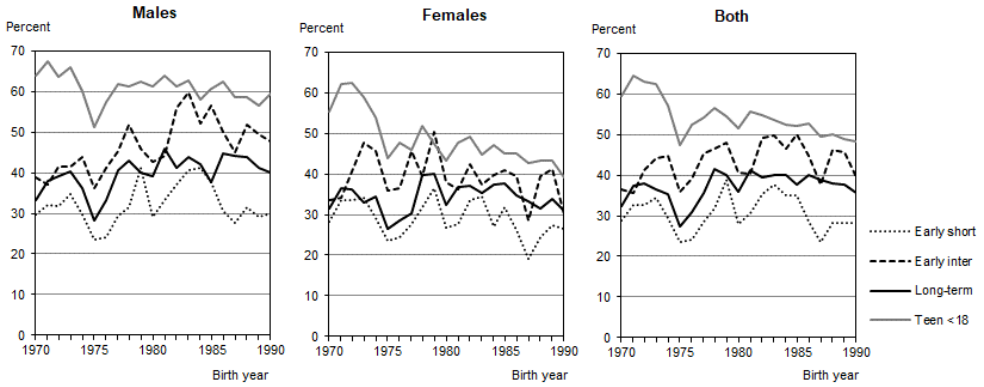
Source: Child Welfare Intervention Register, National Board of Health and Welfare.

Figure A4. *Proportion with primary education (including missing information in the educational registry) as the highest completed educational level at age 25 by OHC experience, sex, and birth year. Percent.*



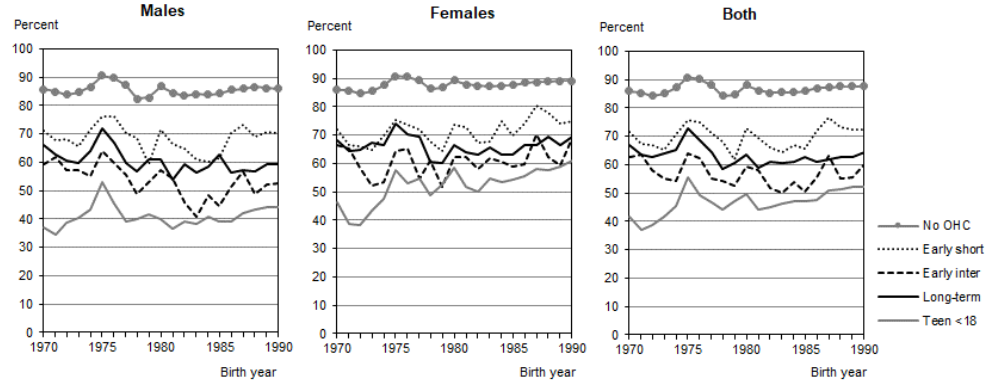
Sources: Child Welfare Intervention Register, National Board of Health and Welfare; and National Educational Register, Statistics Sweden.

Figure A5. *Proportion with primary education (including missing information in the educational registry) as the highest completed educational level at age 25 among domestic-born by OHC experience, sex, and birth year. Percent.*



Sources: Child Welfare Intervention Register, National Board of Health and Welfare; and National Educational Register, Statistics Sweden.

Figure A6. *Proportion with at least some upper secondary education (including higher educational levels) at age 25 by OHC experience, sex, and birth year. Percent.*



Sources: Child Welfare Intervention Register, National Board of Health and Welfare; and National Educational Register, Statistics Sweden.

Figure A7. *Psychosocial problem outcomes in Study I. Prevalence in the total population and share with OHC experience within outcome groups. Percent.*

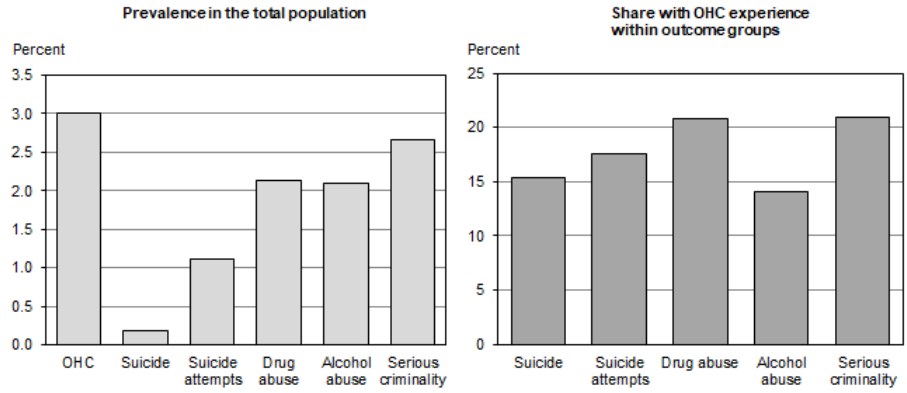


Table A1. *The upbringing family with whom the child lived for most of his or her childhood. Percent.*

Born in	Entire child-hood with both birth parents	Majority with			Foster parents	Other	Total
		both birth parents	birth mother	birth father			
1900–1909	69.2	18.6	4.9	3.1	1.6	2.4	100.0
1910–1919	71.6	14.9	6.9	2.5	2.0	2.0	100.0
1920–1929	73.8	15.4	5.4	2.1	1.9	1.3	100.0
1930–1939	74.3	14.0	5.9	1.8	2.4	1.6	100.0
1940–1949	78.6	10.3	7.0	1.4	1.4	1.4	100.0
1950–1959	82.1	9.0	6.6	0.8	0.9	0.6	100.0
1960–1969	76.0	11.4	10.1	1.1	0.9	0.6	100.0

Source: Statistics Sweden, 1992.

Note on Table A1: Based on the survey on living conditions (ULF) in 1984–1985, in which close to 14,000 individuals born from 1900 to 1969 (aged 16–84 years at the time of the survey) participated, corresponding to a response rate of 83%.

Table A2. *Logistic regression estimates for Poor school performance in primary school and Only primary education at age 26. The full models of Study V. Odds ratio (p-value).*

	Poor school performance		Only primary education at age 26	
	Females	Males	Females	Males
Birth year	0.93(0.03)	1.06(0.10)	0.67(<.01)	0.74(<.01)
Age at first entry into OHC	0.90(0.10)	0.90(0.10)	0.95(0.49)	1.00(0.98)
Total time in OHC	0.995(0.27)	0.996(0.35)	1.00(0.62)	1.00(0.68)
GPA primary school [d]				
No or low			9.34(<.01)	9.99(<.01)
Low to average			1.86(<.01)	2.31(<.01)
Average to high			ref.	ref.
High			0.36(<.05)	<.01(0.98)
Combined maternal education [a]				
BM Missing information and FM:				
Primary	0.80(0.51)	1.18(0.55)	0.66(0.25)	1.15(0.68)
Upper Secondary	1.27(0.41)	1.10(0.73)	1.38(0.33)	1.15(0.66)
Post-secondary	0.93(0.86)	1.77(0.20)	2.37(0.08)	1.48(0.45)
BM Primary and FM:				
Primary	1.18(0.46)	1.84(0.01)	1.49(0.14)	1.00(0.98)
Upper Secondary	1.14(0.54)	1.62(0.03)	1.13(0.64)	0.88(0.60)
Post-secondary	1.15(0.62)	1.42(0.21)	0.85(0.62)	1.02(0.96)
BM Upper Secondary and FM:				
Primary	0.86(0.56)	1.54(0.07)	1.34(0.32)	1.10(0.72)
Upper Secondary	ref.	ref.	ref.	ref.
Post-secondary	0.56(0.08)	1.00(0.99)	0.97(0.92)	1.74(0.11)
BM Post-secondary and FM:				
Primary	0.22(0.18)	0.44(0.36)	0.60(0.59)	0.69(0.71)
Upper Secondary	0.16(0.08)	0.40(0.14)	0.97(0.96)	0.81(0.74)
Post-secondary	0.56(0.50)	0.27(0.06)	0.21(0.17)	0.30(0.12)
Foster family household				
Household size [b]	1.08(0.12)	0.98(0.66)	1.09(0.18)	1.01(0.81)
Two foster parents [c]	0.92(0.63)	0.54(<.01)	0.98(0.93)	1.19(0.42)
Kinship care	0.82(0.30)	0.73(0.10)	0.88(0.56)	1.08(0.71)
Adoption after care	0.54(<.01)	0.58(<.01)	0.76(0.25)	0.63(0.03)
Foster mother (FM)				
Born abroad	1.23(0.36)	0.98(0.91)	1.30(0.32)	0.91(0.71)
Age	1.00(0.73)	1.00(0.79)	1.00(0.89)	0.99(0.62)
Birth mother (BM)				
Born abroad	0.72(0.07)	0.82(0.26)	0.94(0.78)	1.52(0.04)
Age	0.98(0.03)	0.99(0.55)	0.98(0.08)	0.98(0.09)
Substance abuse	1.07(0.61)	1.11(0.44)	0.92(0.61)	1.02(0.92)
Psychiatric care	0.85(0.23)	0.78(0.07)	1.10(0.53)	1.38(0.03)
Total number (N)	1,041	1,069	1,011	1,034

a) Highest level 1990-2005. b) Excl. foster parents. c) In both censuses. d) Grade point average (GPA) last year in primary school. Reference category (OR = 1).

Table A3. *Study V: Grade point average (GPA) and educational attainment level at age 26 by birth mother's (BM's) and foster mother's (FM's) educational attainment level. OLS regression coefficients. Separate models for females and males, and for study population and majority population (not placed in care at any time during upbringing). All models adjusted for study subject's birth cohort. Individuals born in 1972–1978.*

	Model 1		Model 2		Model 3	
	Females	Males	Females	Males	Females	Males
GPA						
Majority population						
BM's educational level	0.281	0.303				
Study population						
BM's educational level	0.069	0.143			0.067	0.131
FM's educational level			0.053	0.120	0.052	0.110
Sum of estimates					0.119	0.241
FM's % of sum*					44%	46%
Educational attainment at age 26**						
Majority population						
BM's educational level	0.515	0.489				
Study population						
BM's educational level	0.142	0.135			0.141	0.128
FM's educational level			0.087	0.091	0.086	0.084
Sum of estimates					0.227	0.212
FM's % of sum*					38%	40%

Individuals with missing values were excluded from the analysis. * Percent of total maternal effects calculated as b2/(b1+b2), where b1 = OLS estimate for BM's educational attainment and b2 = OLS estimate for FM's educational attainment. ** In the study population, 24 boys/men (1102-1078) and 18 girls/women (1065-1047) were excluded from the analysis as they died before the age of 26. Majority population excluding individuals who immigrated after age 7 or died before age 27 (as in the study population).

Note on Table A3: Linear regression was used to analyze the separate effect of birth mother's and foster mother's educational attainment. In the analysis of the separate effect, maternal education was treated as a 'continuous variable' from 1 to 3 (primary, upper secondary, tertiary/post-secondary). The table presents the effect of birth mother's educational level in the majority population as compared to the effects of birth mother's and foster mother's educational level among foster children (the study population in Study V), in a similar fashion to the adoption studies referred to in the introduction and summary of Study V (Sacerdote, 2004; Björklund, Lindahl & Plug, 2006). The estimates were unadjusted (models without control variables). Similar to the evidence from the adoption studies, the intergenerational transmission coefficient was weaker for foster mothers than for birth mothers. But in contrast to the adoption studies, the intergenerational transmission effect was weaker among foster children than among their majority population peers, even when the effects

from both birth mothers and foster mothers were taken together (the sum of the estimates). The difference between the birth mother and foster mother co-efficients were smaller for GPA than for post-secondary education at age 26, and the intergenerational transmission effect on GPA (of both birth and foster mother) appeared to be stronger among male than female foster children.

Study I

School performance in primary school and psychosocial problems in young adulthood among care leavers from long term foster care

Marie Berlin [a,b], Bo Vinnerljung [a,c,*], Anders Hjern [d]

[a] National Board of Health and Welfare, Stockholm, Sweden
[b] Dept of Sociology, Stockholm University, Sweden
[c] Dept of Social Work, Stockholm University, Sweden
[d] Centre for Health Equity Studies, Karolinska Institutet/Stockholm University, Sweden

A B S T R A C T

We used data from Swedish national registers for ten entire birth year cohorts (1972–1981) to examine psychosocial outcomes in young adulthood for youth that left long term foster care after age 17, comparing them with majority population peers, national adoptees and peers who had received in-home interventions before age 13. The population was followed in the registers from age 16 to 2005. Data were analyzed in Cox regression models. Youth who left long term foster care had six to eleven fold sex and birth year adjusted excess risks for suicide attempts, substance abuse and serious criminality from age 20, and for public welfare dependency at age 25. Overrisks were considerably lower for the in-home intervention group and the national adoptees. Adjusting results for poor school performance in the final year in primary school (ages 15–16) reduced overrisks by 38–52% for care leavers from long term foster care. Irrespective of issues of causality, poor school performance seems to be a major risk factor for future psychosocial problems among youth who age out of long term foster care. The results suggest that promoting foster children's school performance should be given high priority by agencies.

Keywords: Cohort study, longitudinal, out-of-home care, foster care, school performance, education.

1. Introduction

Low education has for decades been linked to increased risks of early death, somatic and mental disorders, and a range of social problems (e.g. Danielsson & Talbäck, 2009). However, there is less knowledge about the link between school performance and child development over the life course. Two recent Swedish longitudinal studies found a strong correlation between low grades from the final year in primary school and later suicidal behavior, after controlling for socio-economic background (Björkenstam et al., 2010; Jablonska et al., 2009).

Several interesting results from the Stockholm Birth Cohort Study have recently been published. In these studies, a large number of Stockholm children were followed from infancy to age 48. One study found substantial correlations between low school grades in the final year in primary school and crime, both in adolescence and adulthood, after controlling for socio-economic background and a range of other childhood factors. When the analysis was adjusted for school performance, there was only a weak independent relationship between poverty in childhood and frequent criminality over time (Nilsson & Estrada, 2009). In another study, based on the same data, the scholars found strong links between poor school performance in 6th grade at primary school (age 12) and high mortality, presence of social assistance, and weak labor market attachment in the middle age (Halleröd, 2010).

A number of factors influence children's performance in school, especially parental education (higher education of the parents has a positive correlation with better school grades of children) (Vinnerljung, Berlin, & Hjern, 2010). Child maltreatment increases risk for poor school performance (e.g. Boden, Horwood, & Ferguson, 2007; Lansford et al., 2002; McGloin & Widom, 2001; Stone, 2007). In contrast, good performance in school – and higher education after primary school – has a strong protective influence on vulnerable children's development by reducing the probability of unfavorable long term outcome, such as antisocial behavior during adolescence (Werner, 1992; Werner & Smith, 2001; Zingraff, Leiter, Johnsen, & Myers, 1994).

Most Western countries report that youth who leave long term out-of-home care tend to have been low achievers in school, and are at high risk of entering adulthood with a low level of education (e.g. Bohman & Sigvardsson, 1980a,b; Cashmore & Paxman, 1996; Cheung & Heath, 1994; Christoffersen, 1993; Clausen & Kristofersen, 2008; Dumaret, Coppel-Batsch, & Couraud, 1997; Egelund et al., 2008; Jackson, 1994; Pecora et al., 2006; Runyan & Gould, 1985; Vinnerljung, 1996). In this article, we used Swedish national register data to analyze longitudinal associations between average grade points in primary school, future education, and adverse psychosocial outcomes in young adulthood among youth who aged out of long term foster care, comparing them with majority population peers, national adoptees and peers who received in-home interventions before their teens. The study was guided by the following research questions:

- How did care leavers from long term foster care perform in primary school compared to majority population peers, national adoptees and children who received in-home interventions before their teens?
- How did poor performance in primary school relate to later education achievements?
- How did poor performance in primary school relate to psychosocial problems in young adulthood?

Available online 26 August 2011
Children and Youth Services Review 33 (2011) 2489–2497

We choose to study care leavers from long term foster care for several reasons. Firstly, long term foster care represents the most invasive child welfare intervention society administers, except adoption without parental consent (which does not exist in Swedish legislation). Subsequently, outcomes for this group are worth special scrutiny in child welfare research. Secondly, it represent a long term societal commitment – 24 h a day, seven days a week for many years – of assumed parental responsibilities (in loco parentis). Thirdly, several other cohort studies have found these youth to be more vulnerable in young adult age than most other youth with a history of child welfare intervention during their formative years (e.g. Hjern, Vinnerljung, & Lindblad, 2004; Vinnerljung, Hjern, & Lindblad, 2006). The exception is youth leaving out-of-home care after having originally been placed for antisocial behavior problems (Vinnerljung & Sallnäs, 2008). Fourthly, they represent a reasonably homogenous group. Practically all youth who leave long term foster care at age of legal majority were originally placed for reasons related to parental behavior, not their own (Vinnerljung, 1996). Other groups of Swedish care leavers are considerably more heterogenic, e.g. youth who were placed in out-of-home care during adolescent years (Sallnäs, Vinnerljung, & Kyhle-Westermark, 2004). Fifthly, they constitute a large group: 41% of all Swedish care leavers born 1972–1981 who left out-of-home care after their 17th birthday graduated from long-term care.

2. Method

This study was based on record-linkages between national registers held by different Swedish authorities. The overall quality of the registers used in this study is regarded as high. National registers were linked by use of the unique ten digits ID numbers given to all Swedish residents at birth or immigration, making it possible to study outcomes with adjustment for socio-economic background and other confounders. The study was approved by the regional ethics committee at Karolinska Institutet. The following registers were used:

Registers held by Statistics Sweden: *The Total Population Register* (TPR) and *the Population and Housing Censuses* (PHC's) of 1975, 1980, 1985 and 1990 were used to define the study population as all Swedish residents born in 1972–1981. TPR contains yearly updated data from the National Tax Board (e.g. marital status, nationality, country of birth). The PHC's contains information on individuals (e.g. employment and occupation), households (e.g. number of persons and status) and housing (e.g. number of rooms and type). Censuses were conducted every fifth year during the period of 1960–1990, and data was collected partly from questionnaires and partly from registers. The non-response rate was approximately 2% in 1990, and even lower in the older censuses. *The Multi-Generation Register* (MGR) enables linkage between children and parents (birth and adoptive) and has been used to identify parents of the study population. MGR has almost full coverage for persons registered in Sweden from 1968 onwards, but naturally birth parents are often missing for persons who immigrated as adults and for foreign born adoptees. *The Longitudinal integration database for health insurance and social studies* (LISA) integrates data from a number of registers that cover education, employment and all forms of income, starting with the year 1990. It is updated annually and includes all individuals from age 16 (SCB, 2009). *The National School Register* (NSR) holds information on individual educational performance and is described below in Section 2.2.

Registers held by the National Board of Health and Welfare: *The National Patient Register* (NPR) contains all in-patient care in hospitals since 1987. It has data on e.g. diagnosis, surgery and external causes of injury. *The National Cause of Death Register* (NDR) covers all registered deaths in Sweden since 1961, whether the death occurred within or outside the country. It contains information on e.g. underlying and contributory causes of death. In both NPR and NDR, the diagnoses/causes are coded according to the Swedish versions of the International system of Classification of Diseases, ICD (Socialstyrelsen, 1997). *The Child welfare Intervention Register* (CIR) is based on data from the local child welfare authorities, reported since 1968, and includes dates and type of intervention (but not cause of intervention).

Registers held by the National Council for Crime Prevention: *The Register of Criminal Offenses* (RCO) contains information on all convictions in Sweden, by type of sanction and criminal act, and is based on data from Swedish prosecutors and courts, and from the National Police.

2.1. Study population

The study population consists of all Swedish residents born in 1972–1981 according to TPR and who were also present in the PHC's of 1975, 1980, 1985 or 1990. Individuals who emigrated or immigrated after age 7, or died before age 17 were excluded from the study. Four mutually exclusive groups were created based on information from MGR and CIR.

- Care leavers from long term foster care (N=5224) Persons who stayed more than five years in foster care (out-of-home care; mostly foster family care) during childhood and who left care after age 17, excluding national adoptees. The average time spent in care was 11 years.
- In-home interventions (N=6455) Persons who had in-home interventions before their teens.
- National adoptees (N=1206) Persons born in Sweden who lived with adoptive parents at age 10 (approximately), excluding those who had been in long term foster care.
- Majority population (N= 900,322) Persons who did not belong to any of the three study groups and who did not appear in CIR.

The age of legal majority in Sweden is 18 years, and the normal time for leaving out-of-home care. We included all youth who left care after their 17th birthday, since a substantial minority leave during the last year before their 18th birthday, mostly to live on their own (Vinnerljung, Sallnäs, & Kyhle-Westermark, 2001). Youth who age out of long term care constitute 83% of all Swedish 18-year olds with more than five years of out-of-home care experience. Inversely, 41% of all youth who stayed in foster care at the age of 17 had been in long term care.

Subjects with contradictory data regarding study group classification were excluded, mainly a small group that was classified as both Swedish born national adoptees and care leavers from long term foster care. The registers do not contain time of adoption and thus we do not know at what age the adoption was concluded. The national adoptees are a comparison group to the care leavers from long term foster care in the sense that the reasons for not staying with the birth parents while growing up were similar, but adoptees have a permanent status in their substitute family (Vinnerljung et al., 2010).

2.2. The national school register

The National School Register (NSR) holds information on individual educational performance (grade points by subject) for all students from the final ninth year in primary schools (when students are ages 15–16) since 1988. It is administered jointly by the Swedish School Authority and Statistics Sweden. Non-public schools, which comprise a few percent of all Swedish schools, have been included since 1993.

The grading system consisted of a five point scale – from 1 (lowest) to 5 (highest) – during the period in which the birth cohorts in the study graduated from primary school. Grades in each subject had a Gaussian distribution on a national level. The grading level in each school was under national supervision by the Swedish School Authority through annual national tests in key subjects. In 1997 the grading and the national supervision system were changed radically, but this did not affect the birth cohorts in this study (they had by then graduated from primary school).

This study mainly focus on average grade points, but grade points from four different subjects – Science, Swedish, Art and Music – are also presented. The first two represent theoretical subjects and the two latter represent practical subjects. The quality of the data in the National School Register is high and summary statistics have been published regularly (SCB, 2010).

Even though the coverage rate in NSR is high (approximately 97%), the proportion of missing values differ substantially between study groups. Among women in the majority population only two percent had missing values, compared to 18% among young men leaving long term foster care. Missing values could either be a result of frequent absconding from school or a result of attending a school which has not, for different reasons, reported grade points to Swedish authorities. Students who received a final grade in primary school at residential care are not included in NSR. Children who grow up in foster family care during their early years are known to be heavily over represented in residential care for adolescents (Vinnerljung, 1999), which could be one reason for their higher rate of missing values. Also, some schools for students with certain needs (e.g. due to learning disabilities) do not give grade points. It is not possible to identify the reason for missing values in NSR. We found that close to 30% of those with missing values in NSR had disability or early retirement benefits before age 23, by using information from the longitudinal integration database for health insurance and social studies (LISA). They were excluded from the study under the assumption that they were missing in NSR due to disabilities or severe health problems.

2.3. School performance variables

This study focuses on performance in the final compulsory school year in Sweden. Average grade point (A) ranged from a minimum of 0.1 to a maximum of 5.0, with mean (M) 3.2 and standard deviation (SD) 0.8. The minimum average grade point is below 1.0 because individuals without ratings in individual subjects were included in the study and were given the value 0 in these cases. Means and standard deviation were used to create a four-category variable:

- No grades Missing values in NSR and no disability benefits or early retirement benefits before age 23.
- Low grades Average grade point below mean minus one standard deviation. [A≤(M−SD)]
- Low up to mean Average grade point above low grade up to and including mean. [(M−SD)<A≤M]
- Grades above mean Average grade points above mean. (A>M)

The group with "low grades" consists of the sixth with the lowest grades in the whole study population. They were among the four in an average school class (of approximately 24 students) with poorest school performance, excluding the "no grades" group. The average grade point calculation includes 16 different school subjects. Physical education and technology were excluded from the average grade point because some students were exempted from sport and because technology was not taught in all schools.

2.4. Outcomes

Outcomes were measured in young adulthood (from age 20 to 2005). Registers used for constructing the different out-comes below are given in brackets.

- Suicide attempts: Admitted to hospital as a result of attempted suicide or suspected suicide attempt after their 20th birthday (NPR).
- Drug abuse: Convicted of drug offenses, or died/hospitalized with a drug-related diagnosis after their 20th birthday 20 (NDR, NPR, RCO).
- Alcohol abuse: Convicted of drunk and driving, or died/ hospitalized with an alcohol-related diagnosis after their 20th birthday (NDR, NPR, RCO).
- Serious criminality: Sentenced to probation, prison or forensic psychiatric care after their 20th birthday (RCO).
- Welfare dependency: More than 50% of disposable annual income at age 25 consisted of social welfare. It was measured only for those born in 1972–1978 who were registered as "own household" the year they turned 25, i.e. did no longer live with their parents (LISA).
- Secondary education: Completed secondary education at end of follow up (December 2005; LISA, NSR).

2.5. Summarized category

Psychosocial problems tend to occur in various combinations at an individual level (Vinnerljung & Sallnäs, 2008). A category has therefore been constructed indicating absence of adverse outcomes (as they have been defined in this study). This is a common practice in longitudinal studies of vulnerable children's development (Clausen & Kristofersen, 2008; Mersky & Topitzes, 2010; Vinnerljung et al., 2006; Vinnerljung & Sallnäs, 2008). The analysis included only those born 1972–1978 who were registered with their own household at age 25.

No indications of psychosocial problems: No registered suicide attempt, drug abuse, alcohol abuse or serious criminality after the 20th birthday, and not dependent on social welfare at age 25, and still alive in 2006.

2.6. Confounding variables

Data on maternal education (birth mother) was obtained from LISA 1990–2005. Educational level was categorized as Short (up to 9 years), Medium (10–12 years) and Long (13 years or more). Short level corresponds with primary school, Medium level with secondary school and Long level with post-secondary school. Data on psychiatric care and substance abuse among birth parents was obtained from the National Patient Register and the National Cause of Death Register. The variable that indicates psychiatric care measures if the youth's birth mother or/and birth father had been hospitalized or died, between 1973 and 2005, with a psychiatric diagnosis (including suicide attempts and suicide). The variable indicating substance abuse measures if the youth's birth mother or/and birth father had been hospitalized, or died, with a substance abuse related diagnosis. We did not have access to data on birth parental criminality, which is the reason for the different constructions of substance abuse indicators for the youths and their parents.

3. Statistical analysis

All analyses were made with the aid of the SAS software package (procedure given in brackets). Cox regression (PROC PHREG) was used to analyze 1) risks of poor school performance (no or low average grade points) in the final ninth year in the Swedish compulsory school system, 2) chance of achieving a secondary school education despite poor school performance. A first model was adjusted for sex and year of birth, while maternal education (birth mothers educational level) and birth parents substance abuse and psychiatric care were added in a second model.

In the next step, we analyzed psychosocial problems among youth with adjustment for school performance and background variables connected to birth parents. Two Cox regression models were fitted. The first was adjusted for sex and year of birth. In the second model, average grade points (in intervals) were added. In the third model, maternal education and birth parents substance abuse and psychiatric care were added. Year of birth was entered as a continuous variable in all analyses because of the slight but systematic increase of grade point averages over the years. Survival analysis (PROC LIFETEST) was used to calculate the prevalence of different psychosocial problems in early adulthood.

In the analysis of all psychosocial problems except welfare dependency at age 25, we used Cox regression models with person-time (Allison, 1995). Time was calculated with the entry date defined as the 20:th birthday and the exit date (depending

on the outcome) as the date of the first hospital admission, or year of prosecution, or date of death, or end of follow-up (December 2006). In the analysis of welfare dependency at age 25, we used Cox regression models with constant time-of-risk since relative risks are more interpretable than odds ratios (Barros & Hirakata, 2003). For the same reason, we used Cox regression models with constant time-of-risk in the analysis of no or low grades in the final year of primary school. In the analysis of secondary education for those with no or low grades in primary school we used Cox regression models with person time, starting at age 16. All models were adjusted for sex and year of birth.

In the final step of the analysis, attributable risks for psychosocial problems due to poor school performance (no or low grades) were calculated. Here, attributable risk percent (AR %) measure the percent of a specific psychosocial problem in the group with poor school performance that is due to poor school performance. Population attributable risk percent (PAR%) is the percent of a specific psychosocial problem in the whole population that is due to poor school performance (Kaelin & Bayona, 2004). The following formulas were used:

AR% = ((RR-1)/RR) * 100
PAR% = (((RR-1)/RR)'P)*100, where
RR = Relative risk for those with poor school performance of having a specific psychosocial propblem,
P = Proportion of persones with poor school performance who have the specific psychosocial problem.

We used relative risks (RR) that were adjusted for sex and year of birth in the calculation of attributable risks.

4. Results

Table 1 presents descriptive data on the study groups. Except gender and year of birth, all background variables are related to birth parents. Around 40% of the birth parents of youths that had left long term foster care had been admitted to hospital or had died of substance abuse. Approximately half of the birth mothers and a quarter of the birth fathers had been admitted to hospital or died with a psychiatric diagnosis.

Table 2a shows the mean of average grade points and of grade points in different school subjects from the final year in primary school for boys and girls in the four study groups respectively. Care leavers from long term foster care tended to have higher grades in the two practical subjects, than in the two theoretical, but considerably lower grades than majority population peers in all theoretical subjects.

Table 2b gives average grade points in intervals including those with no grades at all. Note that the no grades-group is excluded from the mean in Table 2a and that those with no grades are six times as many among care leavers from long term foster care as in the majority population.

Table 3 presents risks of poor school performance (no or low grades) in primary school. Cox regression without (model 1) and with adjustment (model 2) for background variables were used. Care leavers from long term foster care had three times as high sex and birth year adjusted risk for poor school performance as majority population peers (model 1). When adjusting birth maternal education and indicators of birth parental substance abuse and psychiatric care, the risk decreased by approximately half and was slightly lower than for the in-home group (model 2). Only in the majority population was parent's substance abuse and psychiatric care a significant risk factor for no or low grades (not shown in tables). Time in placement had a weak effect on the risk of poor school performance for care leavers from long term foster care (not shown in tables).

Table 4 presents the chance (risk) of achieving a secondary school education despite poor school performance (no or low grades) in primary school. Cox regression without (model 1) and with adjustment (model 2) for background variables were used. There is a direct causal relationship between grades in primary school and future education, because grades are used for admittance into different secondary school programs (some being a path to post-secondary education). But there are ample opportunities in Sweden to supplement poor performance in primary school through free adult education. This system is part of the general welfare state. The analysis show that the care leavers from long term foster care and youth who had received in-home interventions had a significantly lower chance of achieving a secondary education when performance in primary school was poor compared to majority population peers with poor grades from primary school.

In young adulthood the care leavers from long term foster care were less educated than the other study groups — 27% had no further education after primary school. The corresponding rates were 22% for those who had received in-home interventions in childhood, 13% for national adoptees and 6% in the majority population (not shown in table). The comparison was done regardless of grades in primary school, and with survival analysis starting at age 16 and ending in December 2005.

The prevalence of different psychosocial problem in the study groups is presented in Table 5a. The differences between study groups are substantial, e.g. 37% among young men who had left long term foster care had an indication of serious criminality compared to 5% in the male majority population. The summarized category is presented in Table 5b. Less than half (42%) of boys and 55% of the girls that had left long term foster care with no or low grades in primary school had no indication of psycho-social problems at age 25, compared to 81% of boys and 87% of girls with no or low grades in the majority population.

Table 6 presents risks of different psychosocial problems in early adulthood. When adjusting for sex and year of birth, formerly fostered youth had strikingly high excess risks for psychosocial problem in early adulthood (model 1). Adjusting for grade points in primary school decreased the excess risks by 38% for suicide attempts, by 40% for alcohol abuse and 44% for drug abuse, and by around half for the other outcomes, but still left risks that were three to five times higher than for majority population peers (model 2). Adjusting for birth mothers educa-

Table 1
Sex, year of birth, maternal education, and birth parents substance abuse and psychiatric care in study group. Percent (%).

		Majority population	National adoptees	In-home interventions	Long-term care leavers
Total number	All	900,322	1,206	6,455	5,224
Sex	Men	52	54	56	54
	Women	48	46	44	46
	Total	100	100	100	100
Year of birth	1972	11	19	6	12
	1973	11	13	7	12
	1974	11	12	8	11
	1975	10	10	8	11
	1976	10	10	9	9
	1977	9	8	10	8
	1978	9	8	11	9
	1979	10	6	12	10
	1980	10	7	14	10
	1981	10	6	16	9
	Total	100	100	100	100
Maternal education (birth mother)	Missing data	2	16	3	16
	Short (-9 yrs)	21	32	33	42
	Medium (10–12 yrs)	48	41	50	38
	Long (13- yrs)	29	11	14	4
	Total	100	100	100	100
Birth parents substance abuse	Mother	2	18	11	39
	Father	5	18	22	38
Birth parents psychiatric care	Mother	6	28	27	48
	Father	6	16	21	27

Table 2a
Mean (95% CI) of average grade point and grades in Swedish, science, art, and music (final year at primary school), by study group and gender.

	Average gr.p.	Swedish	Science	Art	Music
	Mean (95% C.I.)	Mean (95% C.I.)	Mean (95% C.I.)	Mean (95% C.I.)	Mean (95% C.I.)
Boys					
Majority population	3.1 (3.1–3.1)	3.0 (2.9–3.0)	3.1 (3.1–3.1)	3.0 (3.0–3.0)	3.1 (3.1–3.1)
National adoptees	2.7 (2.7–2.8)	2.6 (2.6–2.7)	2.7 (2.6–2.7)	2.8 (2.7–2.9)	2.9 (2.9–3.0)
In-home interventions	2.5 (2.4–2.5)	2.4 (2.4–2.5)	2.4 (2.4–2.4)	2.7 (2.7–2.7)	2.6 (2.6–2.6)
Long-term care leavers	2.4 (2.4–2.4)	2.4 (2.3–2.4)	2.3 (2.3–2.4)	2.7 (2.6–2.7)	2.6 (2.6–2.6)
Girls					
Majority population	3.4 (3.4–3.4)	3.5 (3.5–3.5)	3.3 (3.3–3.3)	3.5 (3.5–3.5)	3.5 (3.5–3.5)
National adoptees	3.1 (3.0–3.2)	3.2 (3.2–3.3)	2.9 (2.9–3.0)	3.3 (3.2–3.4)	3.3 (3.3–3.4)
In-home interventions	2.8 (2.7–2.8)	2.9 (2.9–3.0)	2.6 (2.5–2.6)	3.2 (3.2–3.2)	2.9 (2.9–3.0)
Long-term care leavers	2.7 (2.7–2.8)	2.8 (2.8–2.9)	2.5 (2.5–2.5)	3.1 (3.1–3.2)	2.9 (2.9–3.0)

Missing values were excluded in the calculation of means.

tion, and birth parents substance abuse and psychiatric care (model 3) decreased the excess risks further by another 16 to 29%. Excess risks for national adoptees did not (except for serious criminality) differ significant from the majority population, after adjustments for grade points and background variables connected to birth parents.

For graduates of long term foster care, no or low grades was the strongest risk factor for future adverse outcomes. Parental background variables tended to be – at most – weakly related to outcomes (logical regression analysis of only care leavers from long term foster care, not shown in tables). Care leavers from long term foster care with no grades had e.g. a 12-fold excess risk (RR) for serious criminality (95% CI=8–18) and a 10-fold excess risk for welfare dependency (95% CI=5–17) compared to care leavers from long term foster care with average grade points above mean, when adjusting for sex, year of birth and variables related to birth parents. The pattern was the same in the other study groups, no or low grades in primary school were associated with strikingly high excess risks for psychosocial problems in young adulthood.

In the whole population (majority population and study groups together regardless of school performance), between 31 and 55% (PAR%, not shown in table) of suicide attempts (31%), drug abuse (48%), alcohol abuse (43%) and serious criminality (55%) was statistically attributable to no or low grades. For those with poor school performance, between 70 and 88% (AR%, not shown in table) of the psychosocial problems mentioned above, was in the same fashion attributable to poor performance in school. The attributable risks were similar among all study groups, when they were analyzed separately.

5. Discussion

In this study, we used national register data covering the entire Swedish population in ten birth cohorts – in a longitudinal design – to assess school performance among care leavers from long term foster care, and the relation between school performance and future psychosocial problems. The results are surprisingly clear, but paint a dark picture of poor school performance, low educational attainments and high risks of future psychosocial problems. The "good" news is that half of the strikingly high overrisks for psychosocial problems in young adulthood for care leavers from long term foster care can be "explained" by poor school performance. Since it is reasonable to assume that school performance is a variable risk factor that can be influenced by interventions (e.g. Tideman et al., 2011), the results suggest that there is considerable room for improvement of cognitive and educational support to this group.

A majority of boys (60%) and 42% of girls in long term foster care group had no or low grades in primary school, compared to 22% and 11% in the majority population. When adjusting for maternal education and birth parents' substance abuse and psychiatric care, those with experiences of in-home interventions and those who aged out of long term foster care (the social services groups) had up to two times as high risk of poor school performance as the majority population. In other analyses of the same data set, former male wards of long term foster care had substantially lower average grades than majority population boys with similar results from cognitive tests at military conscription (Vinnerljung et al., 2010). These results – and small scale studies – clearly indicate that children and youth in long term foster care have high risks of becoming scholastic underachievers in primary school (e.g. Tideman et al., 2011). In addition, earlier analyses of the same data set showed that youth from long term foster care tend to receive lower education than peers with similar grades from primary school and (for males) peers with similar cognitive capacity, as shown in test results at military conscription (Vinnerljung et al., 2010).

Youth who left long term care also had a lower chance of getting a secondary education when grades were poor, compared to majority population peers with the same grades. The chance for the national adoptees did not differ significantly from that of the majority population. This is congruent with the fact that alternative study paths, e.g. municipal adult education, are mostly used by resourceful groups (Berggren, 2007).

The analyses presented in this article of care leavers, and results from previous analyses from the same data sources (Vinnerljung et al., 2010), present a dark picture of their career in school and in the educational system. Youth that left long term foster care after age 17 have been disadvantaged fivefold; firstly because of their higher risk of poor grades in primary school, secondly because

Table 2b
Average grade point categories (final year at primary school), by study group and gender. Percent (%).

	No grades	Low grades	Low up to mean	Above mean	Total
Boys					
Majority population	2	20	37	41	100
National adoptees	3	36	40	21	100
In-home intervention	8	47	30	15	100
Long-term care leavers	13	47	28	12	100
Girls					
Majority population	2	9	29	60	100
National adoptees	3	19	35	43	100
In-home intervention	5	32	36	27	100
Long-term care leavers	10	32	35	23	100

Table 3
Risk of no or low grades in final year at primary school by study group. Cox regression with constant time. RR (95% CI).

	Model 1	Model 2
Majority population	1	1
National adoptees	1.81 (1.64–2.01)	1.27 (1.14–1.43)
In-home interventions	2.80 (2.70–2.90)	2.00 (1.92–2.08)
Long-term care leavers	3.06 (2.94–3.18)	1.64 (1.57–1.72)

Model 1 is adjusted for year of birth and sex. Model 2 is adjusted for year of birth, sex, maternal education, birth parents' substance abuse and psychiatric care.

Table 4
Chance (risk) of secondary education by study group. Only those with no or low grades in final year at primary school. Cox regression. RR (95% CI).

	Model 1	Model 2
Majority population	1	1
National adoptees	0.85 (0.72–1.00)	0.92 (0.77–1.11)
In-home interventions	0.66 (0.62–0.70)	0.72 (0.67–0.77)
Long-term care leavers	0.61 (0.56–0.65)	0.74 (0.68–0.80)

Model 1 is adjusted for year of birth and sex. Model 2 is adjusted for year of birth, sex, maternal education, birth parents' substance abuse and psychiatric care.

they received lower grades than other children with the same cognitive capacity, thirdly because they got a lower education than peers with similar cognitive capacity (results on males only in Vinnerljung et al., 2010), fourthly because they got lower education than peers with the same average grades from primary school; and fifthly because of their lower chance of achieving a secondary education when grades were poor, e.g. through use of adult education opportunities. For care leavers from long term foster care, time in placement had no or very weak effects on these processes.

Furthermore, youth that had aged out of long term foster care had six-to eleven fold sex and birth year adjusted excess risks for psychosocial problems in early adulthood compared to majority population peers. Overrisks were considerably lower for the in-home group and the national adoptee group. No or low grades was the strongest predictive risk factor for adverse outcomes. Sonia Jackson, the doyen of European research on education for foster children, has for decades claimed that low education/poor school results is the greatest risk factor for youth who leave out-of-home care (Jackson, 1994). This study strongly supports her hypothesis, which had not been tested in a large sample study before.

Actually, all children with poor school performance in compulsory school constitute a high risk group for future psychosocial problems (Vinnerljung et al., 2010). The situation is particularly worrying for children who have been cared for by society during childhood, as – in addition to coming from adverse early childhood backgrounds – many of them also have a weakened family network when they enter into adulthood, partly because many parents are dead (Franzén & Vinnerljung, 2006).

Poor school performance followed by low or no education may also have become an increasing disadvantage in recent decades for youth that leave foster care. Growing demands on higher education has led to an extended establishment phase (Lager, Berlin, Danielsson, & Heimerson, 2009), and thus an increasing dependency on parents during young adulthood.

In a Swedish interview study with 16 care leavers between ages 18 and 22, worries about how to cope with housing, personal finance and employment were expressed by a majority. In Sweden, there are no systemized care-leaving services and until recently (2008) local authorities had no legal duty to support young people from out-of-home care after age 18. This lack of responsibility

Table 5a
Psychosocial problems by study group and gender. Percent (%).

	Men				Women			
	Maj. pop.	Nat. adop.	In-home	Long-term care leav.	Maj. pop.	Nat. adop.	In-home	Long-term care leav.
Suicide attempt[a]	1	3	6	9	2	5	6	14
Drug abuse[a]	4	7	15	22	1	4	4	10
Alcohol abuse[a]	6	9	15	22	1	3	2	6
Serious criminality[a]	5	12	23	37	1	2	4	9
Welfare dependency at age 25[b]	1	4	7	14	1	1	5	8

[a] Survival analysis was used for calculation (PROC LIFETEST, SAS).
[b] Only those born in 1972–1978 who were registered with their own household at age 25.

Table 5b
No psychosocial problems (summarized category) by study group, gender and average grade point in final year in primary school. Only those born in 1972–1978 who were registered with their own household at age 25. Percent (%).

	Men				Women			
	Maj. pop.	Nat. adop.	In-home	Long-term care leav.	Maj. pop.	Nat. adop.	In-home	Long-term care leav.
All	91	83	66	54	95	89	82	68
With no or low grades	81	75	57	42	87	79	75	55
Above low grades	94	88	79	72	96	92	88	79

from social services may be an effect of the highly developed Swedish general welfare state, where legislators and policy-makers tend to assume that the general welfare services – open to everyone regardless of income and background – are sufficient enough for vulnerable groups of youth. This has resulted in a gap between the needs of the young people leaving care and the support given from social services. (Höjer & Sjöblom, 2009).

In a recent comparison of five EU countries, managers of welfare services in all five countries said that education for children in public care is a neglected issue both in school and in placements. In Sweden there were next to no initiatives to support education of young people in public care. Managers were not informed of – or interested in – their client's educational progress. Only 10 out of 111 managers mentioned education as an important area for social services in their work with children in public care (Höjer & Sjöblom, submitted for publication). In all countries, professionals are generally aware that young people in public care do not have the same opportunities to follow an educational career as others of the same age. However, national statistics that could make this visible is almost nonexistent. (Jackson & Cameron, 2010).

Far too little is known about why foster children in long term care perform so poorly in the educational system. Examining different causal hypotheses is outside the scope of this article because of the absence of necessary individual data. What remains is to make interpretations based on other research. Some of the problems are probably explained by individual factors, such as lower cognitive ability and the presence of behavior problems (Vinnerljung et al., 2010). But poorer cognitive capacity does not automatically lead to lower grades. Swedish studies of foreign-born adoptees suggest that a good home environment to a certain extent can compensate the risk of low grades that weaker cognitive skills imply (Lindblad, Dalen, Rasmussen, Vinnerljung, & Hjern, 2009). A recent small scale intensive trial study also revealed that as many as three out of four foster children seem to perform in school far below their cognitive capacity. The same study also showed that foster children ages 8–12 scored substantially higher on an IQ-test (WISC-III) after two years of educational interventions, when compared to their scores at the beginning of the trial (Tideman et al., 2011). Subsequently, there may be good reasons not to view foster children's scores on cognitive tests as a fixed measure of intelligence, but also as an outcome of long term substitute care and cognitive/educational support during time in care — or the lack of such support (cp. French adoption studies by Duyme, Dumaret, & Tomkiewicz, 1999; Schiff et al., 1978).

The links between poor school performance and behavior problems are well-known (Johnson, McGue, & Ianoco, 2009), but the direction of the relationship is a two-way street. For some children, behavior problems cause poor school performance, but for others poor school performance cause behavioral problems (Gustafsson et al., 2010). The same dual causeway has been reported for the relation between mental health problems and school failure (ibid.). Since a large host of studies has shown that both behavioral and mental health problems are more prevalent among children in long term foster care than in the majority population, is may be tempting to interpret their higher risk of school failure as an expected consequence of these facts. But the causal mechanisms are not that simple.

Table 6
Risk of psychosocial problems by study group. Cox regression. RR (95% CI).

		Model 1	Model 2	Model 3
Suicide attempt[a]	Majoriy population	1	1	1
	National adoptees	2.35 (1.55–3.58)	1.87 (1.23–2.84)	1.22 (0.75–2.00)
	In-home intervention	3.51 (3.01–4.10)	2.26 (1.93–2.64)	1.66 (1.42–1.95)
	Long-term care leavers	6.94 (6.14–7.84)	4.32 (3.82–4.89)	2.28 (1.97–2.65)
Drug abuse[a]	Majoriy population	1	1	1
	National adoptees	2.19 (1.61–2.97)	1.57 (1.16–2.13)	1.15 (0.81–1.62)
	In-home intervention	4.03 (3.66–4.43)	2.36 (2.14–2.59)	1.80 (1.63–1.99)
	Long-term care leavers	8.22 (7.59–8.91)	4.57 (4.21–4.95)	2.60 (2.36–2.86)
Alcohol abuse[a]	Majoriy population	1	1	1
	National adoptees	2.06 (1.55–2.75)	1.53 (1.15–2.04)	1.12 (0.81–1.56)
	In-home intervention	2.96 (2.65–3.30)	1.82 (1.63–2.03)	1.48 (1.32–1.66)
	Long-term care leavers	5.62 (5.14–6.15)	3.40 (3.10–3.72)	2.17 (1.96–2.42)
Serious criminality[a]	Majoriy population	1	1	1
	National adoptees	2.65 (2.11–3.34)	1.86 (1.48–2.34)	1.44 (1.12–1.86)
	In-home intervention	5.07 (4.70–5.47)	2.80 (2.60–3.03)	2.16 (1.99–2.34)
	Long-term care leavers	9.20 (8.61–9.83)	4.91 (4.59–5.24)	2.84 (2.62–3.08)
Welfare dependency[b]	Majoriy population	1	1	1
	National adoptees	2.35 (1.52–3.65)	1.60 (1.03–2.48)	1.50 (0.95–2.36)
	In-home intervention	6.07 (5.24–7.02)	3.02 (2.61–3.49)	2.45 (2.10–2.85)
	Long-term care leavers	10.61 (9.56–11.78)	5.09 (4.57–5.66)	3.40 (2.98–3.87)

Model 1 is adjusted for sex and year of birth. Model 2 is adjusted for sex, year of birth and average grade point (interval). Model 3 is adjusted for sex, year of birth, average grade point (interval), maternal education, birth parents' substance abuse and psychiatric care.
[a] Person-time.
[b] Constant time and only those born in 1972–1978 who were registered with their own household at age 25.

British researchers have emphasized the importance of a failing system, such as low interest from social services to follow up foster children's progress in school and an unclear allocation of responsibilities between school and social services (reviewed in Vinnerljung, 1998). Whatever the reasons are, international research – and this study – does indicate that the compensatory developmental power of long term foster care in its present "placing out" form is at best weak. This certainly seems to apply for school and education, although Swedish law for many decades has stated that the municipalities have a responsibility for foster children in this area (Vinnerljung et al., 2010). To our knowledge, this responsibility has never been monitored on a national level (Vinnerljung, Öman, & Gunnarson, 2005).

The differences between the national adoptees and care leavers from long term foster care are interesting. In this study, the latter group tended to have a higher risk of no or low grades and a lower chance of getting a secondary education, even after adjusting for birth parents education and indication of birth parents substance abuse and psychiatric care. Still, both adoptive and foster parents are investigated and approved by social services. Foster parents have also been commissioned by social services to care for children with difficult life conditions. Why are the differences yet so clear between adoptees and children who grow up in foster care? Scandinavian studies indicate that pessimistic expectations of foster children's chances of success in school are common, both among foster parent, social workers and teachers (Egelund, Hestbaek, & Andersen, 2004; Knudsen, 2009; Tideman et al., 2011).

It is probably not realistic to assume that disadvantaged children through interventions should achieve the same average grades as the majority population, but the very high prevalence of no or low grades can hardly be predetermined. Several researchers have pointed out that vulnerable children's school performance can be improved with appropriate interventions (Gottfredson, Wilson, & Najaka, 2002; Harden, Brunton, Fletcher, & Oakley, 2009; Voisin & Neilands, 2010; Zingraff et al., 1994). In Sweden promising results have been reported from a local project in Helsingborg, supported by the National Board of Health and Welfare, where 25 foster children initially were tested with age-standardized instruments (cognitive capacity, reading and math skills etc.). Test results were used to guide teachers and foster parents, and to systematically give children access to the special education resources normally available at all schools. At retest after two years, the average test scores had increased significantly in nearly all tests, including cognitive ability tested with WISC-III (Tideman et al., 2011).

6. Methodological issues

The strength of this study is the national cohort design, which includes all Swedish residents born in 1972–1981. The quality of the national registers is high, but there are limitations. It was not possible to identify reasons for missing values in the National School Register (NSR), which holds one of the key variables in this study — grades in primary school. Approximately 3% in the study population were missing in NSR. We assumed that those who received disability benefits or early retirement benefits at early age had missing values due to severe health problems and not because of school failure. They were therefore excluded from the study. The others with missing values were included in the study, assuming they had "no grades" due to school failure. On a group level, nothing in our analysis contradicted this assumption. Even though the assumption may not be correct for everyone, it is probable that this has affected the results marginally.

Birth parents' substance abuse and psychiatric care have been collected throughout the period 1973–2005, which implies that our study subjects may have been adults when their birth parents had an event related to one of these indicators. Since hospitalization or death due to alcohol or substance abuse most often occur after many years of substance abuse, we used an extended time of observation. We are aware of casting the net wide and that the results may be short on precision. More importantly, it is quite possible that these crude indicators of the complex interaction of genetic, prenatal and early childhood determinants underestimate the effect of these factors in real life.

When we adjusted our models for factors related to birth parents, we excluded those with missing data on maternal education. The reason for doing this – as opposed to entering "missing" as a separate category in the analyses – is that we have

no information on why data are missing. The most common reason is that the person has died. But in the missing group there is also a large group that did not even pass the requirements for a primary school exam. We therefore found it premature to treat missing parental education as a homogenous group. As shown in Table 1 only 2–3% was missing in the majority population and the in-home group, while 16% was missing in the national adoptee group and the long term foster care group. We have performed additional regression analyses with "missing" parental education as a separate category (not shown in tables), but the results are almost identical to what is reported in the tables (maximum one or two decimals increase in the RR's for foster children).

7. Conclusions and implications for practice

Youth who age out of long term foster care have very high excess risks of future psychosocial problems compared to other peers. Up to 55% of these overrisks were statistically attributable to their dismal school performance. The general message from this study is: If society wants to improve life opportunities for care leaver, it is necessary to give them effective help with their schooling and education while they are in care.

Poor educational performance should be regarded as a main determinant for care leavers' future life chances. It can be influenced and improved while children are in societal care (e.g. Flynn, Paquet, & Marquis, 2010; Tideman et al., 2011). Furthermore, there should be extended incitements for young adults who have been in long term public care to repair earlier school failure through adult education. We do not subscribe to the hypothesis that the results reported here are inevitable, just because adverse early childhood experiences are common among care leavers from long term foster care.

References

Allison, P. D. (1995). *Survival analysis using SAS: A practical guide*. Cary, NC, USA: SAS Institute Inc.

Barros, A. J. D., & Hirakata, V. N. (2003). Alternatives for logistic regression in cross-sectional studies: An empirical comparison of models that directly estimate the prevalence ratio. *BMC Medical Research Methodology, 3*(21), doi:10.1186/1471-2288-3-21.

Berggren, C. (2007). Arbetsmarknaden och efterfrågan på högre utbildning – ett köns och klassperspektiv [The labor market and demands for higher education — A gender and class perspective]. In J. Olofsson (Ed.), *Utbildningsvägen — vart leder den?* (pp. 55–69). Stockholm: Studieförbundet Näringsliv och Samhälle.

Björkenstam, C., Ringbäck Weitoft, G., Hjern, A., Nordström, P., Hallqvist, J., & Ljung, R. (2010). School grades, parental education and suicide — A national registerbased cohort study. *Journal of Epidemiology and Community Health Online* 2010 Oct. 19. PMID: 20961868. doi:10.1136/jech.2010.117226.

Boden, J., Horwood, J., & Ferguson, D. (2007). Exposure to childhood sexual and physical abuse and subsequent educational achievement outcomes. *Child Abuse & Neglect*, 31, 1104–1114.

Bohman, M., & Sigvardsson, S. (1980). A prospective, longitudinal study of children registered for adoption. A 15-year follow-up. *Acta Psychiatrica Scandinavia, 61,* 339–355.

Bohman, M., & Sigvardsson, S. (1980). Negative social heritage. *Adoption & Fostering, 3,* 25–31.

Cashmore, J., & Paxman, M. (1996). *Wards leaving care: A longitudinal study.* Sydney: Dept of Community Services, NSW.

Cheung, S. Y., & Heath, A. (1994). After care: The education and occupation of adults who have been in care. *Oxford Review of Education, 20,* 361–374.

Christoffersen, M. N. (1993). Anbragte börns livsförlopp [The life course of children in care]. *Rapport 93:11*. Copenhagen: SFI.

Clausen, S. -E., & Kristofersen, L. (2008). *Barnevernsklienter i Norge 1990–2005. En longitudinell studie* [Child welfare clients in Norway 1990–2005. A longitudinal study]. NOVA-rapport 3/08. Oslo: NOVA.

Danielsson, M., & Talbäck, M. (2009). Folkhälsan i översikt [An overview of public health in Sweden]. *Folkhälsorapport 2009* (pp. 17–39). Stockholm: Socialstyrelsen.

Dumaret, A., Coppel-Batsch, M., & Couraud, S. (1997). Adult outcome of children reared for long-term periods in foster families. *Child Abuse & Neglect, 21,* 911–927.

Duyme, M., Dumaret, A., & Tomkiewicz, S. (1999). How can we boost IQ's of "dull children"? A late adoption study. *Proceedings of the National Academy of Sciences of the USA, 20,* 8790–8794.

Egelund, T., Hestbaek, T. -D., & Andersen, D. (2004). Små børn anbragt uden for hjemmet. En forløbsundersøgelse af anbragte børn født i 1995 [Young children placed in out-of-home-care. A longitudinal study of children born 1995]. *Rapport 04:17*. Köpenhamn: Socialforskningsinstituttet.

Egelund, T., Andersen, D., Hestbaek, A. -D., Lausten, M., Knudsen, L., Olsen, R. F., et al. (2008). Anbragted börns udvikling og vilkår [Development and living conditions of children in out-of-home care]. *Rapport 08:23.* SFI: Copenhagen.

Flynn, R., Paquet, M. -P., & Marquis, R. (2010). Can tutoring by foster parents improve foster children's basic academic skills? A Canadian randomized trial. In E. Fernandez, & R. Barth (Eds.), *How does foster care work? International evidence of outcomes* (pp. 260–273). London: Jessica Kingsley Publ.

Franzén, E., & Vinnerljung, B. (2006). Foster children as young adults: Many motherless, fatherless or orphaned: a Swedish national cohort study. *Child & Family Social Work, 11,* 254–263.

Gottfredson, D., Wilson, D., & Najaka, S. S. (2002). School bases crime prevention. In L. Sherman, D. Farrington, B. Welsh, & D. L. MacKenzie (Eds.), E*vidence-based crime prevention* (pp. 56–164). London: Routledge.

Gustafsson, J. -E., Allodi Westling, M., Alin Åkerman, B., Eriksson, C., Eriksson, L., Fischbein, S., et al. (2010). *School, learning and mental health: A systematic review*. Stockholm: Kungl. Vetenskapsakademien Available on Internet: http://su.diva-portal. org/smash/get/diva2:317965/FULLTEXT01

Halleröd, B. (2010). What do children know about their future: Do children's expectations predict outcomes in middle age? *Education, welfare and the capabilities approach: A European perspective* (pp. 113–132). Farmington Hills: Barbara Budrich Publishers.

Harden, A., Brunton, G., Fletcher, A., & Oakley, A. (2009). Teenage pregnancy and social disadvantage: Systematic review integrating controlled trials and qualitative studies. *British Medical Journal* doi: 101136/bmj.b4254.

Hjern, A., Vinnerljung, B., & Lindblad, F. (2004). Avoidable mortality among child welfare recipients and intercountry adoptees: A national cohort study. *Journal of Epidemiology and Community Health, 58,* 412–417.

Höjer, I., & Sjöblom, Y. (2009). Young people leaving care in Sweden. *Child and Family Social Work, 15,* 118–127.

Höjer, I. & Sjöblom, Y. submitted for publication. Procedures when young people leave care - views of 111 Swedish social services managers".

Jablonska, B., Lindberg, L., Lindbland, F., Rasmussen, F., Östberg, V., & Hjern, A. (2009). School performance and hospital admissions due to self-inflicted injury: A Swedish national cohort study. *International Journal of Epidemiology, 38,* 1334–1441.

Jackson, S. (1994). Educating children in residential and foster care: An overview. *Oxford Review of Education, 20,* 267–279.

Jackson, S., & Cameron, C. (Eds.), (2010). *Young people from a public care background: Establishing a baseline of attainment and progression beyond compulsory schooling in five EU countries.* University of Giorna, Spain: Ferran Casas and Carme Montserrat Boada Research Institute on Quality of Life Retrieved in: http://tcru.ioe.ac.uk/yippee.

Johnson, W., McGue, M., & Ianoco, W. (2009). School performance and genetic and environmental variance in antisocial behavior at the transition from adolescence to adulthood. *Developmental Psychology, 45,* 973–987.

Kaelin, M. A., & Bayona, M. (2004). A*ttributable risk applications in epidemiology.* College Entrance Examination Board.

Knudsen, L. (2009). Børn og unge anbragt i slægten [Children and youth in kinship care]. *Rapport 09:26.* Köpenhamn: Socialforsknings-instituttet.

Lager, A., Berlin, M., Danielsson, M., & Heimerson, I. (2009). Ungdomars hälsa [Youth health]. *Folkhälsorapport 2009* (pp. 69–112). Stockholm: Socialstyrelsen.

Lansford, J., Dodge, K., Pettit, G., Bates, J., Crozier, J., & Kaplow, J. (2002). A 12-year prospective study of the long-term effects of early child physical maltreatment on psychological, behavioral and academic problems in adolescence. *Archives of Pediatrics & Adolescent Medicine, 156,* 824–830.

Lindblad, F., Dalen, M., Rasmussen, F., Vinnerljung, B., & Hjern, A. (2009). School performance of international adoptees better than expected from cognitive test results. *European Journal of Child and Adolescent Psychiatry, 18,* 301–308.

McGloin, J., & Widom, C. S. (2001). Resilience among abused and neglected children grown up. *Development and Psychopathology, 13,* 1021–1038.

Mersky, J., & Topitzes, J. (2010). Comparing early adult outcomes of maltreated and non-maltreated children: A prospective longitudinal investigation. *Children and Youth Services Review, 32,* 1086–1096.

Nilsson, A., & Estrada, F. (2009). Kriminalitet och livschanser. Uppväxtvillkor, brottslighet och levnadsförhållanden som vuxen [Criminality and life prospects. Childhood conditions, crime and living conditions in adults age]. *Arbetsrapport 2009: 20.* Stockholm: Institutet för Framtidsstudier.

Pecora, P., Kessler, P., O'Brien, K., White, C. R., Williams, J., Hiripi, E., et al. (2006). Educational and employment outcomes of adults formerly placed in foster care: Results from the Northwest Foster Care Alumni Study. *Children and Youth Services Review, 28,* 1459–1481.

Runyan, D., & Gould, C. (1985). Foster care for child maltreatment. II. Impact on school performance. *Pediatrics, 76,* 841–847.

Sallnäs, M., Vinnerljung, B., & Kyhle-Westermark, P. (2004). Breakdown of teenage placements in Swedish foster and residential care. *Child and Family Social Work, 9,* 141–152.

SCB (2009). *SCB-data för forskning 2009* [SCB-data for research]. Statistiska centralbyrån 2009. Retrieved from. www.scb.se

SCB (2010). Beskrivning av statistiken. Årskurs 9-elevregistret 1996/97 [Descriptions of statistics for year 9 in primary school — Student register 1996/97]. UF0101. Statistiska centralbyrån Retrieved from.http://www.scb.se/Statistik/UF/UF0101/_dokument/UF0101_BS_1997.pdf

Schiff, M., Duyme, M., Dumaret, A., Stewart, J., Tomkiewicz, S., & Feingold, J. (1978). Intellectual status of working class children adopted early into upper-middle class families. Science, 30, 1503–1504.

Socialstyrelsen (1997). *Klassifikationer av sjukdomar och hälsoproblem (KSH97). Systematisk förteckning* [Swedish version of The International Statistical Classification of Diseases and Related Health Problems, Tenth Revision (ICD-10)]. Uppsala: Almqvist & Wiksell Tryckeri.

Stone, S. (2007). Child maltreatment, out-of-home placement and academic vulnerability: A fifteen-year review of evidence and future directions. *Children and Youth Services Review, 29,* 139–161.

Tideman, E., Vinnerljung, B., Hintze, K., & Aldenius Isaksson, A. A. (2011). Improving foster children's school achievements: Promising results from a Swedish intensive small scale study. *Adoption & Fostering, 35*, 44–56.

Vinnerljung, B. (1996). *Fosterbarn som vuxna* [Foster children as adults]. Lund: Arkiv Förlag.

Vinnerljung, B. (1998). Fosterbarns skolgång och utbildning [School achievements and educational attainments of foster children]. *Socialvetenskaplig Tidskrift, 5*, 58-80.

Vinnerljung, B. (1999). Förekomst av adoptivbarn och långtidsvårdade fosterbarn bland placeringar av tonåringar i dygnsvård [Prevalence of adoptees and long term foster children among new placements of teenagers in out-of-home care]. *Socialvetenskaplig Tidskrift, 4*, 313-328.

Vinnerljung, B., & Sallnäs, M. (2008). Into adulthood: A follow-up study of 718 youths who were placed in out-of-home care during their teens. *Journal of Child and Family Social Work, 13*, 144–155.

Vinnerljung, B., Sallnäs, M., & Kyhle-Westermark, P. (2001). *Sammabrott vid tonårsplaceringar - om ungdomar i fosterhem och på institution* [Breakdowns among placements of teenagers in out-of-home care]. Stockholm: Socialstyrelsen/CUS.

Vinnerljung, B., Öman, M., & Gunnarson, T. (2005). Educational attainments of former child welfare clients. *International Journal of Social Welfare, 14*, 265–276.

Vinnerljung, B., Hjern, A., Ringbäck Weitoft, G., Franzén, E., & Estrada, F. (2006). *Utsatthet bland barn och unga* [Children and young people at risk]. Social Rapport 2006 (pp. 243–300). Stockholm: Socialstyrelsen.

Vinnerljung, B., Hjern, A., & Lindblad, F. (2006). Suicide attempts and severe psychiatric morbidity among former child welfare clients - A national cohort study. *Journal of Child Psychology and Psychiatry, 47*, 723-733.

Vinnerljung, B., Berlin, M., & Hjern, A. (2010). Skolbetyg, utbildning och risker för ogynnsam utveckling hos barn [School performance, education, and risks for unfavourable development among children]. *Social Rapport 2010* (pp. 228–266). Stockholm: Socialstyrelsen.

Voisin, D., & Neilands, T. (2010). Low school engagement and sexual behaviors among African-American youth: Examining the influences of gender, peer norms and gang involvement. *Children and Youth Services Review, 32*, 51–57.

Werner, E. (1992). *Overcoming the odds*. Ithaca, New York: Cornell University Press.

Werner, E., & Smith, R. (2001). *Journeys from childhood to midlife. Risk, resilience, and recovery.* Ithaca, New York: Cornell University Press.

Zingraff, M., Leiter, J., Johnsen, M., & Myers, K. (1994). The mediating effect of god school performance on the maltreatment-delinquency relationship. *Journal of Research in Crime and Delinquency, 31*, 62-91.

Study II

NORDIC SOCIAL WORK RESEARCH
https://doi.org/10.1080/2156857X.2020.1749119

Routledge
Taylor & Francis Group

The relation between out-of-home care, early school failure, and premature mortality: a 30-year follow-up of people treated for substance misuse in Sweden

Marie Berlin[a], Ninive Von Greiff[b] and Lisa Skogens[b]

[a]Department of Sociology, Stockholm University, Stockholm, Sweden; [b]Department of Social Work, Stockholm University, Stockholm, Sweden

ABSTRACT

Evidence from Swedish and international studies show that a high proportion of children from out-of-home care (OHC) have poor school performance and that this is strongly associated with their substantial risk of adverse development in future life. However, risk factors for poor school performance and adverse development are difficult to disentangle since they are often interrelated and enforce each other over the life course. This study examines premature mortality in relation to early school failure (drop-out from compulsory school) and OHC experience in childhood (0–17 years of age) among clients who were in treatment for substance misuse in the early 1980s (N = 1,036). The analyses were based on record linkages between interview data collected during treatment and national register data covering approximately 30 years of follow-up, from exit from treatment until 2013. Our results showed that 54 per cent had been placed in OHC as children, half before their teens and half as teenagers. The OHC population had a higher prevalence of school failure compared with clients who had not been exposed to childhood OHC. OHC was associated with an excess mortality, although this was only significant for females who had entered OHC before their teens. Adjusting results for school failure reduced their excess mortality by half, and additional life course factors associated with mortality among people with substance misuse adjusted for most of the remaining excess mortality. School failure was strongly associated with the excess mortality of females, but not with the excess mortality of males.

KEYWORDS

Mortality; out-of-home care; foster care; substance misuse; school failure

Introduction

Out-of-home care (OHC) is a statutory intervention used by the social welfare services to protect children whose safety and welfare are at risk due to an adverse home environment or their own disruptive behaviour. Young people from OHC do often have a more disadvantaged social background than same-aged peers, especially those who enter OHC in young age where the reason for OHC relates to the parents' social problems (Vinnerljung and Andreassen 2015). Evidence from Swedish and international studies show that a substantially proportion of children in OHC have poor school performance (e.g. Kääriälä and Hiilamo 2017; Gypen et al. 2017) and that this is strongly associated with their excess risk of adverse outcomes in future life e.g. substance misuse (Berlin, Vinnerljung, and Hjern 2011; Frønes 2016). Education is also a main factor for future opportunities in modern societies due to its importance for establishment in the labour market

CONTACT Marie Berlin marie.berlin@sociology.su.se

(Hout and DiPrete 2006). This is especially valid for young people from disadvantaged social background. In labour market segments where other qualifications than education are decisive, social networks and ascribed characteristics become more important (Breen and Jonsson 2007).

The risk of adverse development in childhood and adolescence is often an accumulative process where different risk factors are linked and enforce each other (Ferraro, Schafer, and Wilkinson 2016). This makes it hard to disentangle different risk factors over the life course. In studies concerning the OHC population it is also difficult to find an adequate comparison group and avoid that OHC merely mediates a marginalized social background. In this study, we have overcome some of these methodological problems by using a study population who were in residential treatment due to substance misuse and thus, more homogenous in regards to background factors associated with substance misuse, for example, psychosocial factors (Stone et al. 2012). The entire study population (N = 1,036) participated in the Swedish Drug Addict Treatment Evaluation (SWEDATE) research project. The data material were collected during their time in residential treatment for substance misuse in Sweden in 1982–1983 and provided self-reported information on background factors over the life course such as living conditions, education, employment, and substance misuse. Follow-up data (mortality and criminal convictions) were retrieved from high quality national registers covering approximately 30 years, from exit from treatment until 2013. The aim of this study was to investigate: (1) the prevalence of early school failure (not finished compulsory school) in relation to OHC experience, and (2) how that related to the risk of premature mortality when controlling for life course factors associated with mortality among people with substance misuse. Sex-specific models were used since previous studies suggest that the mortality pattern differ between men and women with substance misuse (e.g. Tuchman 2010; Von Greiff et al. 2018; Skogens et al. 2018).

Previous research on school failure in the OHC population

Evidence from a vast body of research, show that poor school performance is prevalent in the OHC population (e.g. O'Higgins, Sebba, and Gardner 2017) and that leaving care without an adequate education is strongly associated with the excess risk of adverse outcomes in future life, for example, substance misuse and mortality (Kääriälä and Hiilamo 2017; Gypen et al. 2017). Early OHC is usually caused by neglect or maltreatment, and it is well known that early family environments are major predictors of children's cognitive and non-cognitive abilities (Heckman 2014). In comparison to the general population, there is a high prevalence of behavioural problems in the OHC population and evidence suggests that this is a risk factor for poor school performance in the OHC population (e.g. O'Higgins, Sebba, and Gardner 2017; Pears, Kim, and Brown 2018). Results from studies on the link between cognitive ability and poor school performance have been mixed (O'Higgins, Sebba, and Gardner 2017). In Swedish studies, the OHC population has been found to perform at a lower level than peers in the majority population regardless of cognitive ability (Vinnerljung, Berlin, and Hjern 2010) and accumulated knowledge gaps have been found to be the main factor behind children in OHC performing below their potential (Männistö and Pirttimaa 2018). In a recent review by O'Higgins and colleagues, the most consistent risk factors for poor school performance were male gender, ethnic minority status, behavioural problems and special education needs, while caregivers' involvement in schooling and children's aspirations and interest in school were the most consistent protective factors (O'Higgins, Sebba, and Gardner 2017).

Teen OHC experience is most often due to the child's own disruptive behaviour, for example, substance misuse and delinquency (Vinnerljung and Andreassen 2015), which is interlinked with poor school performance and might be regarded as a two-way street, since poor school performance may also cause conduct problems (Gustafsson et al. 2010). High levels of psychiatric problems and the use of psychotropic drugs in the OHC population have been found in recent studies, both while in care (Socialstyrelsen 2014) and after care (Vinnerljung and Hjern 2014; Zlotnick, Tam, and Soman 2012). Studies on the effect of school support interventions aimed at the OHC population

show that when school performance is boosted, behavioural problems decrease and interactions with friends and teachers improve as well as the children's self-esteem (Männistö and Pirttimaa 2018).

Previous research on predictors of mortality in the OHC population

Research on mortality in the OHC population is scarce (Manninen et al. 2015; Vinnerljung and Ribe 2001), presumably due to the lack of data. In 2014, the crude mortality rate was approximately three times higher among Swedish adolescents (aged between 16 and 26) with OHC experience compared to the general population without OHC experience (Socialstyrelsen 2016a). The OHC population's mortality rate has been fairly stable over the last few decades and in the cohorts born between 1960 and 1990 approximately 2 per cent were deceased by the age of 25 (Socialstyrelsen 2016b). Results from previous research suggest that the excess mortality compared to the general population occurs after the care has been terminated, with a later peak for females (after the age of 30) compared to males (23–28) (Manninen et al. 2015), and continues into midlife (Gao, Brännström, and Almquist 2017). In a Danish study, the mortality risk was approximately three times higher in the OHC population compared to peers in the majority population at the age of 27, with adjustment for parental background factors including psychiatric disorders, substance misuse, educational attainment, and unemployment (Nygaard Christoffersen 1999). Almquist et al. (2018) found that the OHC population lost almost a decade in life expectancy between the ages of 20 and 56 in comparison to peers in the majority population without OHC experience, and that school failure was strongly associated with the excess mortality. Evidence suggests that the risk factors for school failure and excess mortality are similar and intertwined with, for instance, behavioural disorders, substance misuse, and mental health problems including suicidal behaviour (Manninen et al. 2015; Nygaard Christoffersen 1999; Hjern, Vinnerljung, and Lindblad 2004; Kalland et al. 2001; Berlin, Vinnerljung, and Hjern 2011).

The excess mortality in the OHC population has been found to be primarily due to external causes such as substance misuse and injuries (intentional and unintentional). In a Swedish national cohort study, the risk of avoidable deaths (deaths from external causes and natural causes that could have been avoided with proper medical care) between the ages of 13 and 27 was three to four times higher in the OHC population compared to the majority population, which was partly due to the psychosocial characteristics of the original home environment (Hjern, Vinnerljung, and Lindblad 2004). When young people from a similar upbringing environment as the OHC population, but without OHC experience, were used as a comparison group in another Swedish study, the all-cause mortality risk between the ages of 19 and 26 for both groups was approximately twice as high compared with peers in the majority population (Vinnerljung and Ribe 2001). A Finnish study (Manninen et al. 2015) on mortality among teens who had been in residential care (on average, 15 years old at the baseline and 22 at the follow-up) found that all excess mortality in the residential care population was due to external causes, and that the single most common cause of death was substance-related. The risk of death from diseases and other medical conditions was not elevated in comparison with the majority population.

Material and methods

This study was based on record linkages between the SWEDATE data and two national registers: The National Cause of Death Register (CDR) held by the National Board of Health and Welfare, and the Register of Criminal Offences (RCO) held by The Swedish National Council for Crime Prevention. Data were linked by using the unique personal identity numbers given to all Swedish residents. The overall quality of the national registers is regarded as high. The SWEDATE data was originally collected through structured interviews by the Swedish Drug Addict Treatment Evaluation (SWEDATE) research project on people treated for substance misuse in 31 inpatient

treatment units in Sweden in the period 1982–1983 (Olsson 1988; Bergmark et al. 1994). Clients with different types of substance misuse were mixed at the treatment units and 1,163 of 1,656 clients participated in the research project. The main reason for non-response was dropout from treatment before the interview was initiated. The quality of the SWEDATE data has been found to be high according to an overall evaluation (Olsson 1988).

Participants lacking complete information on OHC experience (50 individuals) and completion of compulsory school (1 individual) were excluded from the study. The study population was also restricted to participants who entered treatment before the age of 36 (8% entered treatment at an older age; 36–55). With those restrictions, the study population consisted of 1,036 participants who were followed in the registers from the year of exit from treatment until death or the end of the follow-up (December 2013). Exit from treatment occurred during a fairly narrow timespan (1982–-1986). The outcome variable was death, retrieved from the CDR.

Study groups – out-of-home care experience during childhood

The study population was divided into three separate study groups according to OHC in childhood (0–17 years of age):

1) No OHC: No experience of OHC in childhood (N = 476).
2) Early OHC exposure: First placed in OHC before teens (at 0–12; N = 276).
3) Teen OHC exposure: First placed in OHC as a teenager (at 13–17; N = 284).

In total, 54 per cent (N = 560) had been placed in OHC as children, half before their teens and half as teenagers. Experience of OHC was defined according to self-reported experience of care except of 2 participants who were included in the teen OHC group since they entered the treatment for substance misuse that constituted our study population before they turned 18 years of age. The reason of early OHC is usually parents' social problems while the reason of teen OHC is usually the adolescent's own anti-social behaviour e.g. substance misuse (Vinnerljung and Andreassen 2015). Hence, in this study where the entire population was in residential care because of substance misuse, the distinction between the teen OHC group and the group without childhood OHC experience might only be the age of entry into care (or treatment).

Background variables

The choice of control variables was guided by prior research and the data available. All control variables apart from criminal convictions were retrieved from SWEDATE and refer to self-reported conditions collected using questions with fixed response options. School failure (dichotomous variable) refers to Not completed compulsory school education. No vocational training (dichotomous variable) and No regular employment > 1 year (dichotomous variable) covers the entire time period before treatment which varies in length depending on the age of the study subjects at their entry into treatment. Parental alcohol abuse (category variable) was created out of two separate questions concerning the respective alcohol consumption of the mother and father (birth, step, foster, or adoptive) during childhood (response options; absolutist; minor consumption; modest consumption; major consumption; and alcoholic). Parental alcohol abuse was defined as the respondent answering that the parents were alcoholics and measured in four mutually exclusive categories; both alcohol abuse; mother alcohol abuse; father alcohol abuse; and neither alcohol abuse. If there was only information on one of the parents, the category applies to that parent: 'Neither' if not alcoholic, or 'Mother' and 'Father' respectively if alcoholic. Psychiatric care and/or suicide attempts (dichotomous variable) were created out of two separate questions: one pertaining to having received psychiatric care (not including treatment for substance misuse) and one pertaining to suicide attempts. Daily contact with friends in the 12 months before intake (category variable) was created out of two separate questions on contacts with non-addict and addict friends respectively and measured in four mutually exclusive categories; no daily contact with friends; daily

contact only with addicts; daily contact only with non-addicts; and daily contact with both addicts and non-addicts. The predominant drug in the 12 months before intake (category variable) was divided into five mutually exclusive categories: Alcohol, Cannabis, Stimulants, Opiates and Other, according to the respondents self-reported predominant drug for that period (for more details on the categories, see Von Greiff et al. 2018).

Crime active years and Years in prison (both time-dependent variables) were retrieved from the RCO which holds information on criminal offences that have been settled by a public prosecutor or a court. Crime active years refers to number of calendar years, from exit from treatment until censoring, with convictions (one or several) regardless of the type of crime and sanction. Years in prison (incarceration) refers to the penalty period according to the sentence even though the actual time in prison is usually 2/3 of the penalty period.[1]

Statistical analysis

The analyses were made in the SAS software package. Survival analyses were performed with the use of Cox regression (PROC PHREG) to estimate the mortality risks (Table 3). The analyses followed an approach where models were fitted in three steps in order to examine the relation between the risk factors of interest. Model 1 only included OHC experience, school failure was added in Model 2, and all control variables were included in Model 3. In Model 3, 41 men and 21 women were excluded due to missing information on specific covariates (8 vs. 2 on parental alcohol abuse, 11 vs. 7 on psychiatric care and/or suicide attempts, 24 vs. 14 on daily contact with friends last 12 months). Left-truncated age (person days) was used as the timescale, starting at the age at exit from treatment (baseline age), and ending at the age at death or the end of the follow-up (December 2013). The reason behind the choice of age as the timescale was to avoid bias which might occur when age is associated with the covariates (Canchola et al. 2003). Participants who were older than 35 when they entered the treatment for substance misuse (8% were excluded) were excluded from the study since we were interested in premature mortality. Sensitivity analyses were carried out by using different age restrictions and with similar results as those presented in the article.

The time-dependent variables (Crime active years and Years in prison) were handled with the counting process method (Allison 2010) where the study subjects were represented with multiple records where each record corresponded to a time interval during which the covariates remained constant. Crime active years was measured as the cumulative number of years with criminal offences, and Years in prison as the cumulative penalty period (continuous).

Ethics

This research was scrutinized and approved by the Ethical Review Board in Stockholm, Sweden (2015/329-31/5, 2015/1205-32, 2016/542-32/5).

Results

Table 1 presents OHC experience in the study population, where 27 per cent had been placed in early OHC and 27 per cent in teen OHC, adding to a total of 54 per cent in childhood OHC. Teen OHC was more prevalent among female participants compared to male participants. The OHC experience differ between individuals and within the study groups, some stayed in OHC for a short period of time, while others stayed in OHC for most of their childhood, some stayed in one type of OHC while others stayed in various types of OHC (i.e. foster care, children's home, or residential school). The participants in the early OHC group might also have been in OHC as teenagers, since the definitions of the study groups refer to the age at first entry into OHC.

[1]Based on the penalty Act (SFS 1974:202).

Table 1. OHC experience in the study population. Percent and means.

	Men			Women			All		
	No OHC	Early OHC	Teen OHC	No OHC	Early OHC	Teen OHC	No OHC	Early OHC	Teen OHC
Age at entry in OHC (mean)	.	7.4	15.0	.	6.0	15.0	.	7.0	15.0
Type of OHC (%)									
Foster care, family care	10	78	63	11	78	62	10	78	62
Children's home	1	66	32	.	68	39	1	67	34
Residential school	4	45	40	2	44	25	3	45	34
All three types of OHC	1	44	17	0	44	18	1	44	17
Number of OHC periods (mean)									
Foster care, family care	1.5	2.7	2.0	1.3	3.4	1.7	1.5	2.9	1.9
Children's home	1.0	2.0	1.6	.	2.2	1.4	1.0	2.1	1.5
Residential school	2.7	2.9	1.7	1.0	1.8	1.5	2.5	2.6	1.6
All three sorts	2.0	5.1	2.9	1.2	5.2	2.3	1.8	5.1	2.7
Number (N)	**341**	**192**	**181**	**135**	**84**	**103**	**476**	**276**	**284**
Percent in study groups	**48**	**27**	**25**	**42**	**26**	**32**	**46**	**27**	**27**

In the early OHC group, the average age at first entry into OHC was 7.0 years of age and they had on average been in OHC 5.1 times during their childhood (78% had been in foster care, 67% in children's home (response options also included homes for boys or girls and school homes), 45% in residential school (cf. approved school), and 44% in all three types of OHC). The proportions of various types of OHC do not add up to 100 per cent since many have been in different types of OHC during childhood. In the teen OHC group, the average age at first entry into OHC was 15.0 years of age and they had on average been in OHC 2.7 times during their childhood (62% had been in foster care, 34% in children's home, 34% in residential school, and 17% in all three types of OHC). Some of those who had not been placed in OHC during their childhood i.e. the No OHC group in Table 1, had been placed in OHC as young adults (18–19 years of age) as a correcting or supportive measure due to e.g. substance misuse or criminality.

Table 2 presents the variables used in the analysis. Participants who experienced OHC in childhood had a higher prevalence of school failure (i.e. had not completed their compulsory school education) than peers with no childhood OHC exposure. Differences between study groups were greater among females than males. The high proportion of school failure in the OHC groups was not compensated by vocational training outside school, which was also less common in the OHC groups compared to peers. The proportion who had never had a regular job for a year (or more) was almost twice as high in the OHC groups compared to peers without childhood OHC experience. Parental alcohol abuse was most common in the early OHC group.

The teen OHC group was on average younger than the two other study groups at intake to treatment, and females were younger than males. Stimulants were more common as the predominant drug (12 months before intake) among males with childhood OHC experience (both early OHC and teen OHC), and females with experience of early OHC, compared to peers with no experience of OHC in childhood. Opiates were less common among females with early OHC experience as compared to peers. Psychiatric care (including suicide attempts) was more common in the OHC groups compared to peers without OHC exposure. The vast majority (more than 90%) had a criminal record (criminal offences according to the RCO) and the OHC groups at a slightly higher rate than those without OHC experience.

The percentage of deceased in the study population is presented both by study group and by school failure. Males with early OHC exposure had the highest proportion of deceased (47%) and females without OHC exposure the lowest proportion (20%). Among females, the proportion of deceased was higher among those with school failure compared to those who had completed their compulsory school education in all three study groups. That was not the case among males where the proportion of deceased among those who had failed at school was only higher in the non-OHC exposure group.

Table 2. Distribution of background factors. Per cent (%).

	Men			Women			All		
	No OHC	Early OHC	Teen OHC	No OHC	Early OHC	Teen OHC	No OHC	Early OHC	Teen OHC
Age at intake (mean years)	26.0	26.2	24.7	24.6	23.7	22.3	25.6	25.4	23.8
Parental alcohol abuse									
Missing information	1	2	1	1	.	.	1	1	1
Both	0	4	.	1	7	4	1	5	1
Mother	1	3	2	2	8	5	1	5	3
Father	17	21	10	18	17	14	17	20	11
Neither	81	70	87	77	68	78	80	70	83
Not finished compulsory school*	13	28	27	15	43	32	14	33	29
No vocational training*	58	67	72	68	73	80	61	69	75
No regular employment > 1 year*	22	42	48	37	62	67	26	48	55
Psychiatric care or suicide attempts*	34	51	39	39	68	54	36	56	44
Predominant drug last 12 months									
Alcohol	23	22	24	16	19	17	21	21	21
Cannabis	27	25	22	13	19	16	23	23	19
Stimulants	30	38	37	38	45	37	32	40	37
Opiates	17	9	13	27	13	24	20	10	17
Other	4	6	4	7	4	6	5	5	5
Daily contact last 12 months									
Missing information	5	2	2	4	4	5	5	3	3
Neither addicts nor non-addicts	17	14	14	26	17	12	20	15	13
Only with non-addicts	10	6	10	7	6	5	9	6	8
Only with addicts	57	66	58	54	68	67	56	66	61
Both with addicts & non-addicts	11	12	15	9	6	12	11	10	14
Criminal convictions after exit from treatment									
Years in prison (mean)	2.1	3.1	3.1	0.4	0.8	0.6	1.6	2.4	2.2
Crime active years (mean)	5.9	8.7	8.6	4.5	5.0	4.0	5.5	7.6	6.9
No criminal offences (not in RCO)	6	2	2	19	8	15	10	4	6
Combination of psychiatric care & school failure									
None	55	35	44	52	17	30	54	29	39
Only school failure	9	14	14	8	12	13	9	13	14
Only psychiatric care	30	36	27	33	39	36	31	37	30
Both	4	14	12	7	29	18	5	18	14
Deceased at end of 2013	41	47	45	20	35	23	35	43	37
Among:									
No school failure	40	47	46	17	29	16	33	42	35
School failure	50	46	44	35	42	39	45	44	42
Total number (N)	**341**	**192**	**181**	**135**	**84**	**103**	**476**	**276**	**284**

* Dichotomous variable.

Table 3 presents the mortality risks (HR) in three different models, the first model without adjustment for control variables, model 2 with adjustment for school failure, and model 3 with adjustment for all control variables included in this study. The unadjusted mortality risk (measured as hazard ratios, HR) was higher among males in the OHC groups compared to males without childhood OHC experience (Model 1), albeit not to a significant extent. The OHC group's excess mortality was higher among females, albeit only to a significant extent for the early OHC group (Model 1: HR = 1.84).

There was a significant association between school failure and the mortality risk of females (Model 2: HR = 2.14) and adjusted for nearly half of the excess mortality risk associated with early OHC exposure (Model 1 vs. Model 2: HR = 1.84 vs. HR = 1.40). For males, school failure was not a prominent risk factor for the mortality risk and accordingly had a minor influence on the excess mortality risk among males with OHC experience. For females, the excess mortality risk associated with school failure remained significant when additional factors (parental alcohol abuse, vocational training, work experience, psychiatric care, predominant drug, social networks, criminal convictions and prison time) were included in the analysis (Model 3: HR = 1.98), while the excess mortality associated with OHC experience almost disappeared. For both females and males, alcohol

Table 3. Mortality risks (HR). Cox regression with age-scale.

	Men						Women					
	Model 1		Model 2		Model 3		Model 1		Model 2		Model 3	
	HR	P	HR	P	HR	P	HR	P	HR	P	HR	P
Childhood OHC												
No	1 (ref.)		1 (ref.)		1 (ref.)		1 (ref.)		1 (ref.)		1 (ref.)	
Early	1.13	0.38	1.12	0.42	0.85	0.29	1.84	<.05	1.40	0.24	1.06	0.87
Teen	1.24	0.13	1.23	0.15	1.01	0.94	1.38	0.26	1.23	0.47	1.04	0.91
School failure*			1.07	0.62	0.95	0.73			2.14	<.01	1.98	<.05
Parental alcohol abuse												
Both					2.12	0.11					3.08	<.05
Mother					0.86	0.72					1.26	0.71
Father					0.95	0.73					0.94	0.86
Neither					1 (ref.)						1 (ref.)	
No vocational training*					0.92	0.50					0.98	0.95
No regular employment > 1 year*					1.32	<.05					1.49	0.17
Psychiatric care and/or suicide attempts*					1.28	<.05					1.55	0.10
Predominant drug last 12 months												
Alcohol					1.50	<.05					2.22	<.05
Cannabis					1.19	0.33					0.43	0.18
Stimulants					1 (ref.)						1 (ref.)	
Opiates					2.46	<.01					2.55	<.01
Other					1.44	0.26					2.37	0.15
Daily contact last 12 months												
Neither addicts nor non-addicts					1.19	0.49					1.17	0.78
Only with non-addicts					0.90	0.73					1.43	0.62
Only with addicts					1.37	0.15					1.48	0.43
Both with addicts & non-addicts					1 (ref.)						1 (ref.)	
Criminal convictions after exit from treatment												
Years in prison (time-dependent)					0.93	<.01					0.93	0.39
Crime active years (time-dependent)					1.12	<.01					1.15	<.01
Total number (N)	**714**		**714**		**673**		**322**		**322**		**301**	

** Dichotomous variable.*

abuse and opiate abuse 12 months before intake to treatment were associated with an excess mortality as compared to stimulants. No regular employment (for at least a year) and previous psychiatric care was associated with an excess mortality, although this was only significant for males. Furthermore, there was a strong link between involvement with the criminal justice system after exit from treatment and the mortality risk, both for males and females. There was a positive association between the number of crime active years (time-dependent) and the mortality risk, while there was a negative association between time in prison (time-dependent) and the mortality risk, although it was only significant for males.

Table 4. Mortality risks (HR). Cox regression with age-scale.

	Men		Women	
	Model 3		Model 3	
	HR	P	HR	P
Combination of psychiatric care & school failure*				
None	1 (ref.)		1 (ref.)	
Only school failure	0.79	0.24	2.64	<.05
Only psychiatric care	1.18	0.23	1.80	0.08
Both	1.41	0.08	2.76	<.01

* Adjusted for the same variables as in Table 3, Model 3, but with psychiatric care and school failure as a combined variable instead of two independent variables.

We combined school failure and previous psychiatric care in a separate analysis (Table 4). These results were in line with the analysis using independent variables, and previous psychiatric care was a more prominent risk factor for the excess mortality of males than school failure, although the combined categories were not significant. For females, school failure was still strongly associated with mortality regardless of whether it was combined with previous psychiatric care or not (HR = 2.76 vs. HR = 2.64).

Discussion

The present study investigated the relationship between childhood OHC, school failure and mortality among participants who were in treatment for substance misuse in Sweden in the early 1980s. First, our results showed that 54 per cent of the participants had experienced OHC during childhood. The corresponding proportion in the general population was approximately 4 per cent (Vinnerljung and Andreassen 2015). Second, school failure was more prevalent among those who had been in OHC compared with peers without OHC exposure. Third, without adjustment for control variables, childhood OHC was associated with an excess risk of mortality, albeit a modest link in males and only statistically significant in females in the early OHC group. Fourth, school failure was associated with an excess mortality among females, but not among males, and the inclusion of school failure in the analysis adjusted for half of the excess mortality associated with early OHC among females. Fifth, the strong association between school failure and mortality among females remained after adjusting for additional background factors known to be associated with mortality among people with substance misuse, while almost none of the excess mortality risk associated with early OHC remained.

In summary, the relation between childhood OHC, school failure, and premature mortality differed between the female and male participants. For female participants, there was an excess mortality associated with early OHC which seemed to be mediated through school failure, parental alcohol abuse, own alcohol or opiate misuse, and criminality. For male participants, childhood OHC and school failure were not significantly associated with an excess mortality, instead the significant risk factors were no regular employment, psychiatric care and/or suicide attempts, own alcohol or opiate misuse, and criminality. A similar gender difference in the linkage between childhood disadvantage and social exclusion in the general population has been reported in a previous Swedish study i.e. no direct link between social problems in the family of origin and educational achievements for men but for women. Overall, the results showed no direct links between childhood disadvantage and social exclusion, instead the effects were mediated by other risk factors over the life course (Bäckman and Nilsson 2011).

The high prevalence of childhood OHC experience in the study population, including early OHC exposure, confirms previous research that identifies OHC as a risk factor for substance misuse in adolescence and adulthood (e.g. Kääriälä and Hiilamo 2017; Gypen et al. 2017) and that this in turn is one reason for their excess mortality compared to the general population (Hjern, Vinnerljung, and Lindblad 2004; Manninen et al. 2015). However, it has been argued that general population studies that compare individuals with and without OHC experience merely mediate a marginalized social upbringing rather than a negative influence caused by OHC (cf. Vinnerljung and Ribe 2001). This study manages to deal with this criticism to a certain extent since one adverse outcome – substance misuse – applies to the entire study population rendering the study population more homogenous with regard to background factors associated with substance misuse, for example, psychosocial factors (Stone et al. 2012). Hence, the present study adds to previous research by showing that early childhood OHC was significantly associated with an excess mortality for females – also among individuals with documented substance misuse – and that school failure adjusted for half of their excess mortality.

Our results also support the large body of research that shows a high prevalence of poor school performance in the OHC population as compared with peers (e.g. O'Higgins, Sebba, and Gardner

2017) and adds to these findings by concluding that this was also valid among participants in treatment for substance misuse. Among females with early OHC experience, the proportion failing at school was almost three times higher than for females without OHC experience. Evidence from previous research suggests that children whose birth parents have substance misuse enter care at a younger age and stay in OHC for longer periods of time (Von Borczyskowski, Vinnerljung, and Hjern 2013). Our results showed that parental alcohol abuse was more common in the early OHC group than in the other study groups and that there was a link to excess mortality in the study subjects when both parents had abused alcohol during their childhood, albeit only statistically significant in females.

Even though the high proportion of school failure in the OHC groups is consistent with previous research, the differences between females and males were reversed. Generally, males have higher rates of school failure than females, both in the OHC population (O'Higgins, Sebba, and Gardner 2017) and in the general population (OECD 2018). In our study population, school failure was more common among females than among males in the OHC groups, and equally common among females and males without OHC experience. This implies that school failure was a more prominent risk factor for substance misuse among females (if we assume no gender bias in self-reported information on school failure) which resulted in a higher prevalence of school failure among female participants. This is also consistent with the strong association between school failure and mortality among female participants, indicating that the females in our study population were more marginalized than the males.

The excess mortality risk among female participants with early OHC experience, as compared with peers without OHC experience, was halved when results were adjusted for school failure. Even though school failure might be a mediator for all sorts of problems during compulsory school years, it is also likely to be a confounder for a less successful transition into adulthood and, thus, for greater difficulties in recovering from substance misuse. Vocational training did not compensate for the high prevalence of school failure in the OHC population and was less common in the OHC population, as was previous regular employment where there was a significant link (no regular employment) with the mortality of males as found in previous research (Evans et al. 2015).

The strong association between school failure and mortality among females remained when additional risk factors where included in the analysis. However, the remaining excess mortality associated with OHC disappeared. Previous research has shown that the excess mortality in the OHC population occurs after OHC has been terminated and is primarily due to external causes related to drug abuse, delinquency, and psychiatric problems (Manninen et al. 2015; Nygaard Christoffersen 1999; Hjern, Vinnerljung, and Lindblad 2004). Psychiatric problems and use of psychotropic drugs are highly prevalent in the OHC population (Socialstyrelsen 2014) and a risk factor for school failure (O'Higgins, Sebba, and Gardner 2017; Pears, Kim, and Brown 2018). Our results confirmed previous research that suggests that psychiatric problems are also a risk factor for premature mortality (e.g. Ravndal, Lauritzen, and Gossop 2015) and that females tend to have a higher prevalence of psychosocial problems than males when entering treatment (e.g. Tuchman 2010). When school failure and psychiatric care were treated as independent variables, there was only a significant link between psychiatric care and an excess mortality in males. We performed an interaction between previous psychiatric care and school failure in the last step of our analysis, which showed that these factors enhanced each other although the association was modest among males, and school failure alone remained a prominent risk factor in females. The vast majority in the study population also had a criminal record and as shown in previous studies, criminal activity was strongly associated with excess mortality (cf. Elonheimo, Sillanmäki, and Sourander 2017), while time in prison was associated with a decreased mortality risk (cf. Bacak and Wildeman 2015). Unlike a previous mortality study using the same data (Skogens et al. 2018), there was no significant link between the social network variable (daily contact with addicts and non-addicts) and the mortality risk in males, which is in all likelihood a consequence of the criminal activity variable in the analysis.

Adverse development is often an accumulative process where different risk factors are linked and enforce each other over the life course (e.g. Ferraro, Schafer, and Wilkinson 2016; Bäckman and Nilsson 2011). Our results showed that the OHC population did not only constitute a large proportion of the participants in treatment for substance misuse, they also had a higher prevalence of school failure as well as other adverse outcomes over the life course (e.g. psychiatric care, no regular employment, and criminal activity) compared with participants without OHC experience. This highlights the importance of early measures to identify and prevent an adverse development while children are in OHC. Preventing school failure is vitally important for improving children's future opportunities as well as their wellbeing and self-esteem at present. There are promising results from support programmes which aim at improving school performance among children in care. Tutoring programs have so far had the best empirical support but several other interventions have also shown good results. Furthermore, results indicate that when school performance is boosted, behavioural problems decrease and relations with friends and teachers improve (Forsman and Vinnerljung 2012; Männistö and Pirttimaa 2018). Even though education is not the only yardstick for a successful transition into adulthood, there is reason to believe that this is especially important for young people from OHC since many will have weak support as they enter adulthood. Evidence shows that there is a gap between the needs of young people ageing out from care and the support they receive from the society, and that these patterns cut across countries and time (Cameron et al. 2012; Höjer and Sjöblom 2010). Yet, intervention studies are scarce and far more research is needed on how to improve future opportunities for children and youth from OHC.

Strengths and limitations

The strengths of this study were that we had a long follow-up period, approximately 30 years, and rich data material covering life course factors combined with national register data of high quality on mortality and criminal convictions. It also included the majority of clients that were treated for problems with drug abuse in Sweden in the early 1980s. An unavoidable limitation is that the long follow-up implicates that the OHC took place more than three decades ago (before 1982). However, evidence from Swedish data suggests that the prevalence of school failure and early death have remained stable throughout this period (Socialstyrelsen 2016a, 2016b). A more prevailing limitation is that we underestimated the mortality among the participants since we did not follow them from the substance use debut, and since the main reason for not being interviewed was dropout from treatment before the interview, which might indicate a more progressed abuse and a higher prevalence of adverse outcomes in this group. We may also have underestimated the excess mortality in the OHC groups compared to the group without OHC experience since previous research shows that the OHC groups have an excess mortality immediately after leaving OHC (Manninen et al. 2015). Another limitation is that the background information is self-reported, but that is also what makes the data material rich on information. The results in the tables are presented as descriptive statistics, rather than inferential statistics, since our study population is neither a random sample nor a total population, and thus the results should be interpreted with caution.

Acknowledgments

We are grateful to Professor Anders Bergmark, Department of Social Work, Stockholm University, who was a member of the research team leading the SWEDATE-project and who have supported the present follow-up project.

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

This research was funded by Forskningsrådet om Hälsa, Arbetsliv och Välfärd (Grant # 2015-00980).

References

Allison, P. D. 2010. *Survival Analysis Using SAS: A Practical Guide*. 2nd ed. Cary, NC: SAS Institute .

Almquist, Y. B., J. Jackisch, H. Forsman, K. Gauffin, B. Vinnerljung, A. Hjern, and L. Brännström. 2018. "A Decade Lost: Does Educational Success Mitigate the Increased Risks of Premature Death among Children with Experience of Out-of-home Care?" *Journal of Epidemiology and Community Health* 72 (11): 997–1002. doi:10.1136/jech-2018-210487.

Bacak, V., and C. Wildeman. 2015. "An Empirical Assessment of the "Healthy Prisoner Hypothesis." *Social Science & Medicine* 138: 187–191. doi:10.1016/j.socscimed.2015.05.039.

Bäckman, O., and A. Nilsson. 2011. "Pathways to Social Exclusion: A Life Course Study." *European Sociological Review* 27 (1): 107–123. doi:10.1093/esr/jcp064.

Bergmark, A., B. Björling, L. Grönbladh, B. Olsson, L. Oscarsson, and V. Segreus. 1994. "Klienter i institutionell narkomanvård. Rapport I Socialt arbete nr 66." 2nd ed. (*Clients in in-patient substance abuse treatment. Report in Social Work no 66*).

Berlin, M., B. Vinnerljung, and A. Hjern. 2011. "School Performance in Primary School and Psychosocial Problems in Young Adulthood among Care Leavers from Long Term Foster Care." *Children and Youth Services Review* 33 (12): 2489–2497. doi:10.1016/j.childyouth.2011.08.024.

Breen, R., and J. O. Jonsson. 2007. "Explaining Change in Social Fluidity: Educational Equalization and Educational." *American Journal of Sociology* 112 (6): 1775–1810. doi:10.1086/508790.

Cameron, C., S. Jackson, H. Hauari, and K. Hollingworth. 2012. "Continuing Educational Participation among Children in Care in Five Countries: Some Issues of Social Class." *Journal of Education Policy* 27 (3): 387–399. doi:10.1080/02680939.2011.644811.

Canchola, A. J., S. L. Stewart, L. Bernstein, D. W. West, R. K. Ross, D. Deapen, R. Pinder, P. Reynolds, W. Wright, and H. Anton-Culver. 2003. *Cox Regression Using Different Time-scales*. San Francisco (CA): Western Users of SAS Software San Francis.

Elonheimo, H., L. Sillanmäki, and A. Sourander. 2017. "Crime and Mortality in a Population-based Nationwide 1981 Birth Cohort: Results from the FinnCrime Study." *Criminal Behaviour and Mental Health* 27 (1): 15–26. doi:10.1002/cbm.1973.

Evans, E., A. Kelleghan, L. Li, J. Min, D. Huang, D. Urada, Y. Hser, and B. Nosyk. 2015. "Gender Differences in Mortality among Treated Opioid Dependent Patients." *Drug and Alcohol Dependence* 155 (1): 228–235. doi:10.1016/j.drugalcdep.2015.07.010.

Ferraro, K. F., M. H. Schafer, and L. R. Wilkinson. 2016. "Childhood Disadvantage and Health Problems in Middle and Later Life: Early Imprints on Physical Health?" *American Sociological Review* 81 (1): 107–133. doi:10.1177/0003122415619617.

Forsman, H., and B. Vinnerljung. 2012. "Interventions Aiming to Improve School Achievements of Children in Out-of-home Care: A Scoping Review." *Children and Youth Services Review* 34 (6): 1084–1091. doi:10.1016/j.childyouth.2012.01.037.

Frønes, I. 2016. "The Absence of Failure: Children at Risk in the Knowledge Based Economy." *Child Indicators Research* 9 (1): 247–260. doi:10.1007/s12187-015-9309-3.

Gao, M., L. Brännström, and Y. B. Almquist. 2017. "Exposure to Out-of-home Care in Childhood and Adult All-cause Mortality: A Cohort Study." *International Journal of Epidemiology* 46 (3): 1010–1017. doi:10.1093/ije/dyw295.

Gustafsson, J.-E., M. Allodi Westling, B. Alin Åkerman, C. Eriksson, L. Eriksson, S. Fischbein, Granlund, M., Gustafsson, P., Ljungdahl, S., Ogden, T. and Persson, R.S. 2010. *School, Learning and Mental Health: A Systematic Review*. Stockholm: Kungl. Vetenskapsakademien.

Gypen, L., J. Vanderfaeillie, S. De Maeyer, L. Belenger, and F. Van Holen. 2017. "Outcomes of Children Who Grew up in Foster Care: Systematic-review." *Children and Youth Services Review* 76: 74–83. doi:10.1016/j.childyouth.2017.02.035.

Heckman, J. J. 2014. "Skill Formation and the Economics of Investing in Disadvantaged Children." In *Social Stratification: Class, Race, and Gender in Sociological Perspective*, edited by D. B. Grusky, 412–416. Boulder, CO, USA: Westview Press.

Hjern, A., B. Vinnerljung, and F. Lindblad. 2004. "Avoidable Mortality among Child Welfare Recipients and Intercountry Adoptees: A National Cohort Study." *Journal of Epidemiology & Community Health* 58 (5): 412–417. doi:10.1136/jech.2003.014282.

Höjer, I., and Y. Sjöblom. 2010. "Young People Leaving Care in Sweden." *Child and Family Social Work* 15: 118–127. doi:10.1111/j.1365-2206.2009.00661.x.

Hout, M., and T. A. DiPrete. 2006. "What We Have Learned: RC28's Contribution to Knowledge about Social Stratification." *Research in Social Stratification and Mobility* 24 (1): 1–20. doi:10.1016/j.rssm.2005.10.001.

Kääriälä, A., and H. Hiilamo. 2017. "Children in Out-of-home Care as Young Adults: A Systematic Review of Outcomes in the Nordic Countries.." *Children and Youth Services Review* 79: 107–114. doi:10.1016/j.childyouth.2017.05.030.

Kalland, M., T. H. Pensola, J. Meriläinen, and J. Sinkkonen. 2001. "Mortality in Children Registered in the Finnish Child Welfare Registry: Population Based Study." *BMJ* 323 (7306): 207–208. doi:10.1136/bmj.323.7306.207.

Manninen, M., M. Pankakoski, M. Gissler, and J. Suvisaari. 2015. "Adolescents in a Residential School for Behavior Disorders Have an Elevated Mortality Risk in Young Adulthood." *Child and Adolescent Psychiatry and Mental Health* 9 (46): 1–7. doi:10.1186/s13034-015-0078-z.

Männistö, I. I., and R. A. Pirttimaa. 2018. "A Review of Interventions to Support the Educational Attainments of Children and Adolescents in Foster Care." *Adoption & Fostering* 42 (3): 266–281. doi:10.1177/0308575918791627.

Nygaard Christoffersen, M. 1999. "Risikofaktorer i barndommen – en forløbsundersøgelse særligt med henblik på forældres psykiske sygdomme." [Risk Factors in Childhood – A Longitudinal Study Focusing on Parents' Psychiatric Disorders]." *Køpenhavn 1999: Socialforskningsinstituttet* 99: 18.

O'Higgins, A., J. Sebba, and F. Gardner. 2017. "What are the Factors Associated with Educational Achievement for Children in Kinship or Foster Care: A Systematic Review." *Children and Youth Services Review* 79: 198–220. doi:10.1016/j.childyouth.2017.06.004.

OECD. 2018. *Equity in Education: Breaking down Barriers to Social Mobility.*. Paris: PISA, OECD Publishing.

Olsson, B. 1988. "Klienter i narkomanvård. [Clients in Substance Abuse Treatment]." (*Report on the SWEDATE-project. Working reports*), Swedish: Department of Education, Uppsala University No 136.

Pears, K. C., H. K. Kim, and K. L. Brown. 2018. "Factors Affecting the Educational Trajectories and Outcomes of Youth in Foster Care." In *Handbook of Foster Youth*, edited by E. Trejos-Castillo and N. Trevino-Schafer, 208–222. New York: Routledge.

Ravndal, E., G. Lauritzen, and M. Gossop. 2015. "A 10-year Prospective Study of Mortality among Norwegian Drug Abusers after Seeking Treatment." *Addiction Research & Theory* 6 (1): 1–6.

Skogens, L., N. von Greiff, M. Berlin, and A. Bergmark. 2018. "A 30-year Follow-up of Substance Misusers in Sweden – Differences in Predictors of Mortality between Women and Men." *Addiction Research and Theory* 27(4): 328–336.

Socialstyrelsen. 2014. *Förskrivning Av Psykofarmaka till Placerade Barn Och Ungdomar. [Prescription of Psychotropic Drugs to Children and Adolescence in Out-of-home Care.]*. Stockholm, Sweden: Socialstyrelsen.

Socialstyrelsen. 2016a. "Individ- och familjeomsorg – Lägesrapport 2016. [Individual and Family Care – Progress Report 2016]." (*no. 2016-2-22*). Stockholm, Sweden: Socialstyrelsen.

Socialstyrelsen. 2016b. "Statistical Fact Sheet on Out-of-home Care in Sweden 1975–2014." Unpublished.

Stone, A. L., L. G. Becker, A. M. Huber, and R. F. Catalano. 2012. "Review of Risk and Protective Factors of Substance Use and Problem Use in Emerging Adulthood." *Addictive Behaviors* 37 (7): 747–775. doi:10.1016/j.addbeh.2012.02.014.

Tuchman, E. 2010. "Women and Addiction: The Importance of Gender Issues in Substance Abuse Research." *Journal of Addictive Diseases* 29 (2): 127–138. doi:10.1080/10550881003684582.

Vinnerljung, B., and T. Andreassen. 2015. *Forskning i korthet: Barn och unga i samhällets vård – Forskning om den sociala dygnsvården*. [Research in Brief: Children and Young People in Societal Care – Research on Out-of-home Care]. Stockholm: Forte.

Vinnerljung, B., M. Berlin, and A. Hjern. 2010. "Skolbetyg, utbildning och risker för ogynnsam utveckling hos barn." [School Performance, Education, and Risks for Adverse Development among Children]." In Socialstyrelsen (Ed.) Social rapport 2010 (pp. 228-266). Stockholm: Socialstyrelsen.

Vinnerljung, B., and A. Hjern. 2014. "Consumption of Psychotropic Drugs among Adults Who Were in Societal Care during Their Childhood — A Swedish National Cohort Study." *Nordic Journal of Psychiatry* 68 (8): 611–619. doi:10.3109/08039488.2014.902501.

Vinnerljung, B., and M. Ribe. 2001. "Mortality after Care among Young Adult Children in Sweden." *International Journal of Social Welfare* 10 (3): 164–173. doi:10.1111/1468-2397.00169.

Von Borczyskowski, A., B. Vinnerljung, and A. Hjern. 2013. "Alcohol and Drug Abuse among Young Adults Who Grew up in Substitute Care — Findings from a Swedish National Cohort Study." *Children and Youth Services Review* 35 (12): 1954–1961. doi:10.1016/j.childyouth.2013.09.024.

Von Greiff, N., L. Skogens, M. Berlin, and A. Bergmark. 2018. "Mortality and Cause of Death – A 30-year Follow-up of Substance Misusers in Sweden." *Substance Use & Misuse* 53 (12): 2043–2051. doi:10.1080/10826084.2018.1452261.

Zlotnick, C., T. W. Tam, and L. A. Soman. 2012. "Life Course Outcomes on Mental and Physical Health: The Impact of Foster Care on Adulthood." *American Journal of Public Health* 102 (3): 534–540. doi:10.2105/AJPH.2011.300285.

Study III

Early school leaving by children in out-of-home care: A comparative study of three Nordic countries

Antti Kääriälä[a,*], Marie Berlin[b,c], Mette Lausten[d], Heikki Hiilamo[a,e], Tiina Ristikari[f]

[a] University of Helsinki, P.O. Box 18, FI-00014, Finland
[b] The National Board of Health and Welfare (Socialstyrelsen), Socialstyrelsen, SE-106 30 Stockholm, Sweden
[c] Department of Sociology, Stockholm University, SE-106 91 Stockholm, Sweden
[d] VIVE Social Unit, VIVE – The Danish Center for Social Science Research, Herluf Trolles Gade 11, DK-1052 Copenhagen K, Denmark
[e] Diaconia and Leadership Studies, VID Specialized University, Diakonveien 14, NO-0370 Oslo, Norway
[f] Children, Adolescents and Families Unit, National Institute for Health and Welfare (THL), Aapistie 1, FI-90220 Oulu, Finland

ABSTRACT

Previous studies have reported that children and adolescents who have been placed in out-of-home care for the protection of their safety and welfare face considerably high risks for early school leaving. Our study adds to the literature by comparing the association between children's exposure to placement in care and lack of secondary education (i.e. post-compulsory education after age 16) across three Nordic countries: Denmark, Finland, and Sweden. We use data from national registers for children born in 1987, following them until age 23. The datasets for Denmark (N = 55,995, of whom 3056 are in care), Finland (N = 58,855, of whom 1884 are in care), and Sweden (N = 100,152, of whom 3209 are in care) cover the entire birth cohort. To estimate and compare country-specific risks, we calculate average marginal effects from binary logistic regression and adjust the effects for birth mother's socio-economic and health-related background.

As expected, the results show that in each country, children placed in care had a significantly higher risk for early school leaving. After adjusting for maternal background, young adults who experienced out-of-home care were 24 to 39 percentage points more likely than their peers never in care to have not completed secondary education. Those placed in care for the first time at teenage were the most likely to have low attainment. In Finland and Sweden, children in care had a similar excess risk for early school leaving, whereas in Denmark the risk was higher. We discuss these results and recommend developing effective interventions to improve the educational attainment of children in care. The difference between Denmark and the other two requires further investigation.

Keywords: Child welfare, out-of-home care, educational attainment, cohort study, comparative study.

1. Introduction

Spanning several decades, a host of studies in Western countries have shown that children placed in out-of-home care by child welfare authorities (hereafter "children in care") are more likely to discontinue their educational career earlier than their peers (for review, Snow, 2009). The finding is also shared in the focus countries of this study, Denmark, Finland, and Sweden — knowledge intense economies, where entering adulthood without secondary education (or post-compulsory education after age 16) bears potentially far-reaching consequences for a young adult (Olsen, Egelund, & Lausten, 2011; Kestilä, Väisänen, Paananen, Heino, & Gissler, 2012b; Vinnerljung, Öman, & Gunnarson, 2005). Early school leaving affects opportunities to seek higher education and to find employment (e.g. Sipilä, Kestilä, & Martikainen, 2011), which are critical for a successful transition to independent adulthood. Low education also affects other life domains and is, for example, strongly associated with poorer health (Grossman, 2006).

Previous research has identified a number of factors associated with educational outcomes among children in care. A recent systematic review, focusing on children in foster and kinship care, investigated over 70 factors of educational outcomes among these children (O'Higgins, Sebba, & Gardner, 2017). The review categorized the identified correlates in four broader groups — child-related factors, birth family factors, care history factors, and school factors — thus showing that multiple sources influence educational outcomes. However, the review was unable to identify one factor that potentially correlates with the educational outcomes, namely national level characteristics.

To our knowledge, only a few previous studies have addressed national level factors' impact on the educational outcomes of children in care (Jackson & Cameron, 2012; Weyts, 2004). Despite significant variation in the ways countries organize care and education, these studies found limited evidence for cross-country variation in educational pathways (Jackson & Cameron, 2012) and in school performance (Weyts, 2004).

These findings, however, rely on a limited secondary analysis of statistics and qualitative interviews (Jackson & Cameron, 2012) and a set of small local samples of children in care (Weyts, 2004). Studies in the Nordic countries have

Available online 06 June 2018
Children and Youth Services Review 93 (2018) 186–195

consistently observed lower educational attainments among children in care, in comparison with peers never in care (Kääriälä & Hiilamo, 2017). Assessing the extent of the attainment gap across the countries is difficult because studies differ in parameters, such as study populations, outcomes, and measurement ages. Consequently, available research literature does not allow for assessing cross-country differences in the educational outcomes among former children in care internationally or within the Nordic region. Because national context may moderate education among children in care in varied ways, for example, through the influence of child welfare and educational policies, this gap in research impedes understanding the impact of national arrangements on the educational outcomes among these children.

To increase the knowledge on variation in the educational attainments of children in care, this study investigates the association between children's exposure to placement in out-of-home care and early school leaving in three Nordic welfare states, Denmark, Finland, and Sweden. These countries provide tax-funded universal services generally for all inhabitants, as discussed below, and share relatively similar institutional, social, and cultural traits. Using population-level birth cohort data combining several national registers, we examine the effect of out-of-home care on early school leaving—not completing post-compulsory secondary education (i.e. after age 16, defined in more detail below) by age 23—and adjust for a set of maternal confounders, including socio-economic background, mental health problems, and alcohol and drug abuse. To increase the comparability of the country-level findings, we control for the heterogeneity in placement experiences, and conduct the analysis not only for all children in care but also for four mutually exclusive subgroups. These subgroups include children placed in care before their teens for the short-, intermediate-, and long-term, as well as those placed as teenagers. Our definition of out-of-home care involves all children and adolescents who are placed outside their family homes before age 18 by child welfare agencies as a supportive intervention.

1.1. Children in out-of-home care in Denmark, Finland, and Sweden

Nordic child welfare policies prioritize early prevention and family preservation, along with partnerships and voluntary arrangements between authorities and families (Gilbert, 1997; Gilbert, Parton, & Skivnes, 2011). Placing children in care in Denmark, Finland, and Sweden is a measure of last resort, and authorities engage in it only after in-home services have proven i insufficient for securing a child's helath and development (Pösö, Skivenes, & Hestbæk, 2014). Although involuntary placements are legally possible, child welfare authorities execute a majority of the placements with parents' and child's consent (Andersen & Ebsen, 2010; Huhtanen, 2016; Socialstyrelsen, 2016). Nordic placement policies aim at family reunification, and thus children in care are rarely adopted but remain in the care system until the end of the placement or when they age out at age 18 (Socialstyrelsen, 2014). Sweden provides extended care until completing secondary education (i.e. post-compulsory secondary education) up to age 21. Denmark and Finland support those aging out with after-care placements until age 22 and 21, respectively. Implemeting child welfare measures in the three countries are the responsibility of local municipalities.

The percentage of children in care varied in 2013 from 1.0% in Denmark to 1.2% in Sweden and 1.4% in Finland (Nordic Social Statistical Committee Nososco, 2015). In comparison with the United States, each of these three countries placed children in care more frequently (Gilbert, Parton, & Skivenes, 2011). In addition, contrasting with placement incidences in the United States, where infants are at the highest risk of placement (Wildeman & Emanuel, 2014), in these Nordic countries teenagers have the highest risk of first entry into care (Fallesen, Emanuel, & Wildeman, 2014; Kestilä et al., 2012a; Socialstyrelsen, 2016; Thoburn, 2007). The high incidence of adolescent placements results from the Nordic policy by which child welfare is not only responsible for organizing care of individuals who are in need of protection because of adverse family backgrounds, it also provides services for children and adolescents with disruptive behavior that puts a child at a serious risk (Pösö, Skivenes, & Hestbæk, 2014). By disruptive behavior, we refer primarily to severe behavioral problems, delinquency, alcohol and drug abuse issues, or frequent truancy and other severe school-related difficulties.

Compared with their peers, children in care in these three countries come from more disadvantaged backgrounds. Their parents are, for example, more likely to be single parents and unemployed, to have lower education, and to live on social welfare (Ejrnæs, Ejrnæs, & Frederiksen, 2011; Franzén, Vinnerljung, & Hjern, 2008; Kestilä et al., 2012a). Children in care themselves suffer from learning difficulties (Iversen, Hetland, Havik, & Stormark, 2010), behavioral, and mental health problems more often (Egelund & Lausten, 2009). Correspondingly, the school performance in comprehensive education among these children falls behind that of their peers (Vinnerljung & Hjern, 2011), even when compared to peers with similar cognitive competence (Vinnerljung, Berlin, & Hjern, 2010). Children in care also experience more disadvantages through their early adulthood compared to their peers (Kääriälä & Hiilamo, 2017).

1.2. Nordic model of education

Educational systems in Denmark, Finland, and Sweden are similar in several important ways. The educational model of these countries builds on values or aims of democracy, equality, progressiveness, and pragmatism (Antikainen, 2006). Aiming at providing equal educational opportunities for all irrespective of background or disabilities, education at the comprehensive level (i.e. primary, middle and early high school in the United States) is compulsory, publicly funded, free of cost, and organized with low levels of streaming.

After completing comprehensive education, typically at age 16, 80% to 90% of students continue to secondary education without any gaps, or after an additional year in comprehensive education (Denmark and Finland), or through a preparatory secondary-level program (Sweden) (Cederberg & Hartsmar, 2013). Similar to comprehensive education, secondary education is publicly provided and free of cost, but voluntary. It consists of two tracks from which students can choose: general programs to prepare for higher education and more practical vocational programs aimed at working life. Completing secondary education takes typically three years or, in the case of the vocational track in Denmark, four years. Among the general population, by age 21 the completion rate of secondary education, in 2008, varied from 62% in Denmark to 82% in Finland and 83% in Sweden (Albæk et al., 2015). Among the 25- to 34-year-old population, rates between the countries converge, ranging from 83% in Denmark and Sweden to 90% in Finland, with 84% as the average across OECD countries in 2016 (OECD, 2017).

1.3. Hypothesis

Considering the similarities in child welfare and educational systems, we could expect limited cross-country differences in the educational attainment among children in care. However, providing a smoother transition from school

to work (Albæk et al., 2015; Bäckman, Jakobsen, Lorentzen, Österbacka, & Dahl, 2011), vocational programs in Denmark differ significantly from the ones in Finland and Sweden by including apprenticeship-based workplace training in addition to school-based training (Cederberg & Hartsmar, 2013). Norway has a similar apprentice-based training system of vocational education. In Norway, Dæhlen's (2017) findings suggest that child welfare clients (i.e. both those who receive in-home services and those in out-of-home care) have difficulties in obtaining apprenticeships, which prevents them from completing the program. Because the out-of-home care population is more likely to enter the vocational track than the academic track (Jackson & Cameron, 2012), the difficulty in finding apprenticeships may also be an obstacle to the attainment of secondary education for the Danish children in care. In addition, comparative research suggests that apprentice-based education in Denmark results in lower educational attainment at the general population level as well, which would also include children in the out-of-home care system (Albæk et al., 2015; Bäckman, Jakobsen, Lorentzen, Österbacka, & Dahl, 2011). Taking these considerations into account, we expect to observe lower educational attainment among children in care in Denmark, in comparison to Finland and Sweden.

2. Data and methods

Denmark, Finland, and Sweden have a tradition of collecting national administrative registers, which enable constructing high-quality research data. The registers are based on individually unique identification numbers that enable the linking of different registers concerning an individual and their family members into a single research dataset. In this study, we obtained longitudinal datasets drawn from the administrative registers listed in Table 1. Due to legislative restrictions on the data management, we were unable to merge the datasets of each country into a single data file. Therefore, each country team was responsible for the analysis of their dataset. We also tried to obtain comparable cohort data for Norway and Iceland but no such data were available.

2.1. Study population and subgroups

The study population comprised all persons born in Denmark, Finland, and Sweden in 1987. To include persons who were able to achieve and thus could have a secondary level degree record in educational registers, we included the population that was alive and living in the country at age 18. The final samples comprised 55,995 for Denmark (of whom 3056 had been placed in care), 58,855 for Finland (of whom 1884 were in care), and 100,152 for Sweden (of whom 3209 were in care). For the measurement of educational attainment, we followed the population until the end of 2010, when the cohort turned 23.

In our analysis, we compared the population that was never in care with the population that experienced care placement before age 18. Both of these groups include children who had received in-home child welfare services. We obtained the information on the placement

Table 1. Research data.

Maintained by	National register	Data retrieved
Denmark		
Statistics Denmark	The Danish population register	Sex Date of birth Definition of study population (i.e. all Danish residents in 2010 born in Denmark in 1987) Identifying birth-mothers of the children
	Register on children and Youth in out-of-home care (BUA)	Information on placements in out-of-home care[a]
	Danish education register	Children's educational attainment by 31th Dec. 2010 Birth-mothers' educational attainment by 31st Dec. 2008 (missing edu. when no information on DISCED level 20)
	Danish register on income and social assistance	Birth-mothers' social assistance recipiency in 1990–2004 (received soc. assistance for at least 180 days in 1 year)
	Danish psychiatric register	Birth-mothers' diagnosis of mental health problems and alcohol- and drug- abuse issues[b]
Finland		
National institute for health and welfare, THL	Medical birth register	Sex Identifying birth-mothers of the children
	Social assistance register	Birth-mothers' social assistance recipiency in 1990–2004 (received social assistance for at least 6 mon. in 1 year)
	The Finnish hospital discharge register	Birth-mothers' diagnosis of mental health problems and alcohol- and drug- abuse issues[b]
	Child welfare register	Information on placements in out-of-home care[a]
Statistics Finland	Education register	Children's educational attainment by 31th Dec. 2010 Birth-mothers' educational attainm. by 31st Dec. 2008
The Finnish population register centre	The Finnish population register	Place of residency Date of birth Information on deaths
Sweden		
Statistics Sweden	The Swedish population register	Sex Date of birth Definition of study population (i.e. all Swedish residents in 2010 that were born in Sweden in 1987)
	The multi-generation register	Identifying birth-mothers of the children
	The longitudinal integration database for health insurance and social studies (LISA)	Children's educational attainment by 31th Dec. 2010 Birth-mothers' educational attainm. by 31st Dec. 2004 Birth-mothers' social assistance recipiency in 1990–2004 (received over 50% of annual inc. as social assistance)
The national board of health and welfare	The child welfare Intervention register	Information on placements in out-of-home care [a]
	The national patient register	Birth-mothers' diagnosis of mental health problems and alcohol- and drug- abuse issues[b]

[a] Child's age at first placement and total length of time in care before age 18.

[b] International Statistical Classification of Diseases and Related Health Problems 9th and 10th revisions (ICD-9 and -10) diagnosis from inpatient hospital care from 1987 to 2004. Mental health problems are defined by ICD-9 codes 293–302, 306–309, 311–316 and ICD-10 codes F20–F69, F80–F99. Alcohol and drug abuse are defined by ICD-9 codes 291–292, 303–304, 3050, 3059, 980 and ICD-10 codes F10–F19.

sequences from the child welfare registers of each country. The registers include information on the beginning and ending dates of placements for all individuals placed in care from birth to age 18.

As discussed above, previous research has identified several care history factors associated with educational attainment among children in care. Nordic studies have observed that the timing of the first placement before and during adolescence divides children in care in terms of their educational attainments (Kestilä et al., 2012b; Olsen, Egelund, & Lausten, 2011; Vinnerljung, Öman, & Gunnarson, 2005). In addition, the length of time children spend in the care system ranges from days to entire childhoods, and thus reflects the varying responsibility that society assumes over the lives of children. For these reasons, in addition to running the analysis for all children in care, we categorized persons who experienced out-of-home care into the following four mutually exclusive subgroups, which aim to capture the combination of placement age and varying involvement with out-of-home care measures during childhood:

- Short-term care before teenage: first entry into care before age 13 with a total length of time in care less than one year.
- Intermediate-term care before teenage: first entry into care before age 13 with a total length of time in care at least one year but less than five years.
- Long-term care before teenage: first entry into care before age 13 with a total length of time in care at least five years.
- Placement at teenage: first entry into care at age 13 or later.

We did not divide the placement at teenage group by length of time in care for the reported analysis because our preliminary analysis showed no difference between the educational attainments of teenage placements for short and intermediate periods. In addition, we were unable to control for other potentially relevant characteristics of care history, such as reason for care entry or placement type.

2.2. Measurement of educational attainment

We measured educational attainment by UNESCO's International Standard Classification of Education (ISCED) as having not completed ISCED level three education—or secondary education—by the end of year 2010, when cohort members turned 23 (UNESCO Institute for Statistics (UIS), 2012). In other words, our definition for early school leaving includes those who have not completed compulsory education, those who have completed compulsory education but no more than that, and those who have entered secondary education but did not complete a program of study.

2.3. Control variables

We were able to include five commensurate control variables to take into account the differences in the vulnerabilities associated with family background of out-of-home care population and non-care population. These included sex and the following four birth mother variables, of which each mother-related characteristic has been identified as a risk factor of placement in care (Simkiss, Stallard, & Thorogood, 2013). The included socio-economic factors in particular are associated with lower educational outcomes in studies on the general population level (e.g. Lyche, 2010).

2.3.1. Mother's education

We measured birth mother's educational level in three categories according to the highest attained qualification: 1) compulsory level (no ISCED level 3); 2) secondary education (ISCED level 3 and 4); and 3) post-secondary education (ISCED level 5 or higher). In addition, we included a forth category, missing, for mothers who had no information on educational attainment in the registers. Due to the availability of the data, the exact time of measurement varies to some extent between countries, as presented in Table 1.

2.3.2. Mother's social assistance

To control for birth family's long-term economic distress, we measured whether the birth mother received social assistance (a last-resort minimum income scheme) over two consecutive years from 1990 to 2004. Because of the nature of the register information, the definition of the recipiency of social assistance during one calendar year varies to some extent between the countries, as specified in Table 1.

2.3.3. Mother's mental health problems

The variable indicates whether the birth mother received any mental and behavioral disorder diagnosis from inpatient hospital care from 1987 to 2004 (see Table 1 for included diagnoses).

2.3.4. Mother's alcohol and drug abuse

The variable indicates whether the birth mother was ever in in-patient hospital care for alcohol- and drug-related disorders from 1987 to 2004, thus indicating primarily severe abuse issues (see Table 1 for included diagnoses).

2.4. Analysis

To estimate and compare the country-specific risks of the lack of secondary education, we estimated the effects of out-of-home care by binary logistic regression modeling. Due to legislative restrictions on data management, we analyzed individual country data separately and then collated the country results for comparison. We present the association between experience in care and early school leaving as average marginal effects (AME), which indicate in percentage points the predicted differences in outcome probability between those who experienced care and those who were never in care. Unlike odds ratios, AME estimates are comparable across countries (Mood, 2010), specifically given the relatively homogenous levels of secondary education in the study countries. We adjusted the models for child's sex and four birth-mother–related confounders: education, receipt of social assistance, mental health problems, and alcohol and substance abuse. We estimated all models for Denmark with Stata version 14 using margins command. For Sweden, we used R for Windows (version 3.3.2) with mfx package's mfx command. To ensure similar computations between the two programs, we ran the analysis for Finland with both of these programs (Stata version 14.2 and R version 3.4.2) and found corresponding results.

3. Results

3.1. Descriptive results

Table 2 describes the characteristics of the study population. Compared with the peers never in care, young adults who experienced placement in care faced early school leaving frequently in all three countries. However, the countries showed notable variation in the extent to which children in care did not complete secondary education. Finnish children were the most likely to complete their education (14% of the non-care population and 57% of the in-care population had no secondary education), whereas their Danish peers were the least likely to finish their education (24% in the non-care population and 76% in the in-care population). Swedish results fell in the middle, with 17% of the non-care population and 61% of those in care not completing their education.

Table 2
Descriptive statistics.

	General population never in care			All in care			First entry at age 0–12.9, time in care < 1 year			First entry at age 0–12.9, time in care 1–4.9 years			First entry at age 0–12.9, time in care ≥ 5 years			First entry at age 13–17.9		
Country N	Denmark 52,939	Finland 56,971	Sweden 96,943	Denmark 3056	Finland 1884	Sweden 3209	Denmark 320	Finland 261	Sweden 549	Denmark 490	Finland 197	Sweden 439	Denmark 693	Finland 538	Sweden 654	Denmark 1553	Finland 888	Sweden 1567
Only primary education, %	24.0	13.5	17.0	75.7	56.6	61.1	62.2	39.5	41.9	75.7	57.9	64.0	74.3	49.8	53.1	79.1	65.6	70.5
Sex, %																		
Female	48.8	48.8	48.8	45.7	50.7	52.5	43.1	43.7	48.1	40.6	44.2	44.4	41.4	44.6	48.0	49.8	58.0	58.1
Male	51.2	51.2	51.2	54.3	49.3	47.5	56.9	56.3	51.9	59.4	55.8	55.6	58.6	55.4	52.0	50.2	42.0	41.9
Mean age at first placement, years	–	–	–	11.0	10.7	10.5	4.1	8.2	5.7	7.3	7.8	7.1	6.5	5.5	5.0	15.6	15.3	15.5
Mean duration in out-of-home care, years	–	–	–	3.4	4.3	3.2	0.4	0.3	0.3	2.8	2.6	2.8	9.2	11.3	10.7	1.7	1.5	1.3
Mothers education, %																		
Primary	23.5	14.8	12.6	48.8	42.9	31.7	44.7	39.5	28.4	51.8	51.8	35.5	62.6	58.4	42.4	42.6	32.5	27.2
Secondary	39.9	45.3	50.9	28.7	44.0	49.1	30.6	46.7	52.6	27.3	38.1	47.8	16.2	37.4	40.4	34.3	48.5	51.9
Higher	33.8	39.9	35.3	12.1	13.1	11.8	16.3	13.8	12.9	11.8	10.2	9.3	5.6	4.3	3.1	14.3	18.9	15.8
Missing	2.8	–	1.3	10.3	–	7.4	8.4	–	6.0	9.0	–	7.3	15.6	–	14.2	8.8	–	5.0
Mother's social assistance recipiency, %	34.1	7.7	26.2	75.2	55.4	84.6	82.5	59.4	88.5	82.7	68.5	92.0	84.0	77.0	94.0	67.4	38.2	77.2
Mother's mental health problems, %	1.7	3.0	2.9	10.8	19.8	21.0	6.9	25.3	27.7	12.4	20.8	27.1	16.6	30.3	31.7	8.4	11.6	12.4
Mother's alcohol and drug use issues, %	1.5	0.7	0.8	10.2	14.6	16.5	10.6	14.6	13.7	10.8	16.2	27.1	20.8	28.6	33.5	5.2	5.9	7.5

The variation in the level of early school leaving between subgroups showed a similar pattern in all three countries. Children who were placed at age 0 to 12 for less than a year in total were the strongest performing group. Second and third best performers were, respectively, those placed before teenage for long-term care of at least five years and those placed before teenage for intermediate duration of at least a year but less than five years. Lastly, those placed at teenage were the least likely subgroup to complete secondary education. Despite the similar pattern between the four subgroups in each country, the variation in the likelihood of having no secondary education between subgroups differed, with the widest in Sweden (42%–71%), second widest in Finland (40%–66%), and narrowest in Denmark (62%–79%). In addition, in Denmark each of the four subgroups were less likely to complete secondary education than in Finland and Sweden.

Birth mother characteristics demonstrate a similar pattern in each country. Demonstrating the high-risk backgrounds of children in care, these young people were more likely to have mothers who had low education, received social assistance, and experienced mental health problems or alcohol or drug abuse issues. However, mothers' characteristics vary between the four subgroups of children in care. Among those placed at age 0 to 12, mothers' education level decreases and social assistance recipiency and alcohol and drug abuse issues become more common with the increase in the length of time in care. Those placed at age 0 to 12 for long-term care generally had the most disadvantaged mothers by all measured variables. In contrast, those placed as teenagers were more likely than those placed at age 0 to 12 to have mothers who are less dependent on social welfare and exhibit fewer alcohol and drug abuse issues.

3.2. Average marginal effects

Table 3 shows the average marginal effects on the risk of early school leaving when comparing children in care with the population never in care (hereafter, AME). Among all in care, children in Finland and Sweden were in a similar manner more likely not to complete secondary education than the non-care population; in Denmark their risk was even higher. Presenting the predicted difference between those in care and those never in care in percentage points, AMEs varied from 0.52 in Denmark (95% CI 0.50–0.53) to 0.44 in Sweden (95% CI 0.42–0.46) and 0.43 in Finland (95% CI 0.41–0.45). Reflecting the differing impact of background characteristics between the countries, adjusting for sex, along with birth mother's education, social assistance recipiency, mental health problems, and alcohol and drug abuse attenuated the effects in each country in varying degrees. With the Danish children in care experiencing the most elevated risk of early school leaving, the adjusted AMEs ranged from 0.24 in Sweden (95% CI 0.22–0.26) and 0.27 in Finland (95% CI 0.25–0.29) to 0.39 in Denmark (95% CI 0.38–0.41).

Examining the four subgroups of children in care demonstrated that among those placed as teenagers, the unadjusted effects were rather similar, showing that in each country these adolescents had a corresponding elevated risk of early school leaving. Their risk was the highest among the four subgroups of children in care and ranged from 0.52 to 0.55 in the three countries. Adjusting for background characteristics attenuated the AMEs more in Sweden (AME 0.37; 95% CI 0.35–0.40) than in Finland (AME 0.42; 95% CI 0.39–0.46) and Denmark (AME 0.46; 95% CI 0.44–0.49), leading to a difference that is statistically significant between Sweden and Denmark.

The effects among the three subgroups placed in care at age 0 to 12 in each country demonstrated a distinct pattern in which those in care for short term and long term were more likely to complete their education compared to those in care for intermediate term. This pattern was most visible in Sweden, where those in care for short term had the lowest excess risk for achieving no secondary education (adjusted AME 0.07; 95% CI 0.04–0.10), quite closely followed by those in care for long term (adjusted AME 0.11; 95% CI 0.08–0.14). Those in care for intermediate duration had a more pronounced risk (adjusted AME 0.23; 95% CI 0.18–0.27).

Finally, AMEs for those placed at age 0 to 12 showed that of the three countries, those in Denmark are at the highest risk of early school leaving. After adjustments, AMEs for those placed at age 0 to 12 in Finland and Sweden ranged from 0.07 to 0.23 depending on the time spent in care, whereas in Denmark the effects varied between 0.24 and 0.37. Moreover, comparing AMEs between Finland and Sweden in each of the three subgroups placed at age 0 to 12 showed no substantial differences between the two countries.

4. Discussion

In this study, we investigated the risk of children in out-of-home care to attain no secondary education by age 23 compared with their peers in Denmark, Finland, and Sweden. This is the first comparative national population study on this association. Our general findings confirmed the previous

Table 3
Average marginal effects (AME) with 95% confidence intervals (CI) for the lack of secondary education among children in out-of-home care by age 23 by country.

	Model 1						Model 2					
	Denmark		Finland		Sweden		Denmark		Finland		Sweden	
	AME	95% CI	AME	95% CI	AME	95% CI	AME	95% CI	AME	95% CI	AME	95% CI
All in care (ref. never in care)	0.517	0.502–0.533	0.431	0.409–0.454	0.441	0.424–0.458	0.394	0.375–0.413	0.270	0.246–0.294	0.240	0.223–0.257
By subgroups of all in care (ref. never in care)												
First entry at age 0–12.9, time in care < 1 year	0.382	0.329–0.436	0.260	0.201–0.318	0.248	0.207–0.288	0.236	0.182–0.289	0.094	0.050–0.139	0.067	0.038–0.096
First entry at age 0–12.9, time in care 1–4.9 years	0.518	0.480–0.556	0.441	0.373–0.509	0.465	0.421–0.509	0.372	0.325–0.418	0.217	0.154–0.280	0.225	0.182–0.268
First entry at age 0–12.9, time in care ≥ 5 years	0.504	0.471–0.536	0.362	0.320–0.403	0.358	0.320–0.395	0.321	0.281–0.361	0.121	0.087–0.155	0.108	0.078–0.138
First entry at age 13–17.9	0.551	0.531–0.572	0.519	0.488–0.550	0.532	0.509–0.554	0.463	0.438–0.487	0.421	0.387–0.455	0.373	0.347–0.399
N	55,995		58,855		100,152		55,995		58,855		100,152	

Model 1: No adjustments.
Model 2: Adjusted for sex and the following birth mother's characteristics: education, social assistance recipiency, mental health problems, and alcohol and drug abuse issues.

results reported in the literature (Kääriälä & Hiilamo, 2017; Snow, 2009): in all three countries, experience of placement in care in childhood is associated with a significantly higher risk for early school leaving. The finding holds true both before and after adjusting for child's sex and birth-mother–related confounders—education, social assistance recipiency, and mental health and alcohol and drug abuse problems. When adjusting for these background factors, young adults who experienced out-of-home care as children were, depending on the country, 24 to 39 percentage points more likely to have no secondary education than their peers never in care. Thus, the found association not only results from sex and mother's lower socio-economic background or health issues, but it reflects children's other experiences or characteristics that harm these youths' educational opportunities. Despite the unfavorable overall results, many children in care do attain a secondary degree.

In comparison with the population never in care, we found a similar pattern of variation in all study countries across the educational attainments of the four subgroups of children in care. First, those entering care for the first time during adolescence had substantially elevated risks compared to those placed at younger age, particularly in Finland and Sweden. This finding is in line with previous studies from Finland and Sweden (Heino & Johnson, 2010; Kestilä et al., 2012b; Vinnerljung, Öman, & Gunnarson, 2005). One study in Denmark also found an excess risk for teenagers when compared with children placed before adolescence, but not when compared with the youngest age group of children entering care (aged 0–5), who had the highest risks of low education (Olsen, Egelund, & Lausten, 2011).

The result that the most elevated risk for early school leaving is among teenagers is critical because, as our descriptive observations also show, teenagers in the Nordic countries are at the highest risk of first entry into out-of-home care (Fallesen, Emanuel, & Wildeman, 2014; Kestilä et al., 2012a; Socialstyrelsen, 2016; Thoburn, 2007). The fact that these youth experience the highest risk of low attainment is most likely attributable in part to child-related issues, as opposed to family factors, which those placed as teenagers in particular have (Delfabbro, Barber, & Cooper, 2002; Heino, Hyry, Ikäheimo, Kuronen, & Rajala, 2016). These issues include difficulties at school and behavioral problems, both of which also often contribute to the initiation of placement in care and would thus affect these youths' education whether they entered care or not. Another potential explanation for low attainment is that placement in care during adolescence, along with placement instability, causes school mobility, which may disrupt these youths' educational career at a crucial time (Mehana & Reynolds, 2004). While we cannot speculate as to what would have happened to those placed as adolescents if they had not been placed in care, low educational attainment by these youth suggests that the benefits of placement for their education remain limited.

We found another pattern among those placed in care before teenage. In all three countries, particularly in Finland and Sweden, those in care for a short term (less than one year in total) and those in care for a long term (at least five years) were more likely to attain a secondary degree than those in care for an intermediate term (at least one year but less than five years). This result holds true both before and after adjusting for sex and birth mother's background. As a contrasting observation, we noted that among those in long-term care, birth mother's education was lower, and the mother received social assistance and experienced alcohol and drug abuse issues more often. This suggests an association between adverse familial factors and placement duration in those placed before teenage. Adverse family factors in turn could be expected to affect children's educational attainments. For these reasons, it seems possible that long-term placements protect against family adversities and thus provide educational benefits.

We should avoid, however, strong conclusions based on our study because the results may be confounded by selection effects or other factors we are unable to account for. Results from several reviewed studies with strong methodological designs suggest no significant association between length of time in care and educational outcomes (O'Higgins, Sebba, & Gardner, 2017), which warrants caution when interpreting our findings. However, evidence does suggest that entering care early can be beneficial for educational outcomes when care provides long-term stability (Sebba et al., 2015). The attainment of secondary education among those in long-term care in our study may thus result from the combination of protection and stability that care provides for many of those children. Consequently, taking the length of placement in-to account in our analysis should be understood primarily as a control for the highly varying extent to which society assumes responsibility for securing the best interest of these younger children in care. As such, the duration of a placement is a crucial element in understanding the educational outcomes among these children because the most extensive public interventions are not associated with the worst outcomes, although family adversities among those children might suggest that.

Given the similarities in the child welfare and educational systems, the results allow benchmarking of the countries' policies in promoting educational attainment among the particular risk group of children exposed to placement measures. Comparing the outcomes of children in care between the three countries showed, as hypothesized, that Denmark performs worse than Finland and Sweden. Examining the four subgroups of in-care population also demonstrated the weakest attainments for Danish children in each subgroup, specifically for those placed before adolescence, irrespective of their placement duration. A limitation of the Danish child welfare register is that in addition to child welfare placements, the register includes health-related placements (e.g. persons with intellectual disabilities), which might confound the results. Although we are unable to disentangle health-related placements from child welfare placements, our findings may not be an artifact of statistical practices. We argue that the results point to actual differences between Denmark and Finland or Sweden in the educational attainment of children in care, for two reasons.

First, as discussed in the Introduction, child welfare clients' difficulties in finding apprenticeships in Denmark's vocational track may lead to early school leaving among Danish children in care. Dæhlen (2017) has suggested this mechanism as a reason for child welfare clients' lower graduation level in vocational education in Norway, which has an apprentice-based system similar to Denmark. In Norway, child welfare clients who completed the first two years of school-based training were less likely to continue to apprenticeships than students without a child welfare background, even after taking several selection factors into account. The author suggests that this may result from employers' discrimination towards child welfare clients or from child welfare clients' lack of networks needed in finding an apprenticeship (Dæhlen, 2017). This mechanism is also in line with results from a comparative study that observed lower graduation rates in both Denmark and Norway in comparison to Finland and Sweden (unpublished manuscript by Dæhlen, Kääriälä, Berlin, Lausten, and Hiilamo based on more limited data than this study).

Second, the cross-country differences among children in care may reflect similar cross-country variation observed on the general population level (Albæk et al., 2015; Bäckman, Jakobsen, Lorentzen, Österbacka, & Dahl, 2011). Albæk et al.

(2015) has observed that in Denmark (and Norway) students in vocational education are less likely to complete the program, and that young adults seem to attain secondary education at a somewhat later age than in Finland and Sweden (see also Bäckman, Jakobsen, Lorentzen, Österbacka, & Dahl, 2011). The authors attribute this to the apprentice-based vocational education track used in Denmark (and Norway). The lower level of completed education by the general population in Denmark (and Norway), however, is not necessarily visible in a lower participation rate in education and employment during young adulthood, although the evidence is inconclusive (Albæk et al., 2015; Bäckman, Jakobsen, Lorentzen, Österbacka, & Dahl, 2011). Children in care in Denmark, therefore, may not have significantly lower likelihood of finding employment, or completing secondary education, as they may do that at a later age than in Finland and Sweden. In conclusion, because children in care are more likely to choose the vocational track than the general track (Jackson & Cameron, 2012), both of these mechanism discussed above may explain lower educational attainment of children in care in Denmark, in comparison to the two other countries — although long-term educational outcomes and labor market effects among the in-care population remain unclear.

4.1. Strengths and limitations

The strengths of our study include the use of large nationwide birth-cohort data that has none of the typical problems of nonresponse or attrition biases. In addition, unlike many studies in this area, we were able to analyze several subgroups of children in care and to control for several birth mother's characteristics. Our study has, however, a number of limitations. First, our analysis of children's characteristics and experiences remain limited because we were unable to control for reasons for care entries and care histories (e.g. placement types such as foster family or residential care). Indeed, the in-care populations may be somewhat different in the three countries because in Denmark a higher percentage of the cohort experienced placement in care than in Finland and Sweden. However, assessing how this difference between in-care populations affects the outcomes is out of the scope of this study. Notwithstanding, as mentioned above, we did control for age at first entry and length of time in care, which redresses some of the potential variation between the in-care populations. Moreover, observing that mother-related background characteristics all point in the same direction in the three countries, we have no reason to assume significant cross-country differences across the in-care populations.

Second, the Danish child welfare register includes health-related placements in addition to child welfare placements, and we cannot distinguish between these two. Therefore, the comparison between Denmark and the other two countries should be interpreted with caution and requires further investigation. Third, the Finnish child welfare register includes complete placement information from 1987 onwards only for those who were in care also in 1991 or later; the register fails to include those who had placements only before 1991 and not beyond. Because this limitation affects a small share of all placements, it has a limited effect on the overall results. Of those placed before teenage, only those in the short-term and intermediate-term care sub-groups are affected.

Fourth, our mother-related confounders, drawn from administrative registers, are limited in their scope because they only capture officially recorded incidences of economic hardship, mental health problems, and alcohol and drug abuse. Fifth, our study only included persons born in these countries and hence cannot speak to the question of educational attainment among first-generation immigrant children in care. Lastly, because of legal restrictions, we completed the analysis on separate datasets for each country. However, we estimated average marginal effects to allow comparisons between the countries (Mood, 2010).

4.2. Implications for research and practice

Although research, policy, and practice have started to realize the concern, children in care remain a high-risk group for early school leaving in the Nordic countries studied; however, they do demonstrate considerable heterogeneity in attainment levels depending on their care histories. Specifically, low attainments are typical among those who experience their first entry into care as teenagers. International research on the outcomes of out-of-home care mostly focuses on children placed before adolescence because that placement age is the most typical in many countries. As a result, processes that lead to poor outcomes for those placed as adolescents have received less attention. Thus, more research is required on these youth — who, in the Nordic countries, comprise the majority of first placements, and a likewise significant share elsewhere (e.g. Ubbesen, Gilbert, & Thoburn, 2015). How do family, individual characteristics, child welfare policy and practices, and school experience influence their education?

In this study, we observed the cohort members' educational attainment until they reached 23 years of age. To expand the findings, future research should address how often children in care make progress in education beyond that age and how their educational attainment affects labor market outcomes in later life, preferably with a comparative approach (see Albæk et al., 2015; Bäckman, Jakobsen, Lorentzen, Österbacka, & Dahl, 2011). Moreover, we recommend research specifically in Denmark to scrutinize the educational attainments of children in care and to investigate whether the apprentice-based system discussed above presents difficulties for children receiving child welfare services as has been suggested in Norway (see Dæhlen, 2017).

Our results suggest differences in educational attainment across relatively similar countries belonging to the same welfare regime, the socio-democratic regime (Esping-Andersen, 1990). These findings contrast with two previous comparative studies of children in care that found no solid evidence for divergent educational outcomes between countries of different regimes (Jackson & Cameron, 2012; Weyts, 2004). In finding limited cross-country variation, Weyts (2004) suggested that global comparisons may result in little improvement in understanding on how different welfare systems affect the educational outcomes. An important difference between Weyts' (2004) study and ours is that Weyts used a small sample totaling 179 observations, while we exploited nationwide population data covering entire birth cohorts. Correspondingly, the use of more representative data, combined with the use of more sophisticated statistical analysis, may benefit cross-regime comparisons.

Ensuring better education for children in care is a key to improving their long-term outcomes in a multitude of life domains. Consequently, both social work and education sectors should prioritize and cooperate closely to advance the education among these children. Our study demonstrates that children in care are a heterogeneous population in terms of their care experience and educational attainments, which should reflect in the policies aimed at improving their educational outcomes. For those in care for longer periods, targeted educational interventions while in care are one promising route (Forsman & Vinnerljung, 2012). Moreover, in cases where parents' poor condition is likely to prevent family reunification, measures that provide for more stability and sense of permanency, such as adoption, may be beneficial for the child (Vinnerljung & Hjern, 2011). In the Nordic countries, where child welfare policy prioritizes family preservation and reunification, children who have been placed in long-term care remain in the care system until aging out almost without exception. Evidence on the effectiveness of more permanent solutions is promising but limited within the region (Vinnerljung & Hjern, 2011), and thus considerations of their wider implementation should be supported by further research.

The high placement incidence among adolescents implies that in-home interventions in their current form are inadequate for many older children. To promote prevention, predictors of adolescent risk behavior, such as delinquency, alcohol and drug abuse, or truancy, should be addressed more effectively by early interventions. Because of low educational attainments among adolescents placed in care, measures to promote their education while in care should be evaluated and, if necessary, reformed. Another significant group of children in care are those who age out and need strong support in their transition to adulthood (e.g. Höjer & Sjöblom, 2010). Stronger support for children aging out from care can indeed improve their educational outcomes (Courtney & Hook, 2017). Because of the possibility of extended care for those aging out in Sweden and after-care in Denmark and Finland, the care systems in these countries have an established structure to strengthen support for youths stepping to independence. These opportunities should be fully utilized, and the system should even consider providing support for education beyond that. Finally, while aiming at better educational outcomes for those in care, child welfare policies, and social policy at large, should promote basic level services and community support that help prevent the circum-stances that lead to placements in out-of-home care and low educational outcomes.

To conclude, our study adds to the literature on educational attainment and children in care by its comparative longitudinal study design and by its use of representative, nationwide data. While providing an overview of national outcomes, our reliance on register data that is primarily constructed for other than research purposes does limit conclusions.

The findings suggest, however, that in Denmark the risk of early school leaving among children in care is pronounced in comparison to Finland and Sweden. This indicates that even within one welfare regime and a relatively homogenous sociocultural region, national arrangements may differ to the extent that they affect educational outcomes of children in care. Thus, our study highlights the need to understand country-specific arrangements when generalizing results from one country to another. Specifically, our study raises the question of whether the cross-country difference in attainment levels stems from differences between the apprentice-based vocational education in Denmark and the school-based vocational programs of Finland and Sweden. To answer this question, and to further estimate the effects of early adulthood educational attainment on later educational attainment and employment, further research is required. While pointing to cross-country variation, we also note that, across different groups of children in care, patterns in outcomes can be relatively similar. Therefore, interventions developed in one country for a particular group of children in care should be studied in other countries and, with relevant modifications to national context, tested for effectiveness.

Declaration of interest

None

Acknowledgements

This study was supported by the Otto A. Malm Foundation and the Jenny and Antti Wihuri Foundation. In addition, the work has benefited from the Academy of Finland (grant number 288960) and Academy of Finland funded PSYCOHORTS consortium (grant number 308556). The sponsors had no role in study design; in the collection, analysis and interpretation of data; in the writing of the report; or in the decision to submit the article for publication. The authors would like to thank Marianne Dæhlen, Elina Pekkarinen, and Reijo Sund, commentators in various seminars and conferences, as well as the four anonymous reviewers for their valuable comments and suggestions to improve the quality of this paper.

References

Albæk, K., Asplund, R., Barth, E., Lindahl, L., von Simson, K., & Vanhala, P. (2015). *Youth unemployment and inactivity: A comparison of school-to-work transitions and labour market outcomes in four Nordic countries* (TemaNord 2015:548). Copenhagen, Denmark: Nordic Council of Ministers. Retrieved from http://norden.diva-portal.org/smash/get/diva2:852123/FULLTEXT01.pdf.

Andersen, S. H., & Ebsen, F. (2010). Foranstaltninger for udsatte børn i Danmark: Historisk oprindelse og den seneste udvikling. In S. H. Andersen (Ed.). *Når man anbringer et barn: Årsager, stabilitet i anbringelsen og det videre liv* (pp. 13–41). Odense, Denmark: University Press of Southern Denmark.

Antikainen, A. (2006). In search of the Nordic model in education. Scandinavian *Journal of Educational Research, 50*(3), 229–243. https://doi.org/10.1080/00313830600743258.

Bäckman, O., Jakobsen, V., Lorentzen, T., Österbacka, E., & Dahl, E. (2011). *Dropping out in Scandinavia social exclusion and labour market attachment among upper secondary school dropouts in Denmark. Finland, Norway and Sweden* (working paper 2011:8). Stockholm, Sweden: Institute for Futures Studies. Retrieved from https://ideas.repec. org/p/hhs/ifswps/2011_008.html.

Cederberg, M., & Hartsmar, N. (2013). Some aspects of early school leaving in Sweden, Denmark, Norway and Finland. *European Journal of Education, 48*(3), 378–389. https://doi.org/10.1111/ejed.12036.

Courtney, M. E., & Hook, J. L. (2017). The potential educational benefits of extending foster care to young adults: Findings from a natural experiment. *Children and Youth Services Review, 72*, 124–132. https://doi.org/10.1016/j.childyouth.2016.09.030.

Dæhlen, M. (2017). Transition from school-based training in VET. *Education and Training, 59*(1), 47–60. https://doi.org/10.1108/ET-10-2015-0096.

Delfabbro, P. H., Barber, J. G., & Cooper, L. (2002). Children entering out-of-home care in South Australia: Baseline analysis for a 3-year longitudinal study. *Children and Youth Services Review, 24*(12), 917–932. https://doi.org/10.1016/S0190-7409(02)00252-9.

Egelund, T., & Lausten, M. (2009). Prevalence of mental health problems among children placed in out-of-home care in Denmark. *Child & Family Social Work, 14*(2), 156–165. https://doi.org/10.1111/j.1365-2206.2009.00620.x.

Ejrnæs, M., Ejrnæs, M., & Frederiksen, S. (2011). Risk factors of entry in out-of-home care:An empirical study of Danish birth cohorts, 1981–2003. *Child Indicators Research, 4*(1), 21–44. https://doi.org/10.1007/s12187-010-9066-2.

Esping-Andersen, G. (1990). *The three worlds of welfare capitalism.* Cambridge, UK: Polity Press.

Fallesen, P., Emanuel, N., & Wildeman, C. (2014). Cumulative risks of foster care placement for Danish children. *PLoS One, 9*(10), e109207. https://doi.org/10.1371/journal.pone.0109207.

Forsman, H., & Vinnerljung, B. (2012). Interventions aiming to improve school achievements of children in out-of-home care: A scoping review. *Children and Youth Services Review, 34*(6), 1084–1091. https://doi.org/10.1016/j.childyouth.2012.01. 037.

Franzén, E., Vinnerljung, B., & Hjern, A. (2008). The epidemiology of out-of-home care for children and youth: A national cohort study. *British Journal of Social Work, 38*(6),1043–1059. https://doi.org/10.1093/bjsw/bcl380.

Gilbert, N. (Ed.). (1997). *Combatting child abuse: International perspectives and trends.* New York, NY: Oxford University Press.

Gilbert, N., Parton, N., & Skivenes, M. (Eds.). (2011). *Child protection systems: International trends and orientations.* New York, NY: Oxford University Press.

Grossman, M. (2006). Education and nonmarket outcomes. In E. A. Hanushek, & F. Welch (Vol. Eds.), *Handbook of the economics of education. Vol. 1. Handbook of the economics of education* (pp. 577–633). St. Louis, MO: Elsevier.

Heino, T., Hyry, S., Ikäheimo, S., Kuronen, M., & Rajala, R. (2016). *Lasten kodin ulkopuolelle sijoittamisen syyt, taustat, palvelut ja kustannukset: HuosTa-hankkeen (2014–2015) päätulokset* [Reasons, backgrounds, services and costs concerning the placing of children outside the home. Main results from the HuosTa Project (2014–2015)](Report 3/2016). Helsinki, Finland: National Institute for Health and Welfare (THL).

Heino, T., & Johnson, M. (2010). *Huostassa olleet lapset nuorina aikuisina* [Children taken into care as young adults]. In U. Hämäläinen, & O. Kangas (Eds.). Perhepiirissä [within the family]Helsinki, Finland: Kelan tutkimusosasto. Retrieved from https://helda.helsinki.fi/bitstream/handle/10138/17471/Perhepiirissa.pdf.

Höjer, I., & Sjöblom, Y. (2010). Young people leaving care in Sweden. *Child & Family Social Work, 15*(1), 118–127. https://doi.org/10.1111/j.1365-2206.2009.00661.x.

Huhtanen, R. (2016). Vapaaehtoinen vai tahdonvastainen huostaanotto [Taking into care voluntarily or involuntarily]. In R. Enroos, T. Heino, & T. Pösö (Eds.). *Huostaanotto: Lastensuojelun vaativin tehtävä* [Taking into care: The most demanding duty of child welfare]. Tampere, Finland: Vastapaino.

Iversen, A. C., Hetland, H., Havik, T., & Stormark, K. M. (2010). Learning difficulties and academic competence among children in contact with the child welfare system. *Child & Family Social Work, 15*(3), 307–314. https://doi.org/10.1111/j.1365-2206.2009. 00672.x.

Jackson, S., & Cameron, C. (2012). Leaving care: Looking ahead and aiming higher. *Children and Youth Services Review, 34*(6), 1107–1114. https://doi.org/10.1016/j.childyouth.2012.01.041.

Kääriälä, A., & Hiilamo, H. (2017). Children in out-of-home care as young adults: A systematic review of outcomes in the Nordic countries. *Children and Youth Services Review, 79*, 107–114. https://doi.org/10.1016/j.childyouth.2017.05.030.

Kestilä, L., Paananen, R., Väisänen, A., Muuri, A., Merikukka, M., Heino, T., & Gissler, M. (2012). Kodin ulkopuolelle sijoittamisen riskitekijät: Rekisteripohjainen seurantatutkimus Suomessa vuonna 1987 syntyneistä. [Risk factors for out-of-home care. A longitudinal register-based study on children born in Finland in 1987]. *Yhteiskuntapolitiikka, 77*(1), 34–52. Retrieved from https://www.julkari.fi/handle/10024/102955/.

Kestilä, L., Väisänen, A., Paananen, R., Heino, T., & Gissler, M. (2012). Kodin ulkopuolelle sijoitetut nuorina aikuisina. Rekisteripohjainen seurantatutkimus Suomessa vuonna 1987 syntyneistä. [Children placed in out-of-home care as young adults. A register-based follow-up study on children born in 1987 in Finland]. *Yhteiskuntapolitiikka, 77*(6), 599–620. Retrieved from http://www.julkari.fi/handle/10024/100138/.

Lyche, C. (2010). *Taking on the completion challenge: A literature review on policies to prevent dropout and early school leaving (OECD Education Working Papers, No. 53)*. Paris, France: OECD Publishinghttps://doi.org/10.1787/5km4m2t59cmr-en.

Mehana, M., & Reynolds, A. J. (2004). School mobility and achievement: A meta-analysis. *Children and Youth Services Review*. https://doi.org/10.1016/j.childyouth.2003.11.004.

Mood, C. (2010). Logistic regression: Why we cannot do what we think we can do, and what we can do about it. *European Sociological Review, 26*(1), 67–82. https://doi.org/10.1093/esr/jcp006.

Nordic Social Statistical Committee Nososco (2015). *Social protection in the Nordic countries 2013/2014—Scope, expenditure and financing (version 60:2015)*. Copenhagen, Denmark: Author. Retrieved from http://norden.diva-portal.org/smash/get/diva2:882555/FULLTEXT01.pdf.

OECD (2017). *Education at a glance 2017: OECD indicators*. Paris, France: Author.

O'Higgins, A., Sebba, J., & Gardner, F. (2017). What are the factors associated with educational achievement for children in kinship or foster care: A systematic review. *Children and Youth Services Review, 79*, 198–220. https://doi.org/10.1016/j.childyouth.2017.06.004.

Olsen, R. F., Egelund, T., & Lausten, M. (2011). *Tidligere anbragte som unge voksne [Children in out-of-home care as young adults] (report 11:35)*. Copenhagen, Denmark: SFI–Det Nationale Forskningscenter for Velfærd. Retrieved from https://pure.sfi.dk/ws/files/236772/1135_Tidligere_anbragte_som_unge.pdf.

Pösö, T., Skivenes, M., & Hestbæk, A. D. (2014). Child protection systems within the Danish, Finnish and Norwegian welfare states—Time for a child centric approach? *European Journal of Social Work, 17*(4), 475–490. https://doi.org/10.1080/13691457.2013.829802.

Sebba, J., Berridge, D., Luke, N., Fletcher, J., Bell, K., Strand, S., … O'Higgins, A. (2015). *The educational progress of looked after children in England: Linking care and educational data*. Oxford, UK: Rees Centre. Retrieved from http://reescentre.education.ox.ac.uk/wordpress/wp-content/uploads/2015/11/EducationalProgressLookedAfterChildrenOverviewReport_Nov2015.pdf.

Simkiss, D. E., Stallard, N., & Thorogood, M. (2013). A systematic literature review of the risk factors associated with children entering public care. *Child: Care, Health and Development, 39*(5), 628–642. https://doi.org/10.1111/cch.12010.

Sipilä, N., Kestilä, L., & Martikainen, P. (2011). Koulutuksen yhteys nuorten työttömyyteen. Mihin peruskoulututkinto riittää 2000-luvun alussa? [The association between education and unemployment in young adulthood. What is the labor market value of primary education in the early 2000s?]. *Yhteiskuntapolitiikka, 76*(2), 121–134. Retrieved from https://www.julkari.fi/handle/10024/100556.

Snow, K. (2009). The case for enhanced educational supports for children in public care: An integrative literature review of the educational pathway of children in care. *Vulnerable Children and Youth Studies, 4*(4), 300–311. https://doi.org/10.1080/17450120903012933.

Socialstyrelsen (2014). *Nationella adoptioner av barn i familjehem. En kartläggning av hur socialnämnden uppmärksammar frågan [National adoptions of children in foster care—a study on how the social committee addresses the issue] (no. 2014-3-11)*. Stockholm, Sweden: Socialstyrelsen. Retrieved from https://www.socialstyrelsen.se/Lists/Artikelkatalog/Attachments/19386/2014-3-11.pdf.

Socialstyrelsen (2016). *Individ- och familjeomsorg – Lägesrapport 2016 [Individual and family care – progress report 2016] (no. 2016-2-22)*. Stockholm, Sweden: Socialstyrelsen. Retrieved from http://www.socialstyrelsen.se/Lists/Artikelkatalog/Attachments/20080/2016-2-22.pdf.

Thoburn, J. (2007). *Globalisation and child welfare: Some lessons from a cross-national study of children in out-of-home care*. Norwich, UK: University of East Anglia Social Work Monographs.

Ubbesen, M. B., Gilbert, R., & Thoburn, J. (2015). Cumulative incidence of entry into out-of-home care: Changes over time in Denmark and England. *Child Abuse & Neglect, 42*, 63–71. https://doi.org/10.1016/j.chiabu.2014.10.006.

UNESCO Institute for Statistics (UIS) (2012). *International standard classification of education: ISCED 2011*. Montreal, Canada: Authorhttps://doi.org/10.15220/978-92-9189-123-8-en.

Vinnerljung, B., Berlin, M., & Hjern, A. (2010). *Skolbetyg, utbildning och risker för ogynnsam utveckling hos barn [School performance, education, and risks for unfavorable development among children]. Social Rapport 2010*. Stockholm, Sweden: Socialstyrelsen228–266. Retrieved from www.socialstyrelsen.se/Lists/Artikelkatalog/Attachments/17957/2010-3-11.pdf.

Vinnerljung, B., & Hjern, A. (2011). Cognitive, educational and self-support outcomes of long-term foster care versus adoption. A Swedish national cohort study. *Children and Youth Services Review, 33*(10), 1902–1910. https://doi.org/10.1016/j.childyouth.2011.05.016.

Vinnerljung, B., Öman, M., & Gunnarson, T. (2005). Educational attainments of former child welfare clients—A Swedish national cohort study. *International Journal of Social Welfare, 14*(4), 265–276. https://doi.org/10.1111/j.1369-6866.2005.

Weyts, A. (2004). The educational achievements of looked after children: do welfare systems make a difference to outcomes? *Adoption and Fostering, 28*(3), 7–19. Wildeman, C., & Emanuel, N. (2014). Cumulative risks of foster care placement by age 18 for U.S. children, 2000–2011. *PLoS One, 9*(3), e92785. https://doi.org/10.1371/journal.pone.0092785.

Study IV

Long-term NEET among young adults with experience of out-of-home care: A comparative study of three Nordic countries

Marie Berlin [1], Antti Kääriälä [2, 3] , Mette Lausten [4], Gunnar Andersson [1], Lars Brännström [5]

1. Department of Sociology, Stockholm University, Sweden
2. Social Policy Research Unit, National Institute for Health and Welfare (THL), Finland
3. Faculty of Social Sciences, University of Helsinki, Finland
4. VIVE Children and Education, VIVE – The Danish Center for Social Science Research
5. Department of Social Work, Stockholm University, Sweden

Corresponding author:
Marie Berlin, National Board of Health and Welfare, 106 30 Stockholm, Sweden.
E-mail address: marie.berlin@socialstyrelsen.se. Phone: +46 (0)70 162 3178.
Fax: +46 (0)75 247 32 52

Abstract

This study compares the risk of long-term NEET (Not in Employment, Education or Training) among young adults with out-of-home care (OHC) experience across Denmark, Finland, and Sweden, using register data for an entire cohort of domestic born in 1987. The Nordic countries share many features, but there are differences in the provision of after-care support and in the linkage between the educational system and the labour market. The results show that about one-fourth in Denmark and Sweden, and about one-third in Finland, of young adults with OHC experience were NEET. The high prevalence of poor school performance in the OHC population was associated with their excess risk of NEET, and the findings suggest that the current measures aimed at improving young adults' school-to-work transition are not sufficient for youth from OHC. Implications for research, policy and practice are discussed.

Key words: NEET, employment, education, school-to-work transition, child welfare, out-of-home care, comparative study, Nordic countries

Introduction

The school-to-work transition takes place at a critical developmental stage in young people's life, the emerging adulthood between adolescence and adulthood (Arnett, 2000). This is a period of identity exploration, and of risks and opportunities associated with adult privileges and responsibilities (Greeson, 2013). Due to high rates of school dropout, youth unemployment, and young people who are NEET (Not in Employment, Education, or Training), youths' transition into adulthood and self-sufficiency has become a major policy issue in recent decades (e.g., Eurofound, 2012; OECD, 2018a; OECD, 2018b; Tamesberger & Bacher, 2014; Vancea & Utzet, 2018). However, there are only a few studies on the school-to-work transition and the risk of NEET among young adults from out-of-home care (OHC), partly due to a lack of longitudinal data which can capture all three dimensions: OHC experience, education, and workforce participation. The Nordic countries are well equipped in this matter through their population level data. Although the Nordic countries are similar in many ways there are also differences e.g., in how the child welfare systems provide after-care support and in the linkage between the educational system and the labour market. In this article, we investigate young adults' risk of being NEET in relation to OHC experience, school performance, and socioeconomic factors in their upbringing. We ask: What is the relation between OHC and long-term NEET in young adulthood in Denmark, Finland, and Sweden, and does poor school performance relate to this association differently among young people from OHC compared to their peers in the general population? To our knowledge, this has not been addressed in prior literature.

The school-to-work transition

The paths and timing of the school-to-work transition differ between individuals and across countries, and do not necessarily follow a straight path. Many young adults switch between education and work, and have periods of inactivity from education and employment, when they engage in activities outside the common transition paths (Billari & Liefbroer, 2010; Buchmann & Kriesi, 2011; Schoon & Lyons-Amos, 2016; Settersten & Ray, 2010). NEET is a common measure in comparative studies of youth inactivity during the transition phase, as it covers the many and varied paths to work establishment that are available in different countries. Previous studies have found that problems associated with being NEET are often complex (Albæk, Asplund, Barth, Lindahl, von Simson, & Vanhala, 2015). In addition, long-term NEET in young adulthood is closely linked to the risk of social exclusion in future life –

both because NEET is a risk in itself (i.e., in terms of unemployment and depressed educational attainment) and because the NEET status is often associated with different disruptive behaviours e.g., substance abuse and delinquency (Bäckman & Nilsson, 2016). In the general population, early school leaving and school dropout have been found to be major determinants for unemployment and marginalisation in adulthood, and even more so in today's society due to an increased demand for higher education (Albæk et al., 2015; Bäckman, Jakobsen, Lorentzen, Österbacka, & Dahl, 2015).

It is well established that parents' social status is a robust predictor of their children's future opportunities i.e., that children from advantaged social backgrounds achieve higher levels of educational attainment and socioeconomic status in adulthood than do children from less advantaged social backgrounds (e.g., Breen & Goldthorpe, 2014; Hertz, Jayasundera, Piraino, Selcuk, Smith, & Verashchagina, 2007). The reason for OHC is often related to factors that are known to be strong intergenerational transmitters of future opportunities. In the Nordic and other countries, OHC is an intervention used by child welfare authorities to protect children and youth whose safety and welfare are at risk due to deficits in their home environment; or in the case of teenagers, usually their own disruptive behaviour (e.g., Gilbert, Parton, & Skivenes, 2011). A vast body of international research also shows that a substantial proportion of children in OHC have poor school performance, and continue to have low educational attainment as adults (e.g., Gypen, Vanderfaeillie, De Maeyer, Belenger, & Van Holen, 2017; Trout, Hagaman, Casey, Reid, & Epstein, 2008). This is also the case in the Nordic countries, despite free education and low levels of educational tracking (e.g., Kääriälä & Hiilamo, 2017). Furthermore, previous research suggests that poor school performance and low educational attainment are highly associated with the OHC population's excess risk of various adverse outcomes in young adulthood, e.g. substance abuse, delinquency, and long-term social assistance (e.g., Berlin, Vinnerljung & Hjern, 2011; Forsman, Brännström, Vinnerljung, & Hjern, 2016). Evidence also suggests that the OHC population's disadvantage in the educational system continues on the labour market, as employment outcomes tend to be poor among young adults from OHC (Mendes, 2009; Cameron et al. 2018; Hook & Courtney, 2011; Stewart, Kumb, Barth, & Duncana, 2014; Cassarino-Perez, Crous, Goemans, Montserrat, & Castellà Sarriera, 2018; Font, Berger, Cancian, & Noyes, 2018).

Furthermore, the educational differentials in the general population appear to be increasing (OECD, 2018a), suggesting that youth from OHC may fall further behind (Socialstyrelsen, 2016). This is a troubling development for children in OHC, as there is reason to believe that low educational attainment inflicts a greater disadvantage when it

comes to their future opportunities. In labour market segments where other qualifications than education are decisive, social networks and ascribed characteristics become more important, together with other qualifications such as having a driver's license or early work experience (Breen & Jonsson, 2007). Studies from Europe and the US show that having work experience from holiday jobs while still in school was an important factor for progression towards work establishment after OHC (Arnau-Sabatés & Gilligan, 2015; Stewart et al., 2014; Courtney, Dworsky, Brown, Cary, Love, & Vorhies, 2011).

The development in childhood and adolescence is often an accumulative process, in which different factors are linked and enforce each other (Ferraro, Schafer & Wilkinson 2016). For youth from OHC, the school-to-work transition may be attributed to a range of pre-care, in-care, and post-care factors, which are varied within the OHC population. For some, adverse childhood experiences in their early years may have caused long-term problems in their social functioning, relationships, and economic participation (Pears, Kim & Braun, 2018; McEwen & McEwen, 2017), while for those who first enter care in their teenage years, OHC is the result of a disadvantageous cycle which has already started (Vinnerljung & Andreassen, 2015). Support after OHC is also important for the transition into adulthood and self-sufficiency (e.g., Mendes, 2009; Cameron et al., 2018). For youth from OHC, this phase is often accelerated and compressed as many start to fend for themselves at an early age, taking on adult roles and responsibilities without the support usually available to their peers who grow up in their family of origin (Greeson, 2013; Ejrnæs, Ejrnæs, & Frederiksen, 2011; Franzén, Vinnerljung, & Hjern, 2008; Kestilä, Väisänen, Paananen, Heino, & Gissleret, 2012).

The Nordic context

Table 1 summarises some of the similarities and differences in the institutional setting related to youths' transition in the three Nordic countries, and their respective child welfare systems share many features. The Nordic countries prioritise early prevention and family preservation (e.g., Gilbert et al., 2011), and OHC is used as a last resort when other alternative interventions have proven insufficient in securing the child's health and development (Pösö, Skivenes, & Hestbæk, 2014). Contrary to many other countries, teenage placement is more common than placement at younger ages (Fallesen, Emanuel, & Wildeman, 2014; Kestilä et al., 2012; Socialstyrelsen, 2016). Most OHC placements are carried out with the parents' and children's consent, although involuntary placement is also legally possible (Andersen & Ebsen, 2010; Huhtanen, 2016; Socialstyrelsen, 2016). Sweden has no specific after-care

services, but provides extended care until the completion of secondary education (Storø, Sjöblom, & Höjer, 2019). Denmark and Finland have after-care services until ages 23 (Frederiksen & Lausten, 2018) and 21 (extended until age 25 in 2020) (Barnskyddslag 417/2007), respectively.

The Nordic countries are traditionally classified as universal welfare regimes, and their systems for promoting youths' school-to-work transition are similar in many ways (Helms Jørgensen, Järvinen, & Lundahl, 2019). The degree of inequality in educational opportunities is low from an international perspective (e.g., Jackson, 2014). Education is publicly funded and free, and tracking is low; i.e., educational choices are made at higher ages and are less decisive for future educational opportunities. After completing the comprehensive level at age 15–16, i.e. primary school, most students continue to upper secondary education, to either academic or vocational tracks. The upper secondary completion rate differs between the three countries at age 21, but converges at higher ages. At age 31, approximately 90% had completed an upper secondary education in Finland and Sweden as compared to 83% in Denmark (Table 1). Results from a previous comparative study also suggest that the difference in graduation rates between young adults from OHC and their peers is greater in Denmark than in Finland and Sweden (Kääriälä, Berlin, Lausten, Hiilamo, & Ristikari, 2018).

The differences in transition regimes across the three countries mainly appear in the linkage between the educational system and the labour market. Denmark has a long tradition of apprenticeship in the vocational upper secondary education, and low thresholds for entry onto and exit from the labour market according to the 'flexicurity model'. Finland and Sweden have school-based vocational education and more rigid employment protection legislation (Bäckman et al., 2015; Helms Jørgensen et al., 2019). It is suggested that an apprenticeship-based system offers a smoother school-to-work transition, through the close contact to the labour market during the education and the promotion of hiring young people (e.g., Scarpetta, Sonnet & Manfredi, 2010; European Commission, 2010). On the other hand, a school-based system provides general skills while specific work skills are taught after employment, and is therefore less sensitive to structural labour market changes and disruption in education. The work-based vocational tracks in Denmark stretch over a longer time period than the school-based vocational tracks in Finland and Sweden. In Denmark and Finland there is no upper age limit for upper secondary school, while Sweden refers older students to the adult educational system (Albæk et al., 2015; Bäckman et al., 2011).

Finland and Sweden have higher youth (ages 15–24 years) unemployment rates than Denmark. The study period (2008–2010) occurred during the great recession, during which

youth unemployment rates increased from 8 to 14% in Denmark, from 16 to 21% in Finland, and from 20 to 25% in Sweden (OECD, 2019). The lower rates in Denmark are partly explained by the apprenticeship system, in which students are counted as employed (Bäckman et al., 2015). The official NEET rates differ across the countries, with Finland having higher NEET rates than Denmark and Sweden (Helms Jørgensen et al., 2019).

Taken together, we might expect a lower relative risk of NEET in the OHC population compared to peers without OHC experience in Denmark, followed by Finland, and lastly Sweden. This is true if we assume that the after-care service in Finland and Denmark is supportive during the OHC population's school-to-work-transition, and that the low thresholds for entry onto the labour market in Denmark imply less differences between groups. However, it is not obvious what to expect as the research on the effects of after-care systems is scarce (Frederiksen & Lausten, 2018) and the implications of the differences in the linkage between the educational system and the labour market systems are not easily predicted (Bäckman et al., 2015).

Data and methods

This study is based on record linkages between longitudinal national registers covering the entire population born in 1987 in Denmark, Finland, and Sweden, respectively. The registers and data used for each variable are presented in Table 2. The overall quality of the registers is regarded as high, and the linkage was done using individually unique identification numbers. Due to legislative restrictions, we were not allowed to merge the separate country datasets into one common dataset. Instead, each country team performed the analysis for their country in accordance with a joint study plan. Ethical permissions for the current study was obtained from: the Stockholm Regional Ethics Committee (no 2007/679-31; no 4.2.1-17460/2012), Sweden; the ethical committee of the Finnish Institute for Health and Welfare (Ethical Committee §28/2009), Finland; and the Danish Data Protection Agency (registry-based research at VIVE are done according to general legislation, each project does not require approval from an ethics committee), Denmark.

Study population and sub-groups

The study population consists of all residents born in 1987 in Denmark, Finland, and Sweden, who were living in these countries in 2008–2010 at ages 21–23 years. The Danish study population consisted of 54,269 individuals (of whom 2,997 or 5.5% had been in OHC), the

Finnish study population of 55,751 (OHC: 1,835 or 3.2%), and the Swedish study population of 99,499 (OHC: 3,188 or 3.2%).

Children in OHC are a heterogeneous group in terms of their care histories. The high proportion of teenage placements, partly due to the inclusion of youth delinquency in the child welfare system, also distinguishes the Nordic countries from many other countries (Thoburn, 2007). In order to get more homogenous groups in terms of OHC experience (cf. Triseliotis, 1989; Kääriälä et al., 2018), the OHC population was divided into four mutually exclusive groups based on age at first entry and total time spent in OHC. These groups were compared with peers who had not been in care during their childhood (No OHC), resulting in five mutually exclusive study groups:

- *No OHC*: Never in OHC at age <18 years.
- *Early short*: Short-term OHC before teenage years; i.e., first entry into OHC before age 13 with a total length of time in OHC of less than one year.
- *Early intermediate*: Intermediate-term care before teenage years; i.e., first entry into OHC before age 13 with a total length of time in OHC of at least one year but less than five years.
- *Early long*: Long-term care before teenage years; i.e., first entry into OHC before age 13 with a total length of time in OHC of at least five years.
- *Teen care*: Placement during teenage years; i.e., first entry into OHC at age 13 or later.

Outcome variable

In this study, we used a 'strict' measure of long-term NEET; i.e., having no income at all (0) from education, employment, or training, in two out of three years during the period 2008–2010 when those in the study population were between 21 and 23 years old. In so doing, NEET indicated those who were far away from labour market attachment. NEET is an acronym for Not in Employment, Education, or Training. The NEET measure is sometimes criticised for being too imprecise, covering a heterogeneous group of young adults who are NEET for various reasons such as unemployment, ill-health, long-term journeys, work abroad, or own activities (e.g., Holte, Swart & Hiilamo, 2019; Furlong, 2006). Evidence suggests, however, that long-term NEET captures a more homogenous group, with a high concentration of social problems and transition failures (Albæk et al., 2015); and furthermore that long-term NEET has long-lasting implications for individuals' work establishment and risk of social exclusion (Bäckman & Nilsson, 2016).

Control variables

The choice of control variables was guided by prior research but also constrained by the need to use data that were available in all three countries. We included four socioeconomic family background variables, which have all been identified as risk factors for OHC in childhood (Simkiss, Stallard, & Thorogood, 2013) and which all relate to the birth mother. In order to reduce missing values, we did not use any data on birth fathers' characteristics. The following background variables were used in the analysis (descriptive data in Table 3):

Sex: The results presented in the article are adjusted for sex.

Mother's education: Birth mother's educational level was categorised into three groups according to the highest attained qualification: (1) compulsory level (no ISCED level 3); (2) secondary education (ISCED level 3 and 4); and (3) post-secondary education (ISCED level 5 or higher). A fourth category for missing values was included for mothers without information on educational attainment in the registers. In Finland, these mothers cannot be distinguished from those with only a primary education. Due to the varying availability of the data, the exact time of measurement varies to some extent between countries (Table 2).

Mother's social assistance: This variable measures long-term economic distress in the birth family, and refers to whether the birth mother received social welfare benefits (a last-resort minimum income scheme) over two consecutive years from 1990 to 2004. The definition varies to some extent between the countries due to differences in the register information (Table 2).

Mother's mental health problems: This variable refers to whether the birth mother received inpatient hospital care during the period 1987–2004 with a psychiatric diagnosis (Table 2).

Mother's alcohol and drug abuse: This variable refers to whether the birth mother received inpatient hospital care during the period 1987–2004 with an alcohol- or drug-related diagnosis (Table 2), thus indicating primarily severe abuse issues.

No or low GPA in primary school: As a measure of school performance, we used a dichotomous variable divided into those who had no or low GPA (grade point average) and those who had a GPA above low, in the final year of primary school. The GPA only includes academic subjects, and country-specific means (M) and standard deviations (SD) were used for categorisation. Low GPA refers to GPA $\leq$ (M−SD). No GPA refers to this information being missing in the educational registers. In Sweden and Denmark, the reason for it being missing might be the result of either dropping out or frequently skipping school, or attending

a school which did not report grade points to the authorities; e.g., schools at residential care institutions or for students with special needs. In Finland, a missing GPA means that an individual has not applied for upper secondary education through the national joint application system, whereby grades are recorded in the register. The dichotomous GPA variable was used both separately (Table 4) and in combination with OHC experience (Table 5).

Statistical analysis

To estimate the risk of being NEET, we used binary logistic regressions in which the results are presented as average marginal effects (AME), which indicates in percentage points the predicted differences in outcome probability (here being NEET) between those with OHC experience (all or by sub-group) and those who were never in care (reference group with value 0). Data were analysed separately for each country as restrictions on data management prevented merging them together.

The analyses were performed both with the OHC population divided into four population sub-groups by age at first entry and total time in OHC (Early short, Early inter, Early long, and Teen care), and with the entire OHC population as one joint group (All in OHC). Those without OHC experience (No OHC) were used as reference. We adjusted for background variables in three steps: in the first step we adjusted for sex (Model 1); in the second step we included background variables related to the birth mother (Model 2); and in the third step we included poor school performance (No or low GPA vs. GPA above low) (Model 3). In order to investigate the impact of early school failure on the propensity of being NEET in young adulthood, we also used a variable that combined OHC experience and poor school performance.

In Denmark, Stata version 14 with margins command was used. In Sweden and Finland, R for Windows (version 3.3.2) with mfx package's mfx command was used.

Results

Table 3 presents the descriptive statistics of the variables used in the multivariate analysis for each country. The OHC proportion was higher in Denmark than in Finland and Sweden, 5.5% as compared to 3.2% of the total native-born population in each country (number in Table 3, proportion in Table 1), which might be due to the inclusion of health-related placements in the OHC system in Denmark. In all three countries, approximately half (47–51%) of the OHC

population belonged to the Teen group. Early long-term OHC was slightly more common in Finland (29%) than in Denmark (23%) and Sweden (20%), and early short-term OHC was slightly more common in Sweden (17%) than in Finland (14%) and Denmark (10%).

The heterogeneity in the OHC population in regard to care history was evident from the differences between the OHC sub-groups in average age at first entry and total time in OHC. The proportion of boys in the OHC population was slightly higher in Denmark as compared to Finland and Sweden. In Finland and Sweden, the proportion of boys was higher among those who entered OHC before their teenage years while the proportion of girls was higher among those who entered OHC during their teenage years. Birth mother's long-term social assistance was less prevalent in Finland, as compared to Denmark and Sweden, both in the OHC population and among peers without OHC experience. Birth mother's being subject to inpatient care with diagnosis related to psychiatric disorders or substance abuse was less prevalent in the Danish OHC population as compared to the Finish and Swedish OHC populations. Birth mothers had lower educational attainment level in Denmark as compared to Finland and Sweden, both in the general population and in the OHC population.

Young adults from OHC had more than four times the long-term NEET prevalence as that of peers without OHC experience. While 6%, 7%, and 6% in the No OHC group were NEET in Denmark, Finland, and Sweden, respectively, the corresponding proportions in the OHC population were 26%, 33%, and 27%. Among the OHC groups, the Early short group had the lowest prevalence of NEET in all three countries. The highest prevalence was found in the Teen group in Sweden (30%) and Finland (38%), and in the Early intermediate group and Early long-term group in Denmark (29%). The proportion of poor school performance (No or low GPA in primary school) was substantially higher in the OHC population than among peers without OHC experience: twice as high in Finland, three times as high in Denmark, and four times as high in Sweden.

Table 3 to feature here.

Figure 1 illustrates the pathways from poor school performance to NEET in three steps: (1) GPA in primary school, (2) completed upper secondary education at age 23, and (3) NEET at age 21–23. The last two steps are somewhat overlapping, as the NEET definition covers both education and employment during two out of three years. While the typical graduation age in Finland and Sweden at the upper secondary level is under 21 years, in both academic and vocational tracks, the typical graduation age in Denmark is 21–22 years in vocational

tracks (Table 1). However, the difference between the OHC group and the No OHC group is still relevant within countries. In all three countries, the vast majority (67–76%) of the No OHC group followed a straight advantageous path (from grades above low in primary school, to a completed upper secondary education, to not being NEET at age 21–23), compared to a minority (16–28%) of the OHC group. The straight disadvantageous path (from no or low grades in primary school, to not completed upper secondary education, to being NEET at age 21–23) was almost as common in the OHC group as the straight advantageous path. About one-fifth (17–21%) followed this path, compared to only a few per cent (2–3%) among young adults without OHC experience.

Figure 1 to feature here.

Table 4 presents the average marginal effects (hereafter, AME) of long-term NEET in the OHC population compared to peers without OHC experience (No OHC). Estimates for the total OHC population (All in OHC) are presented at the top of the table, and estimates for the respective sub-groups (Early short, Early inter, Early long, and Teen care) are presented in the bottom of the table. All results were adjusted for sex. Sex-stratified analyses were also performed, and the results were similar for females and males (not shown).

The OHC population's excess risk of NEET compared to peers without OHC experience was similar in all three countries. When only sex was adjusted for (Model 1), the excess risk varied from 22% in Sweden (AME 0.22) to 26% in Finland (AME 0.26). When the birth mother's characteristics (education, social assistance, psychiatric care, and substance abuse) were adjusted for, the excess risk was reduced by a third in Denmark (8 percentage points), and by almost half in Finland (12 percentage points) and Sweden (10 percentage points) (Model 2). When poor school performance was included in the model (Model 3), the excess risk of being NEET decreased further.

Among the OHC groups, the Early short group had the lowest excess risks of NEET in all three countries. In Finland, there was a clear gradient in the excess risk of NEET from the Early short group (AME 0.13) to the Teen group (AME 0.31) when only sex was adjusted for (Model 1). In Denmark and Sweden, all OHC groups besides the Early short group (AME 0.12–0.13) had similar excess risks of NEET (AME: 0.23–0.25).

Table 4 to feature here.

The combined variable showed that the excess risk of NEET was especially elevated among those with both OHC experience and poor school performance (Table 5: All in OHC * GPA) in all three countries. Those with OHC experience *but without* poor school performance had an excess risk of 11–14 percentage points (AME: 0.14 in Denmark and Finland, and 0.11 in Sweden), while those with OHC experience *and* poor school performance had an excess risk of 32–34 percentage points (AME: 0.34 in Denmark, 0.33 in Finland, and 0.32 in Sweden), compared to the reference group with neither OHC experience nor poor school performance.

In line with the results presented in Table 4, the analysis also indicated that poor school performance was more decisive for the risk of being NEET in Sweden, while OHC experience was more decisive in Denmark. Finland was in-between. Among young adults *without OHC experience*, those with poor school performance had an excess risk of 9 percentage points in Denmark (AME: 0.09) and 16 percentage points in Sweden (AME: 0.16), compared to those without poor school performance. And among young adults *with poor school performance*, OHC experience increased the excess risk by 25 percentage points in Denmark (AME: 0.34 vs. 0.09), by 21 percentage points in Finland (AME: 0.33 vs. 0.12), and by 16 percentage points in Sweden (AME: 0.32 vs. 0.16). Poor school performance inflicted an increased risk of being NEET in all sub-groups, including those without OHC experience (Table 5, OHC sub-group * GPA). Among young adults from OHC, the excess risks were generally low (AME: 0.03–0.05) among those who had been in care for a short while before their teenage years and had grades above low (Early short, GPA above low).

Table 5 to feature here.

Discussion

This study examined the cross-country variations of NEET among young adults from OHC compared to their peers without OHC experience in Denmark, Finland, and Sweden, using large nationwide birth cohort data. The results can be summarised in four main findings. First, the proportion who were NEET was substantially higher among young adults from OHC as compared to their peers without OHC experience at age 21–23 in all three countries (Table 3). The results indicate that the current systems in the three countries all failed to provide youth from OHC with educational and employment opportunities at a level comparable to that of their peers. It is alarming that about one-fourth (in Denmark and Sweden) to one-third (in

Finland) of youth from OHC were NEET in young adulthood, especially as we used a 'strict' NEET definition of no income at all related to education or employment in two out of three years. Generally, official NEET statistics include different levels of inactivity; i.e., NEET allows for some degree of income from education, employment, or training (e.g., OECD, 2019; Bäckman & Nilsson, 2016). Our 'strict' definition gives a lower NEET proportion than the official statistics, indicating that we measured a more severe form of inactivity whereby individuals stood further from the common transition paths, and from labour market attachment.

Our measurement period (2008–2010) occurred during the great recession, during which youth unemployment rates were high and young people's entrance onto the labour market was more difficult. However, the study groups were compared during the same period of time. A vast body of research shows that being NEET at a young age increases the risk of social exclusion later in life (e.g., Bolibar, Verd, & Barranco, 2019) and that the timing of the school-to-work transition in relation to the business cycle has long-term effects on individuals' employment establishment (Bäckman, 2010). The results are consistent with prior international research on poor employment outcomes in the OHC population (Cameron, Jackson, Hauari, & Hollingworth, 2012; Mendes, 2009; Hook & Courtney, 2011; Stewart et al., 2014; Cassarino-Perez et al., 2018; Font et al. 2018), and add to these findings by suggesting that youth from OHC have a substantially higher risk of long-term NEET than their non-OHC peers in Denmark, Finland, and Sweden.

Second, OHC experience and poor school performance both had an independent effect on the risk of NEET when sex and maternal background factors were controlled for (Table 4), which was enforced in combination, i.e. accumulated (Table 5). Poor school performance is often the start of a negative process of early school leaving, low educational attainment, future unemployment and, in the long run, an increased risk of social exclusion (Albæk et al., 2015; Bäckman et al., 2015; Bäckman & Nilsson, 2007, 2011). There are two main approaches concerning the mechanisms in such processes in the theory of cumulative (dis)advantage. Path theory poses that one event leads to another (e.g., family factors lead to OHC, OHC leads to poor school performance, and poor school performance leads to NEET), while accumulation theory poses that different attributes enforce each other (DiPrete & Eirich, 2006). A path dependency is evident if OHC does not have an independent effect on NEET when results are adjusted for poor school performance (Berkman, 2009; Ferraro et al., 2016). Our results indicated both a path dependency and an accumulated effect of OHC experience and poor school performance on the risk of long-term NEET.

Third, the OHC population's excess risk of long-term NEET was similar across countries regardless of the differences in the systems across the three countries i.e., Sweden having no specific after-care service (Storø et al., 2019) and Denmark having a skill-based vocational education, stronger educational stratification and weaker employment protection legislation, than Sweden and Finland (Helms Jørgensen et al., 2019). However, previous Nordic comparative studies in the general population suggest that the differences in the transition systems mainly apply to those who complete their upper secondary education (Bäckman et al., 2011; Bäckman et al., 2015; Albæk et al., 2015). And a recent study on employment outcomes among care leavers in Britain, Finland, and Germany also suggests similar disadvantages in work establishment among young adults from OHC although these countries belong to different transition regimes (Britain, liberal and Germany, conservative) (Cameron et al., 2018).

Early school leaving is identified as a key factor for the risk of NEET in all three countries. Even though the school-to-work transition has been found to be smoother in the skill-based vocational system, this does not apply to those who drop out from upper secondary education. On the contrary, it is suggested that early school leaving has a stronger negative effect in the skill-based system than in the school-based system (Albæk et al., 2015; Bäckman et al., 2011). Social networks, especially the mother's networks (Roth, 2014), have also been found to be important for the chances of finding an apprenticeship, which leads to greater difficulties in finding an apprenticeship when the social networks are weaker, e.g. among immigrants (Helland & Støren, 2006) or disadvantaged youth (Schmidt, 2010; Brahm, Euler, & Steingruber, 2014). Findings from Norway, which has an apprenticeship system similar to the one in Denmark, also suggest that one of the reasons for the high dropout rate among youth from OHC is the discontinuity of their educational pathway before finding an apprenticeship (Dæhlen, 2017). However, the school-based system stratifies (indirectly or directly) through previous educational achievements, which is shown to have a strong impact on future development for youth from OHC (Berlin et al., 2011; Forsman et al., 2016). This was supported by the results in this study, in which school-based systems in Finland and Sweden did not perform any better in reducing the OHC population's risk of being NEET than the skill-based system in Denmark. Instead, they stratified slightly more through grades in primary school, especially in Sweden.

Fourth, the patterns between the different OHC sub-groups were similar across countries; i.e., all sub-groups had a high prevalence of poor school performance and NEET and those who stayed in care for less than a year at a young age (Early short) had the lowest

risk of NEET among the OHC sub-groups. The results from this comparative Nordic study support previous studies (e.g., Cameron et al., 2018) regarding the lack of adequate support in providing the OHC population with educational and employment opportunities at a level comparable to that of their peers.

Strengths and limitations

The strength of this study is that we were able to use the same study design in three different countries, using large nationwide birth cohort data and examining an entire birth cohort of individuals who had been in OHC in these countries. We were able to divide the OHC population into sub-groups in regard to care experience and to control for the birth mother's characteristics. However, the study also has a number of limitations. We were not able to control for reasons for OHC, and unlike in Sweden and Finland, the Danish child welfare register merges health-related placements with other child welfare placements. The Finnish child welfare register only includes complete placement information from 1987 for those who were in OHC from 1991 onward. Our NEET definition is rather 'strict' and refers to having no income at all related to education, employment, or training, implying that additional activities that are not related to the general educational system or the open labour market are also counted as NEET, e.g. parental leave. However, only those who had no educational or employment incomes for two out of three years are counted as NEET, and the differences in NEET proportions between females and males were small.

Implications for research and practice

This study suggests a high prevalence of NEET among children with experience of OHC, and that the high prevalence of poor school performance in the OHC population was associated with their excess risk of NEET. Results also suggest that current measures aimed at improving young adults' labour market entrance are insufficient to compensate for the childhood adversities of children in OHC. Reducing early school leaving is one of the main targets in the European Union, in order to tackle unemployment as well as promote social mobility (European Commission, 2010). This is vitally important for children in care, and tests of different support programmes aimed at the OHC population have shown promising results (Forsman & Vinnerljung, 2012; Männistö & Pirttimaa 2018). Early work experience while in care may also improve OHC youths' chances of labour market entrance when they exit OHC (Stewart et al., 2014). Several studies also suggest that continued support after care has a positive impact on care leavers' opportunities in future life (e.g., Hook & Courtney, 2011;

Mendes, 2009). This might be even more important now than in the past, due to the complex and extended transition phase which has prolonged young adults' dependence on their parents, and has potentially increased the relative disadvantage of OHC youth compared to their peers who grow up in their home of origin (Schoon & Lyons-Amos, 2016; Settersten & Ray, 2010).

Funding

We are grateful for the financial support we received from the Swedish Research Council for Health, Working Life and Welfare (Forte), grant 2018-01657, and via the Swedish Initiative for Research on Microdata in the Social and Medical Sciences (SIMSAM), grant 340-2013-5164. This study was also supported by the Otto A. Malm Foundation, the Jenny and Antti Wihuri Foundation, and VIVE – the Danish Center for Social Science Research. In addition, the work has benefited from the Academy of Finland-funded PSYCOHORTS (grant number 308556) and INVEST consortia (grant number 320162).

References

Albæk, K., Asplund, R., Barth, E., Lindahl, L., von Simson, K., & Vanhala, P. (2015). *Youth unemployment and inactivity: A comparison of school-to-work transitions and labour market outcomes in four Nordic countries*. TemaNord 2015:548. Copenhagen, Denmark: Nordic Council of Ministers. Retrieved from http://norden.diva-portal.org/smash/get/diva2:852123/FULLTEXT01.pdf.

Andersen, S. H., & Ebsen, F. (2010). *Foranstaltninger for udsatte børn i Danmark: Historisk oprindelse og den seneste udvikling*. [Preventive interventions for vulnerable children in Denmark: Historic origin and the latest developments] In S. H. Andersen (Ed.). Når man anbringer et barn: Årsager, stabilitet i anbringelsen og det videre liv (pp. 13–41). Odense, Denmark: University Press of Southern Denmark.

Arnau-Sabatés, L., & Gilligan, R. (2015). What helps young care leavers to enter the world of work? Possible lessons learned from an exploratory study in Ireland and Catalonia. *Children and Youth Services Review, 53*, 185–191.

Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist, 55*(5), 469.

Berkman, L. F. (2009). Social Epidemiology: Social Determinants of Health in the United States: Are We Losing Ground? *Annual Review of Public Health, 30*: 27–41.

Berlin, M., Vinnerljung, B. & Hjern, A. (2011). School performance in primary school and psychosocial problems in young adulthood among care leavers from long term foster care. *Children and Youth Services Review, 33*(12), 2489–2487.

Billari, F. C., & Liefbroer, A. C. (2010). Towards a New Pattern of Transition to Adulthood? *Advances in Life Course Research 15*, 59–75.

Bolibar, M., Verd, J. M., & Barranco, O. (2019). The Downward Spiral of Youth Unemployment: An Approach Considering Social Networks and Family Background. *Work, Employment and Society, 33*(3), 401–421.

Brahm, T., Euler, D., & Steingruber, D. (2014). Transition from school to VET in German-speaking Switzerland. *Journal of Vocational Education & Training, 66*(1), 89–104.

Breen, R. & Jonsson, J. O. (2007). Explaining Change in Social Fluidity: Educational Equalization and Educational. *American Journal of Sociology, 112*(6), 1775–1810.

Breen, R., & Goldthorpe, J. H. (2014). *Explaining Educational Differentials*. In D. B. Grusky (Ed.). Social Stratification: Class, Race, and Gender in Sociological Perspective (pp. 524–535). Boulder, CO, USA: Westview Press.

Buchmann, M. C., & Kriesi, I. (2011). Transition to adulthood in Europe. *Annual Review of Sociology 37*, 481–503.

Bäckman, O. & Nilsson, A. (2007). *Childhood Poverty and Labour Market Exclusion*. Institute for Futures Studies Working Paper 2007: 13. Stockholm: Institute for Futures Studies.

Bäckman, O. (2010*). Anknytning till arbetsmarknaden och ungas etablering*. [Labour market attachment and young people's work establishment] In: Social Rapport 2010 (pp. 54–89). Stockholm: Socialstyrelsen.

Bäckman, O. & Nilsson, A. (2011). Pathways to Social Exclusion: A Life Course Study. *European Sociological Review, 27*, 107–123.

Bäckman, O., & Nilsson, A. (2016). Long-term consequences of being not in employment, education or training as a young adult. Stability and change in three Swedish birth cohorts. *European Societies*, *18*(2), 136-157.

Bäckman, O., Jakobsen, V., Lorentzen, T., Österbacka, E., & Dahl, E. (2011). Dropping out in Scandinavia social exclusion and labour market attachment among upper secondary school dropouts in Denmark. Finland, Norway and Sweden (working paper 2011:8). Stockholm, Sweden: Institute for Futures Studies. Retrieved from https://ideas.repec.org/p/hhs/ifswps/2011_008.html.

Bäckman, O., Jakobsen, V., Lorentzen, T., Österbacka, E., & Dahl, E. (2015). Early school leaving in Scandinavia: Extent and labour market effects. *Journal of European Social Policy*, *25*(3), 253–269.

Cassarino-Perez, L., Crous, G., Goemans, A., Montserrat, C., & Castellà Sarriera, J. (2018). From care to education and employment: A meta-analysis. *Children and Youth Services Review, 95*, 407–416.

Cameron, C., Hollingworth, K., Schoon, I., van Santen, E., Schröer, W., Ristikari, T., … Pekkarinen, E. (2018). Care leavers in early adulthood: How do they fare in Britain, Finland and Germany? *Children and Youth Services Review, 87*, 163–172. https://doi.org/10.1016/j.childyouth.2018.02.031.

Cameron, C., Jackson, S., Hauari, H., & Hollingworth, K. (2012). Continuing educational participation among children in care in five countries: some issues of social class. *Journal of Education Policy*, *27*(3), 387–399. DOI: 10.1080/02680939.2011.644811.

Courtney, M., Dworsky, A., Brown, A., Cary, C., Love, K., & Vorhies, V. (2011). *Midwest Evaluation of the Adult Functioning of Former Foster Youth: Outcomes at Age 26.* Chicago, IL: Chapin Hall at the University of Chicago.

DiPrete, T. A., & Eirich, G. M. (2006). Cumulative advantage as a mechanism for inequality: A review of theoretical and empirical developments. *Annual Review of Sociology, 32*, 271–297.

Dæhlen, M. (2017). Transition from school-based training in VET. *Education and Training, 59*(1), 47–60. https://doi.org/10.1108/ET-10-2015-0096.

Ejrnæs, M., Ejrnæs, M., & Frederiksen, S. (2011). Risk factors of entry in out-of-home care: An empirical study of Danish birth cohorts, 1981–2003. *Child Indicators Research, 4*(1), 21–44. https://doi.org/10.1007/s12187-010-9066-2.

Eurofound (2012). *NEETS – Young People Not in Employment, Education or Training: Characteristics, Costs and Policy Responses in Europe*. Luxembourg: Publications Office of the European Union. DOI:10.2806/41578.

European Commission. (2010). *Europe 2020: A European Strategy for Smart, Sustainable and Inclusive Growth*. Brussels: European Commission.

Fallesen, P., Emanuel, N., & Wildeman, C. (2014). Cumulative risks of foster care placement for Danish children. *PloS one, 9*(10), e109207.

Ferraro, K. F., Schafer, M. H. & Wilkinson, L. R. (2016). Childhood disadvantage and health problems in middle and later life: early imprints on physical health? *American Sociological Review, 81*, 107–133.

Font, S. A., Berger, L. M., Cancian, M., & Noyes, J. L. (2018). Permanency and the Educational and Economic Attainment of Former Foster Children in Early Adulthood. *American Sociological Review, 83*(4), 716–743.

Forsman, H., Brännström, L., Vinnerljung, B. & Hjern, A. (2016). Does poor school performance cause later psychosocial problems among children in foster care? Evidence from national longitudinal registry data. *Child Abuse & Neglect, 57*, 61–71.

Forsman, H., & Vinnerljung, B. (2012). Interventions aiming to improve school achievements of children in out-of-home care: A scoping review. *Children and Youth Services Review, 34*, 1084–1091.

Franzén, E., Vinnerljung, B., & Hjern, A. (2008). The epidemiology of out-of-home care for children and youth: A national cohort study. *British Journal of Social Work, 38*(6), 1043–1059. https://doi.org/10.1093/bjsw/bcl380.

Frederiksen, S., & Lausten, M. (2018). Use of aftercare in Denmark. *Nordic Social Work Research, 8*(S1), 94–103.

Furlong, A. (2006). Not a Very NEET Solution: Representing Problematic Labour Market Transitions among Early School-Leavers. *Work, Employment and Society 20*(3), 553–569. DOI:10.1177/0950017006067001.

Gilbert, N., Parton, N., & Skivenes, M. (Eds.). (2011). *Child protection systems: International trends and orientations*. OUP USA.

Greeson, J. K. (2013). Foster youth and the transition to adulthood: The theoretical and conceptual basis for natural mentoring. *Emerging Adulthood, 1*(1), 40-51.

Gypen, L., Vanderfaeillie, J., De Maeyer, S., Belenger, L., & Van Holen, F. (2017). Outcomes of children who grew up in foster care: Systematic-review. *Children and Youth Services Review, 76*, 74–83.

Helland, H., & Støren, L.A. (2006). Vocational education and the allocation of apprenticeships: equal chances for applicants regardless of immigrant background? *European Sociological Review, 22*(3), 339–351.

Helms Jørgensen, C, Järvinen, T., & Lundahl, L. (2019). A Nordic transition regime? Policies for school-to-work transitions in Sweden, Denmark and Finland. *European Educational Research Journal, 18*(3), 278–297.

Hertz, T, Jayasundera, T., Piraino, P., Selcuk, S., Smith, N., & Verashchagina, N. A. (2007). The Inheritance of Educational Inequality: International Comparisons and Fifty-Year Trends. *The B.E. Journal of Economic Analysis & Policy, 7*(2), Art. 10.

Holte, B. H., Swart, I., & Hiilamo, H. (2019). The NEET concept in comparative youth research: The Nordic countries and South Africa. *Journal of Youth Studies, 22*(2), 256-272.

Hook, J. L., & Courtney, M. E. (2011). Employment outcomes of former foster youth as young adults: The importance of human, personal, and social capital. *Children and Youth Services Review, 33*(10), 1855-1865.

Huhtanen, R. (2016). *Vapaaehtoinen vai tahdonvastainen huostaanotto* [Taking into care voluntarily or involuntarily]. In R. Enroos, T. Heino, & T. Pösö (Eds.). Huostaanotto: Lastensuojelun vaativin tehtävä [Taking into care: The most demanding duty of child welfare]. Tampere, Finland: Vastapaino.

Jackson, M. (2014). *Determined to Succeed*. In D. B. Grusky (Ed.). Social Stratification: Class, Race, and Gender in Sociological Perspective (pp. 562–569). Boulder, CO, USA: Westview Press.

Jackson, S., & Cameron, C. (2012). Leaving care: Looking ahead and aiming higher. *Children and Youth Services Review, 34*(6), 1107–1114.

Kestilä, L., Väisänen, A., Paananen, R., Heino, T., & Gissler, M. (2012). Kodin ulkopuolelle sijoitetut nuorina aikuisina. Rekisteripohjainen seurantatutkimus Suomessa vuonna 1987 syntyneistä. [Children placed in out-of-home care as young adults. A register-based follow-up study on children born in 1987 in Finland]. *Yhteiskuntapolitiikka, 77*(6), 599–620. Retrieved from http://www.julkari.fi/handle/10024/100138/.

Kääriälää, A., Berlin, M., Lausten, M., Hiilamo, H. & Ristikari, T. (2018). Early school leaving by children in out-of-home care: A comparative study of three Nordic countries. *Children and Youth Services Review, 93*: 186–195.

Kääriälä, A. & Hiilamo, H. (2017). Children in out-of-home care as young adults: A systematic review of outcomes in the Nordic countries. *Children and Youth Services Review, 79*: 107–114.

McEwen, C. A., & McEwen, B. S. (2017). Social Structure, Adversity, Toxic Stress, and Intergenerational Poverty: An Early Childhood Model. *Annual Review of Sociology, 43*, 445–472.

Mendes, P. (2009). Young people transitioning from state out-of-home care. Jumping hoops to access employment. Australian Institute of Family Studies. *Family Matters, 83*, 31–38.

Männistö, I. I., & R. A. Pirttimaa. (2018). A review of interventions to support the educational attainments of children and adolescents in foster care. *Adoption & Fostering, 42*(3), 266–281.

OECD (2018a). *Equity in Education: Breaking Down Barriers to Social Mobility*. Paris: PISA, OECD Publishing. https://doi.org/10.1787/9789264073234-en.

OECD (2018b). *Good Jobs for All in a Changing World of Work: The OECD Jobs Strategy*. Paris: OECD Publishing. https://doi.org/10.1787/9789264308817-en.

OECD (2019). *Society at a Glance 2019: OECD Social Indicators*. Paris: OECD Publishing. https://doi.org/10.1787/soc_glance-2019-en.

Pears, K. C., Kim, H. K., & Brown, K. L. (2018). *Factors affecting the educational trajectories and outcomes of youth in foster care*. In Handbook of Foster Youth (pp. 208–222). Taylor and Francis.

Pösö, T., Skivenes, M., & Hestbæk, A. D. (2014). Child protection systems within the Danish, Finnish and Norwegian welfare states—time for a child centric approach?. *European Journal of Social Work, 17*(4), 475-490.

Roth, T. (2014). Effects of social networks on finding and apprenticeship in the German vocational training system. *European Societies*, *16*(2), 233–254.

Scarpetta, S., Sonnet, A. & Manfredi, T. (2010). *Rising Youth Unemployment during the Crisis: How to Prevent Negative Long-Term Consequences on a Generation?* OECD Social, Employment and Migration Papers 106. Paris: OECD.

Schmidt, C. (2010). Vocational education and training (VET) for youths with low levels of qualification in Germany. *Education+Training, 52*(5), 381–390.

Schoon, I., & Lyons-Amos, M. (2016). Diverse pathways in becoming an adult: The role of structure, agency and context. *Research in Social Stratification and Mobility, 46*, 11–20.

Settersten, R. A., & Ray, B. (2010). What's Going on with Young People Today? The Long and Twisting Path to Adulthood. *The Future of Children, 20*(1), 19–41.

Simkiss, D. E., Stallard, N., & Thorogood, M. (2013). A systematic literature review of the risk factors associated with children entering public care. *Child: Care, Health and Development, 39*(5), 628–642. https://doi.org/10.1111/cch.12010.

Socialstyrelsen (2016). *Individ- och familjeomsorg – Lägesrapport 2016*. [Individual and family care – progress report 2016] (no. 2016-2-22). Stockholm, Sweden: Socialstyrelsen. Retrieved from http://www.socialstyrelsen.se/Lists/Artikelkatalog/Attachments/20080/2016-2-22.pdf.

Stewart, C. J., Kumb, H-C., Barth, R. P., & Duncana, D. F. (2014). Former foster youth: Employment outcomes up to age 30. *Children and Youth Services Review, 36*, 220–229.

Storø, J., Sjöblom, Y., & Höjer, I. (2019). A comparison of state support for young people leaving care in Norway and Sweden: Differences within comparable welfare systems. *Child & Family Social Work, 24*, 393–399.

Tamesberger, D., & Bacher, J. (2014). NEET youth in Austria: a typology including socio-demography, labour market behaviour and permanence. *Journals of Youth Studies, 17*(9), 1239–1259.

Thoburn, J. (2007). *Globalisation and child welfare: Some lessons from a cross-national study of children in out-of-home care*. Norwich, UK: University of East Anglia Social Work Monographs.

Triseliotis, J. (1989). Foster care outcomes: a review of key research findings. *Adoption & Fostering, 13*(3), 5–17.

Trout, A. L., Hagaman, J., Casey, K., Reid, R., & Epstein, M. H. (2008). The academic status of children and youth in out-of-home care: A review of the literature. *Children and Youth Services Review, 30*(9), 979–994.

Vancea, M., & Utzet, M. (2018). School-to-work transition: the case of Spanish NEETs. *Journals of Youth Studies, 21*(7), 869–887.

Vinnerljung, B., & Andreassen, T. (2015). *Forskning i korthet: Barn och unga i samhällets vård – Forskning om den sociala dygnsvården*. [Research in brief: Children and young people in societal care – Research on out-of-home care] Stockholm: Forte.

Table 1. Institutional characteristics and country context in Denmark, Finland, and Sweden.

	Denmark	**Finland**	**Sweden**
Upper secondary school			
Enrolment rate (1)	95%	95%	99%
Upper age limit for entry (2)	No	No	Yes
Vocational education in preparation for tertiary education (2)	No	Yes	Yes
Typical graduation age[a] (1)			
On vocational track	20–21 yrs	19 yrs	18 yrs
On academic tracks	18–19 yrs	19 yrs	18 yrs
Completion rate at age 21 (at age 31) (3)	62% (83%)	82% (90%)	84% (90%)
OHC			
Proportion in OHC in study population[b]	5.5%	3.2%	3.2%
After-care services (4)	Yes, until age 23	Yes, until age 21[c]	No
Employment			
Youth unemployment rate, 15–24 yrs (5)			
in 2008	8%	16%	20%
in 2010	14%	21%	25%
Employment protection (2)	Low	High	High

a) The typical age refers to the age of the students at the beginning of the school year; students will generally be one year older than the age indicated when they graduate at the end of the school year. b) Proportion in OHC during childhood (<18 years) in the study population (residents 2008–2010 who were born in these countries in 1987). c) Extended until age 25 in January 2020.

Sources: (1) Education at a glance 2012, OECD. (2) Bäckman et al., 2015. (3) Albæk et al., 2015. (4) Authors, 2018a; Barnskyddslag 417/2007; Storø, Sjöblom, & Höjer, 2019. (5) OECD, 2019.

Table 2. Research data, registers, and data retrieved for variables.

Maintained by	National registers	Variables and data retrieved
Denmark		
Statistics Denmark	The Population Register	Sex; Definition of study population (all residents born in 1987 and residing in the country in 2008–2010); Identification of birth mother
	The Register on Children and Youth in Out-of-home Care	Information on OHC experience [a]
	The Education Register	Study subject's educational attainment by 31st Dec. 2010; Birth mother's educational attainment by 31st Dec. 2008 (missing education when no information on DISCED level 20); GPA last year in primary school
	The Register on Income and Social Assistance	NEET; Birth mother's social assistance in 1990–2004 (received social assistance for at least 180 days in one year)
	The Psychiatric Register	Birth mother's mental health problems [b]; Birth mother's alcohol and drug abuse [b]
Finland		
The Finnish Population Register Centre	The Population Register	Definition of study population (all residents born in 1987 and residing in the country in 2008–2010)
National Institute for Health and Welfare, THL	The Medical Birth Register	Sex
	The Social Assistance Register	Birth mother's social assistance in 1990–2004 (received social assistance for at least 6 months in one year)
	The Hospital Discharge Register	Birth mother's mental health problems [b]; Birth mother's alcohol and drug abuse [b]
	The Child Welfare Register	Information on OHC experience [a]
Statistics Finland	The Education Register	Study subject's educational attainment by 31st Dec. 2010; Birth mother's educational attainment by 31st Dec. 2008; GPA last year in primary school
Centre for Pensions and The Social Insurance Institution	A combination of employment and study grant	NEET
Sweden		
Statistics Sweden	The Total Population Register	Sex; Definition of study population (all residents born in 1987 and residing in the country in 2008–2010)
	The Multi-generation Register	Identification of birth mother
	The Longitudinal integration database for health insurance and social studies (LISA)	NEET; Study subject's educational attainment by 31st Dec. 2010; Birth mother's educational attainment by 31st Dec. 2004; Birth mother's social assistance in 1990–2004 (received over 50% of annual income as social assistance)
	The Education Register	GPA last year in primary school
The National Board of Health and Welfare	The Child Welfare Intervention Register	Information on OHC experience [a]
	The National Inpatient Register	Birth mother's mental health problems [b]; Birth mother's alcohol and drug abuse [b]

[a] Age at first entry in OHC and total length of time in OHC before age 18.

[b] International Statistical Classification of Diseases and Related Health Problems 9th and 10th revisions (ICD-9 and -10) diagnosis from inpatient hospital care from 1987 to 2004. Mental health problems are defined by ICD-9 codes 293–302, 306–309, 311–316 and ICD-10 codes F20–F69, F80–F99. Alcohol and drug abuse are defined by ICD-9 codes 291–292, 303–304, 3050, 3059, 980 and ICD-10 codes F10–F19.

Table 3. Descriptive statistics by OHC sub-group, mean, and per cent.

OHC sub-group	**No OHC**			**All in OHC**			**Early short**			**Early inter**			**Early long**			**Teen care**		
Country	**DEN**	**FIN**	**SWE**	**DEN**	**FIN**	**SWE**	**DEN**	**FIN**	**SWE**	**DEN**	**FIN**	**SWE**	**DEN**	**FIN**	**SWE**	**DEN**	**FIN**	**SWE**
Mean (years)																		
Age at first OHC	..	..	..	11.0	10.7	10.5	4.1	8.2	5.7	7.3	7.9	7.1	6.5	5.5	5.0	15.6	15.3	15.5
Total time in OHC	..	..	..	3.4	4.3	3.2	0.4	0.3	0.3	2.8	2.6	2.8	9.3	11.3	10.7	1.7	1.5	1.3
Per cent																		
Sex																		
Girls	49	49	49	46	51	52	43	43	48	41	45	44	41	45	48	50	58	58
Boys	51	51	51	54	49	48	57	57	52	59	55	56	59	55	52	50	42	42
Mother's:																		
Educational level																		
Primary	24	15	13	49	43	32	45	39	28	52	52	36	62	59	42	42	33	27
Secondary	40	45	51	29	44	49	30	47	53	27	38	48	16	37	41	35	49	52
Post-secondary	34	40	35	12	13	12	16	14	13	12	10	10	6	4	3	14	19	16
Missing*	2	..	1	10	..	7	9	..	6	9	..	6	16	..	14	9	..	5
Social assistance	34	8	26	75	56	85	82	59	88	82	68	92	84	77	94	67	39	77
Psychiatric care	2	3	3	11	20	21	7	25	28	13	21	27	16	30	31	8	12	12
Substance abuse	2	1	1	10	15	16	11	15	14	11	16	27	21	29	33	5	6	8
GPA																		
No or low	21	20	14	63	46	57	55	36	42	62	49	60	65	40	46	64	52	65
Above low	79	80	86	37	54	43	45	64	58	38	51	40	35	60	54	36	48	35
NEET 2008-2010	6	7	6	26	33	27	16	20	18	29	26	29	28	35	29	26	38	30
Total number (N)	51,272	55,916	96,311	2,997	1,835	3,188	316	256	545	478	193	434	682	524	649	1,521	862	1,560

** In Finland, missing information is included in the primary educational level in the registry.*

Figure 1. Pathways from poor school performance to NEET at age 21–23, divided into three steps: (1) GPA in primary school Above low vs. No or low; (2) Completed upper secondary education at age 23 Upper (i.e., completed) vs. Primary (i.e., not completed); and (3) NEET at age 21–23. No OHC group and OHC group by country. Per cent.

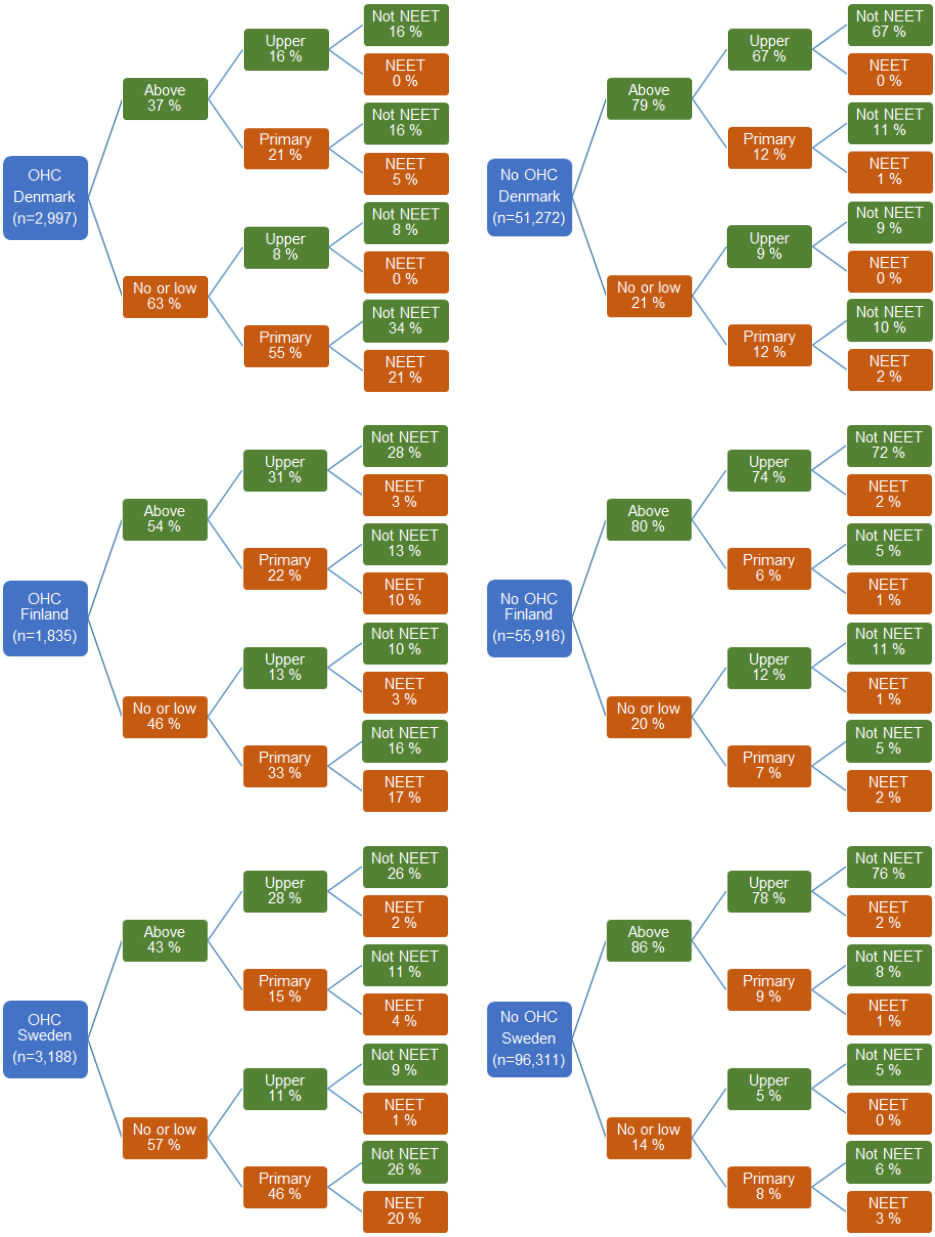


Table 4. Average marginal effects (AME) with 95% confidence intervals (CI) for NEET 2008–2010 by country.

	DEN		FIN		SWE	
	AME	95% C.I.	AME	95% C.I.	AME	95% C.I.
All in care						
Model 1 [a]						
All in OHC (ref = No OHC)	0.23	0.21–0.24	0.26	0.24–0.28	0.22	0.20–0.23
Model 2 [b]						
All in OHC (ref = No OHC)	0.15	0.14–0.17	0.14	0.12–0.16	0.12	0.11–0.14
Model 3 [c]						
All in OHC (ref = No OHC)	0.10	0.08–0.10	0.11	0.10–0.13	0.06	0.05–0.07
No or low GPA (ref = GPA above low)	0.08	0.08–0.09	0.12	0.11–0.12	0.15	0.15–0.16
Sub-groups						
Model 1[a]						
No OHC	ref		ref		ref	
Early short	0.13	0.08–0.17	0.13	0.08–0.18	0.12	0.09–0.15
Early inter	0.25	0.21–0.29	0.20	0.13–0.26	0.23	0.19–0.27
Early long	0.25	0.22–0.28	0.28	0.24–0.32	0.25	0.22–0.27
Teen care	0.23	0.20–0.25	0.31	0.28–0.34	0.24	0.20–0.27
Model 2[b]						
No OHC	ref		ref		ref	
Early short	0.08	0.05–0.11	0.04	0.01–0.07	0.05	0.03–0.08
Early inter	0.16	0.13–0.20	0.07	0.03–0.11	0.13	0.10–0.16
Early long	0.15	0.13–0.18	0.11	0.08–0.14	0.12	0.09–0.15
Teen care	0.16	0.15–0.18	0.21	0.14–0.24	0.16	0.14–0.18
Model 3[c]						
No OHC	ref		ref		ref	
Early short	0.05	0.02–0.07	0.03	0.00–0.06	0.03	0.01–0.05
Early inter	0.11	0.08–0.13	0.05	0.01–0.08	0.06	0.04–0.08
Early long	0.10	0.08–0.12	0.11	0.08–0.14	0.07	0.05–0.08
Teen care	0.10	0.08–0.11	0.15	0.13–0.18	0.09	0.07–0.11

a) Adjusted for sex. b) Adjusted for sex and birth mother's characteristics (education, social assistance, psychiatric care, and substance abuse). c) Adjusted for sex, birth mother's characteristics, and GPA.

Table 5. OHC experience in combination with GPA. Adjusted[a] average marginal effects (AME) with 95% confidence intervals (CI) for NEET 2008–2010 by country.

	DEN		FIN		SWE	
	AME	95% C.I.	AME	95% C.I.	AME	95% C.I.
All in OHC * GPA						
All in OHC, No or low GPA	0.34	0.32–0.36	0.33	0.30–0.36	0.32	0.30–0.34
GPA above low	0.14	0.12–0.17	0.14	0.12–0.17	0.11	0.09–0.13
No OHC, No or low GPA	0.09	0.09–0.10	0.12	0.11–0.13	0.16	0.15–0.17
GPA above low	ref		ref		ref	
Sub-group * GPA						
Early short, No or low GPA	0.27	0.21–0.33	0.21	0.13–0.30	0.24	0.18–0.29
GPA above low	0.03	-0.02–0.09	0.04	-0.01–0.08	0.05	0.02–0.09
Early inter, No or low GPA	0.36	0.31–0.41	0.27	0.19–0.36	0.32	0.27–0.38
GPA above low	0.19	0.13–0.25	0.03	-0.03–0.08	0.10	0.05–0.15
Early long, No or low GPA	0.36	0.32–0.41	0.32	0.26–0.38	0.40	0.35–0.45
GPA above low	0.14	0.09–0.18	0.14	0.10–0.18	0.09	0.06–0.13
Teen care, No or low GPA	0.34	0.31–0.37	0.36	0.32–0.41	0.31	0.29–0.34
GPA above low	0.16	0.13–0.19	0.21	0.17–0.26	0.15	0.12–0.19
No OHC, No or low GPA	0.09	0.09–0.10	0.12	0.11–0.13	0.16	0.15–0.17
GPA above low	ref		ref		ref	

a) Adjusted for sex and birth mother's characteristics (education, social assistance, psychiatric care, and substance abuse).

Study V

Original Article

DEVELOPMENTAL CHILD WELFARE

Educational outcomes of children from long-term foster care: Does foster parents' educational attainment matter?

Developmental Child Welfare
2019, Vol. 1(4) 344–359

DOI: 10.1177/2516103219892274
journals.sagepub.com/home/dcw

Marie Berlin[1,2], Bo Vinnerljung[1], Anders Hjern[3,4], and Lars Brännström[1]

Abstract

Parental education is a robust predictor of children's educational outcomes in general population studies, yet little is known about the intergenerational transmission of educational outcomes in alternative family settings such as children growing up in foster care. Using Swedish longitudinal register data on 2.167 children with experience of long-term foster care, this study explores the hypothesized mediating role of foster parents' educational attainment on foster children's educational outcomes, here conceptualized as having poor school performance at age 15 and only primary education at age 26. Results from gender-stratified regression analyses suggest that there was an association between foster parental educational attainment and foster children's educational outcomes but that the educational transmission was weak and inconsistent and differed somewhat between males and females. For males, lower educational attainment in foster parents was associated with poor school performance but was not associated with educational attainment at age 26. The reverse pattern was found among females: the educational gradient was inconsistent for poor school performance but appeared in educational attainment. The results indicate that supported interventions for improving foster children's educational achievements are needed, even when placements are relatively stable and foster parents have a long formal education.

Keywords

Educational attainment, foster parents, out-of-home care, parental education, school performance

[1] Stockholm University, Sweden
[2] The Swedish National Board of Health and Welfare, Sweden
[3] Karolinska Institutet, Sweden
[4] Centre for Health Equity Studies, Sweden

Submitted: 20 August 2019; Accepted: 12 November 2019

Corresponding author:
Marie Berlin, The National Board of Health and Welfare, SE-106 30 Stockholm, Sweden.
Email: marie.berlin@socialstyrelsen.se

Introduction

It is well-known that education plays an important role in young people's life chances (Esping-Andersen, 2005). Empirical research has amassed substantial evidence demonstrating that children with highly educated parents perform better in school and achieve higher educational attainment than children whose parents have less education (e.g., Breen & Goldthorpe, 2014; Hertz et al., 2007; Jackson, 2014). Theoretical links between education and overall life chances comprise mechanisms contributing to behaviors that allow individuals to function in modern societies and have choices about what sort of life they want to lead (Jackson, 2014). Proposed mechanisms include (but are not limited to) the role of norm internalization (Bourdieu & Passeron, 1977) and forward-looking decisions under constraints posed by available and perceived resources (Breen & Goldthorpe, 2014). A general assumption in this area of research is that parent and child interactions are decisive for children's development of academic skills and school performance (Boudon, 1974; Bourdieu & Passeron, 1977; Coleman, 1988). Given this fundamental significance of the family environment, what about children who grow up in foster care?

International studies report high rates of poor school performance among children with experience of foster care (Kääriälä, Berlin, Lausten, Hiilamo, & Ristikari, 2018; O'Higgins, Sebba, & Gardner, 2017). Longitudinal studies have moreover shown that the educational gap between children with experience of foster care and their peers tends to begin at a young age, increase as they get older, and persist through the course of their lives (Sebba et al., 2015; Vinnerljung, Berlin, & Hjern, 2010). The question as to why individuals with experience of foster care tend to have poor educational outcomes has received much attention, with many alternative proposals related to pre-care factors (e.g., maltreatment, neglect, disruptive behavior), in-care factors (e.g., instability, school interruptions), and post-care factors (e.g., weak support network) (O'Higgins et al., 2017). Mainly due to the lack of adequate longitudinal data, however, the importance of foster family's educational attainment has not been sufficiently addressed.

Small-scale studies have suggested no or weak association between foster parents' educational attainment and foster children's educational outcomes (Heath, Colton, & Aldgate, 1994; Sawyer & Dubowitz, 1994; Wise, Pollock, Mitchell, Argus, & Farquhar, 2010). It has moreover been suggested that foster parents have lower educational attainment than birth parents, which implies that foster children more frequently stay in nonacademic environments (Cameron, Jackson, Hauari, & Hollingworth, 2012; Cox, 2013; Fries, Klein, & Ballantyne, 2016; Zetlin, MacLeod, & Kimm, 2012). It has also been hypothesized that a socioeconomic matching process is involved in the pairing of foster families and foster children, both through social welfare agencies (with or without intent) and through the family network, which may yield an interaction effect (i.e., effect modification) on educational outcomes, that is, that an association between birth parents' and foster children's education is mediated by foster parents' educational level. To our knowledge, this matching hypothesis has not yet been tested empirically.

Using Swedish longitudinal register data for more than 2,000 foster care alumni, the purpose of this study is to further our understanding about the importance of foster parents' educational attainment in shaping foster children's educational outcomes. This is achieved by examining the association between foster mother's (FM's) educational attainment and foster children's educational outcomes when controlling for birth mother's (BM's) educational attainment in a population of individuals with experience of stable long-term foster care during their formative years. Foster children's educational outcomes are conceptualized as having poor school performance at age 15 and only primary education at age 26. After controlling for birth parental education and other

confounding factors, we expect an educational gradient among foster children in relation to foster parents' educational attainment, that is, that foster children who live with foster parents with higher education perform better in primary school and have higher educational attainment at age 26 as compared to foster children whose foster parents have lower educational attainment. Since prior research has shown that women typically outperform men in the educational system (Buchmann, DiPrete, & McDaniel, 2008; O'Higgins et al., 2017), we report the results from gender-stratified analyses.

Our study contributes to previous research in the following ways. First, we are not dependent on cross-sectional data and we do not rely on retrospective self-reports. Second, our population—with a long-term follow-up—includes a large number of individuals with low data attrition. Third, we have data on both birth and foster parents' educational attainment. Data on foster family characteristics are generally lacking in Swedish register studies since the Child welfare Intervention Register does not hold information on foster families. In this study, we linked foster children to foster families by using the Swedish Population and Housing Census. Lastly, we have access to robust outcome measures and high-quality data for constructing relevant confounders related to childhood socioeconomic background.

Methods

This study is a historical prospective cohort study based on record-linkages between eight national registers held by different Swedish authorities and covering the entire Swedish population. The overall quality of the registers is regarded as high, and they were linked by use of the unique 12-digit ID numbers given to all Swedish residents at birth or immigration. Ethical permission for the current study was obtained from the Stockholm Regional Ethics Committee (no 2007/679-31; no 4.2.1-17460/2012).

Study population

The study population was restricted to children in relatively stable placements in order to ensure a fairly coherent exposure from the foster family during primary school years. Thus, the study population was defined as individuals who (a) entered foster care before primary school started, that is, before age 7, (b) stayed in long-term care, that is, more than 5 years before age 18 according to the Child Welfare Intervention Register (held by the National Board of Health and Welfare), and (c) lived with the same FM in two consecutive censuses (5 years in-between) according to the Population and Housing Censuses (held by Statistics Sweden). Individuals who emigrated or immigrated after age 7 according to the Total Population Register (held by Statistics Sweden), or died before age 17 according to the National Cause of Death Register (held by the National Board of Health and Welfare), were excluded from the study.

Foster parents were identified through the Population and Housing Censuses where data were collected partly from questionnaires and partly from registers. The nonresponse rate was approximately 2% in 1990 and lower in previous censuses. The study population consists of individuals born in 1972–1978. The 1980 and 1985 censuses were used for birth cohorts 1972–1973 and the 1985 and 1990 censuses for birth cohorts 1974–1978. Staying in the same foster family across censuses is defined as staying with the same FM, that is, the foster father could be replaced or removed between censuses (this happened in 16% of the cases). The censuses contain information on individuals, households, and housing.

The study population represents 59% ($n = 2,167$) of all children in long-term care placed before age 7 ($N = 3,650$). On average, the study individuals stayed in care for 14 years during childhood (before their 18th birthday) and entered care for the first time at age 2.6 years. The main reason for exclusion from the study was that the individual did not stay in the same census household (while in care) across two consecutive censuses (39%), either because they were living with their birth parents at any of the censuses or because they had changed census household (new foster family or in residential care). An additional 2% were excluded because they were not staying with the same census mother across censuses, even though with the same census father. The latter exclusion was done because we decided to tie the analysis to the census mother's educational attainment. This was done in order to limit the level of missing data since census fathers had far more missing data on educational level than census mothers. The number of individuals staying with the same census mother only ($n = 337$) was much higher than the number of individuals staying with the same census father only ($n = 67$). We did not separate those who got a new census father from those who were left with a single census mother after a foster-parent separation.

The average level of school performance measured as grade point average (GPA) in the final year of compulsory school (9 years, age 15–16) was slightly higher among the 59% who stayed in the same foster family across censuses (the study population) than those who were excluded from the study due to not living in the same foster family across censuses (2.5 vs. 2.3 among boys and 2.8 vs. 2.7 among girls) but considerably lower than in the majority population (3.0 among boys and 3.4 among girls).

Outcomes

Poor school performance. Data were retrieved from the National School Register held by the Swedish School Authority and Statistics Sweden. Poor school performance was measured as "no or low grades" in the last year of compulsory school, that is, primary school, where low grades equaled a GPA below 2.4 (mean [*M*]–standard deviation [*SD*]). When the study population went to primary school, the grading system consisted of a five-point scale—from 1 (*lowest*) to 5 (*highest*). Grades in each subject had a Gaussian distribution on a national level. GPA ranged from a minimum of 0.1 to a maximum of 5.0, with *M* 3.2 and *SD* 0.8 in the entire Swedish population. GPA below 1.0 indicated one or more subjects without ratings (most often because the student failed in those subjects). Individuals without ratings in individual subjects were included in the study and were given the value 0 in these cases. The GPA calculation included 16 different school subjects. Physical education and technology were excluded from GPA because some students were exempted from sport and because technology was not taught in all schools.

Only primary education at age 26. Data were retrieved from the Longitudinal Integration database for Health insurance and Social studies (LISA) held by Statistics Sweden. Only primary education was indicated as no completed educational attainment at the upper secondary or postsecondary level at age 26 in accordance to UNESCO's (2012) International Standard Classification of Education.

Confounders

Combined maternal education. Data were retrieved from LISA and the entire period (1990–2005) was covered in order to reduce missing information. Level of educational attainment is generally stable in mature adult age (Rudolphi, 2013). In our sample, only around 1 in 20 FMs (6%)

increased their educational level during the observation period. We used a combination of BM's and FM's highest completed educational level in the analyses, where educational level was categorized as Primary (<9 years), Upper Secondary (10–12 years), and Postsecondary (13+ years). A category for "missing data" was included for BMs since 17% were lacking information on educational attainment due to different reasons, for example, deceased before 1990 (two thirds of the missing cases) or obtaining an education abroad without registration in Sweden (19% of BMs were born abroad). Individuals with missing information on FMs' educational level were excluded from the regression analyses ($n = 29$).

Birth father's and foster father's educational level were also included in the initial analyses but were later excluded due to a high proportion of missing information. Educational homogamy (that partners have similar educational level) is known to be strong in most countries (e.g., Kalmijn, 1998). In our study population, the educational correlation was stronger between foster parent's education than between birth parent's education ($r = .4$ vs. $r = .2$, not shown in table).

Age at first placement. Data were retrieved from the Child Welfare Register and entered in the statistical analyses as a continuous variable.

Total time in care. Data were retrieved from the Child Welfare Register and entered in the statistical analyses as a continuous variable.

BM's age. The links between foster children and birth parents were retrieved from the Multi-Generation Register. BM's age (continuous) was measured at the birth of the foster child.

BM born abroad. Data were retrieved from the Total Population Register.

BM's psychiatric care. Data were retrieved from the National Inpatient Register held by the National Board of Health and Welfare. The variable indicates if the BM had been hospitalized or died, between 1973 and 2005, with a psychiatric diagnosis (including suicide attempts and suicide). Birth father's psychiatric care was also included in the initial analyses but was later excluded in the final models due to a large proportion of missing information on birth fathers together with a weak effect in the models.

BM's substance abuse. Data were retrieved from the National Inpatient Register. The variable indicated if the BM had been hospitalized, or died, with a substance abuse related diagnosis. Birth father's substance abuse was also included in the initial analyses but was later excluded for the same reason as for birth father's psychiatric care.

Household size excluding foster parents. Data were retrieved from the first Population and Housing Census (1980 for those born 1972–1973 and 1985 for those born 1974–1978) and referred to the number of persons living in the foster family household besides the foster parents. Previous studies have shown that having fewer children in the household is associated with higher academic achievement (Sawyer & Dubowitz, 1994).

Two foster parents in both censuses. Data were retrieved from the Population and Housing Censuses and referred to if the same two parents were present in both censuses.

Kinship care. Data were retrieved through linkage in the Multi-Generation Register and referred to if the foster child was living with relatives, that is, grandparents or aunts/uncles (siblings of birth

parents). Kinship care has been suggested to influence foster children's educational outcomes or correlate with factors associated with foster children's educational outcomes (e.g., stability in placement, educational attainment), but results have been mixed and the definition of kinship care varies between studies (Cuddeback, 2004; Winokur, Holtan, & Batchelder, 2018).

Adoption after care. Data were retrieved through linkage in the Multi-Generation Register. We did not have information on date of adoption but the placement terminates when the foster child is adopted (Socialstyrelsen, 2014). Everyone included in the study population was still in care during census years. On average, foster children who were adopted had stayed in care for 16 years (entered care at age 1.7) and foster children who were not adopted for 15 years (entered care at age 2.9).

FM's age (continuous variable). Data were retrieved from the Total Population Register and measured at the birth of the foster child. Maternal age was included in the analysis since individuals' educational level has different meaning across generations due to the educational expansion in recent decades (Breen, 2010).

FM born abroad. Data were retrieved from the Total Population Register.

GPA in primary school. This outcome variable was included as a control variable in the analysis of educational attainment at age 26, and then measured as a four-category variable: no or low grades [GPA $< (M - SD)$]; low up to mean [$(M - SD) <$ GPA $< M$]; mean up to high [$M <$ GPA $< (M + SD)$]; and high grades [GPA $> (M + SD)$].

Sex. Data were retrieved from the Total Population Register and gender-specific models were used in the analyses.

Birth year of foster child. Data were retrieved from the Total Population Register and all models were adjusted for birth year of the foster child, that is, both crude and adjusted estimates.

Statistical analysis

Logistic regression was used to analyze both poor school performance (Figure 1 and Online Supplementary Table S1) and only primary education at age 26 (Figure 2 and Online Supplementary Table S2). We were searching for an educational gradient in foster children's educational outcomes in relation to FMs' educational attainment, that is, the higher the FMs' educational level, the higher the foster children's educational outcomes could be expected. Since there is substantial evidence of intergenerational transmission of education between birth parents and their children in long-term care (e.g., Vinnerljung, Öman, & Gunnarsson, 2005), we controlled for BM's education by using a variable which combined BM's and FM's highest completed educational level (combined maternal education). That allowed us to search for a gradient in relation to FM's education given the BM's education.

Those whose BMs had missing information on educational level were included in the analyses, but the estimates are not presented in figures and tables due to insufficient information for interpretation of the results. Additional complete case analyses (excluding those with missing information) were also tested, and with similar results as in the final analyses presented in the article.

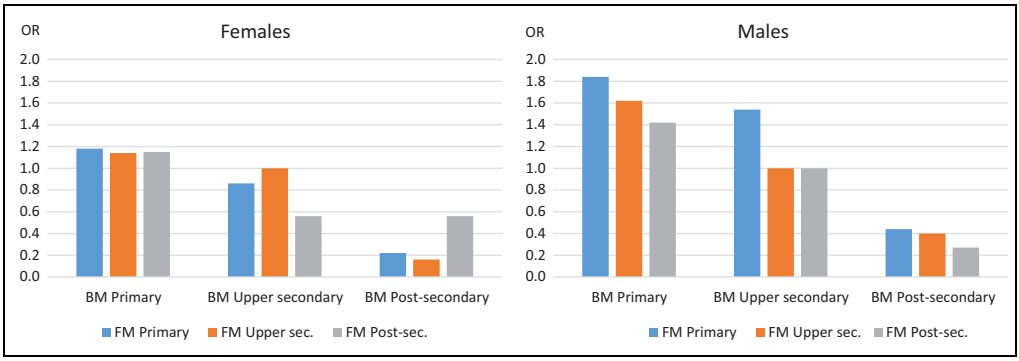


Figure 1. Poor school performance in primary school. Logistic regression estimates (OR) for combined maternal education, adjusted for all control variables. OR = odds ratio.

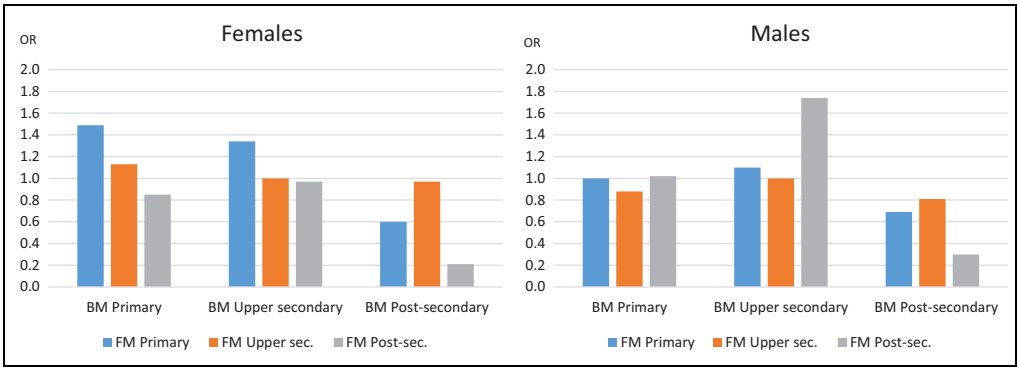


Figure 2. Only primary education at age 26. Logistic regression estimates (OR) for combined maternal education, adjusted for all control variables. OR = odds ratio.

The choice of control variables was guided by prior research but was also constrained by what was available in the registers. All analyses were made with the SAS software package 7.1.

Results

Descriptive statistics

Table 1 presents descriptive statistics for the variables used in the analyses. The two outcome variables – no or low grades in primary school and only primary education at age 26 – had a considerably higher prevalence in the study population as compared to the majority population, which has been reported in previous studies (Berlin, Vinnerljung, & Hjern, 2011; Vinnerljung et al., 2010). While 48% in the study population (and 57% in the excluded long-term care group) had no or low grades in primary school, the corresponding proportion in the majority population without foster care experience was 19% (not shown in table) and 54% in the study population (and 66% in the excluded long-term care group) had not achieved an upper secondary education (thus

only primary education) at age 26 as compared to 28% among peers without foster care experience (not shown in table).

The proportion with missing values in the National School Register (i.e., no grades in primary school) was substantially higher in the study population compared to peers without foster care experience (10% vs. 4%, not shown in table). Missing values could either be a result of frequent truancy from school or attending a school which did not, for different reasons, report grade points to Swedish authorities, for example, schools at residential care institutions. Children who grow up in foster families during their early years are known to be heavily over represented in residential care for adolescents (Vinnerljung, 1999), which could be one reason for their higher rate of missing values. Also, some schools for students with certain needs (e.g., due to learning disabilities) do not give grade points. Ultimately, it is not possible to identify the reason for missing values in the register.

The control variable in focus in this study is the combination of BM's and FM's educational level. The most common combination was BM having primary level and FM an upper secondary level (20%), followed by both having primary level (17%). On average, FMs had a higher educational level than BMs. Only a very small group of BMs had postsecondary education (3%). In comparison with the majority population (not shown in table), FMs had lower educational attainment than mothers whose children were not in care but the differences were not substantial (the proportion with upper secondary education were similar, while the proportion with postsecondary education was lower among FMs than mothers in the majority population, 18% vs. 27%). We found a matching effect, such that children whose BMs had higher educational attainment were placed in foster families where the FM had higher education, both in kinship care and nonrelative foster families. However, when maternal education was divided into three broad groups (shown in Table 1), the effect was only visible among BMs with postsecondary education.

The control variables had a similar distribution among female and male foster children; 45% of the BMs had an indication of substance abuse and 54% had been in psychiatric care. BMs were more often born abroad than FMs were, and there was a positive correlation between the BM and the FM being born abroad ($r = .3$, not shown in table). Two thirds of the foster children in the study population were staying with nonrelatives and had not been adopted at the end of follow-up (December 2005). On average, FMs in families where one of the parents was related to the foster child (grandparents or aunts/uncles) had lower educational attainment were older (while BMs were younger), compared to FMs in nonrelative families (not shown in table). Foster parents who adopted the foster child after placement had slightly higher educational attainment than nonrelatives who had not adopted the child (not shown in table).

Regression estimates

Figure 1 presents estimates for the combined variable on maternal education in the analysis of poor school performance (no or low grades) in primary school (for females and males respectively) when adjusting for all control variables (i.e., birth cohort, age at first placement, total time in care, BM's characteristics [born abroad, age, substance abuse, psychiatric care], FM's characteristics [born abroad, age], household size, kinship care, adoption after care, two foster parents in both censuses).

The bars in the figure are organized into three groups based on BM's educational level, with three bars in each group representing FM's educational level. The first group (leftmost) shows the odds of poor school performance when the BM had a primary education in combination with

Table 1. Sample properties: Descriptive statistics (proportion/means).

Variables		Females	Males	Total
	Poor school performance	0.40	0.56	0.48
	Only primary education at age 26[a]	0.54	0.54	0.54
Maternal education	BM's educational attainment (highest level 1990–2005)[b]			
	Missing information	0.17	0.18	0.17
	Primary	0.48	0.43	0.45
	Upper Secondary	0.33	0.36	0.35
	Postsecondary	0.02	0.03	0.03
	FM's educational attainment (highest level 1990–2005)[b]			
	Missing information[c]	0.01	0.02	0.01
	Primary	0.36	0.39	0.37
	Upper Secondary	0.45	0.43	0.44
	Postsecondary	0.18	0.17	0.18
	Combination of BM's and FM's educational attainment[b,c]			
	BM Missing information and FM			
	Primary	0.06	0.07	0.07
	Upper Secondary	0.08	0.08	0.08
	Postsecondary	0.03	0.02	0.03
	BM primary and FM			
	Primary	0.17	0.18	0.17
	Upper Secondary	0.22	0.18	0.20
	Postsecondary	0.08	0.07	0.08
	BM upper secondary and FM			
	Primary	0.12	0.14	0.13
	Upper Secondary	0.15	0.16	0.15
	Postsecondary	0.06	0.06	0.06
	BM postsecondary and FM			
	Primary	0.01	0.01	0.01
	Upper Secondary	0.01	0.01	0.01
	Postsecondary	0.01	0.01	0.01
Foster family household	Household size excl. foster parents (mean)	2.9	2.8	2.8
	Two foster parents in both censuses	0.83	0.86	0.84
	Kinship care	0.18	0.19	0.19
	Adoption after care	0.13	0.15	0.14
FM	Born abroad	0.11	0.12	0.11
	Age at birth of foster child (mean)	32.3	32.1	32.2
BM	Born abroad	0.18	0.19	0.19
	Age at birth of foster child (mean)	25.0	25.1	25.0
	Substance abuse	0.46	0.44	0.45
	Psychiatric care	0.54	0.54	0.54
Total		1,065	1,102	2,167

Note. BM = birth mother; FM = foster mother.
[a]Individuals who died before age 27 were excluded from the analysis ($n = 42$).
[b]Sums up to 1.00.
[c]Study subjects with missing information on FM's educational attainment ($n = 29$) were excluded from the analysis.

different educational levels of the FM (i.e., primary, upper secondary, and postsecondary education, respectively). The second group (middle) shows the odds of poor school performance when the BM had an upper secondary education in combination with different educational levels of the

FM. And the third group (far right) shows the odds of poor school performance when the BM had a postsecondary education in combination with different educational levels of the FM. Individuals with missing information on BM's educational attainment (17%) were excluded from figures and tables (although included in the analysis, see the method section).

The odds of poor school performance were generally higher among those whose BMs had primary education (the first group) and lower among those whose BMs had postsecondary education (the third group), as compared to those whose BMs had upper secondary education (the second group). However, that was expected and not the main focus in this study. Instead, we were searching for an educational gradient within each group, that is, the higher the FM's educational level, the lower the odds of poor school performance regardless of BM's education. We concentrated on the first two groups (BMs having primary or upper secondary education) which contained the majority of the study population (80%), since postsecondary education was unusual among BMs (3%). The results showed a gradient in regard to FM's education given the BM's education, but the pattern differed between females and males (see also Online Supplementary Table S1).

For males, there was an educational gradient in relation to FMs' educational attainment. The gradient was most consistent in the biggest group, that is, among those whose BMs had primary education (43% of all males, see Table 1). For females, the pattern was inconsistent. In addition to maternal education, some of the control variables did also have a statistical significant association with school performance (not shown). For foster children who were adopted after placement, the odds of poor school performance were significantly lower (females and males: odds ratio [OR] = 0.54; 0.58). This might be a selection effect where a well-functioning foster care placement may have increased the likelihood of a future adoption. The odds were also lower for foster children in kinship care, both for males and females (OR = 0.74; 0.82), although not significantly. For males, the odds for poor school performance were also significantly lower when both foster parents remained in the foster family in both censuses (OR = 0.54).

Figure 2 presents estimates for the combined variable on maternal education in the analysis of educational attainment (only primary education) at age 26 when adjusting for all control variables including GPA in primary school. The bars are organized in the same way as in Figure 1. As compared to poor school performance (Figure 1), the gender pattern was reversed and females whose BMs had primary education (48% of all females, see Table 1) showed a gradient in relation to FM's education while the gradient among males disappeared. In the crude models (see Online Supplementary Table S2), both females and males had an educational gradient in relation to FM's education, with the exception of females whose BMs had postsecondary education (3% of all females, see Table 1) and males whose BMs had upper secondary education while FMs had postsecondary education. Besides the combined variable of maternal educational attainment, BM being born abroad (OR = 1.52) or having had psychiatric care (OR = 1.38) significantly increased males' odds of only having primary education at age 26, while being adopted significantly decreased (OR = 0.63) their odds (not shown). Kinship care had no significant effect on the fostered individual's educational attainment (not shown).

Discussion

In the present study, we investigated the intergenerational transmission of educational attainment in foster care settings. The transmission of education from parents to children is known to be strong in the majority population (e.g., Breen & Goldthorpe, 2014; Hertz et al., 2007; Jackson, 2014), which creates an educational gradient where higher educational attainment among parents

is also seen in their children. In this context, we were searching for an educational gradient in foster children's educational outcomes in relation to FMs' education when controlling for BMs education. To some extent, our results showed a gradient but it was generally weak and inconsistent and differed between males and females. For males, there was an educational gradient in poor school performance, that is, the odds of poor school performance were generally lower when FMs had higher educational attainment. However, the educational gradient was inconsistent for later academic achievements (only primary education at age 26) and no longer present when adjusting for background factors including grades in primary school. The reverse was true for females. Regarding poor school performance, females' educational gradient was inconsistent but did instead appear in later academic achievements also when we adjusted for background factors and grades in primary school.

Our results suggest that FM's education was not such a robust predictor of foster children's educational outcomes as parental education is found to be for children who live continuously with their birth parents (e.g., Breen & Goldthorpe, 2014; Hertz et al., 2007; Jackson, 2014; Vinnerljung et al., 2010). Considering that the foster children in this study entered care before primary school started, and were brought up in foster care and spent most of the primary school years in the same foster family (at least five out of nine years), we expected a more consistent educational gradient in relation to FM's educational attainment. Hence, our findings suggest that the mechanisms that transmit higher education from parents to children in the majority population were attenuated in the foster family setting. However, the difference between males and females were in line with previous findings in the majority population which suggest that boys benefit more than girls do from an advantageous home environment in terms of school performance, that is, GPA (Brenøe & Lundberg, 2018). And further, that later educational choices are same-sex correlated, that is, that mothers' education is more important for daughters while fathers' education is more important for sons (Humlum, Nandrup, & Smith, 2019). This might explain the absence of a gradient in males' educational attainment in relation to FMs' educational level.

It has been suggested that foster children's adverse pre-care experiences have an overriding negative impact on their school performance (e.g., Berridge, 2007; Pears, Kim, & Brown, 2018; Trout, Hagaman, Casey, Reid, & Epstein, 2008) but evidence also suggests that maltreated children (Fox, Almas, Degnan, Nelson, & Zeanah, 2011) and foster children (Flynn, Tessier, & Coulombe, 2013; Tideman, Vinnerljung, Hintze, & Aldenius Isaksson, 2011) respond well to educational support. Contrary to scholars who emphasize pre-care factors as the major determinant for foster children's low educational achievement, others stress the importance of in-care factors where caregiver involvement plays a crucial role (Flynn et al., 2013; O'Higgins et al., 2017). The transmission of educational opportunities involves multiple factors that affect both educational performance and educational choice (Jackson, 2014). For children growing up with their birth parents, those factors are generally cohesive and generate educational advantages or disadvantages over time, from learned preschool abilities and school readiness, to school performance, educational aspiration, and knowledge of the educational system.

An important aspect of our results is that the construction of fairly stable placements (5 years in the same foster family during primary school years) was done in retrospect. In Sweden, foster care placements are reviewed and formally reconsidered every sixth months (Socialstyrelsen, 2013). Upon placement, the foster child does not know for how long he or she will stay in the foster family nor do the foster parents. This can potentially impair foster families' motivation and ability to support and guide the child in the educational system. Evidence is sparse but studies suggest that

caregiver involvement tends to be less in foster family settings compared to birth family settings, and that several factors contribute, including frequent lack of information on the child's previous schooling (Munford & Sanders, 2016; Zetlin et al., 2012). The uncertainty of permanency may likewise affect children and potentially reduce their school ambition and aspiration for higher education. This might also explain why the study population had about as low overall performance as the excluded long-term care group with less stable placements.

Another potential attenuating factor is the feeling of "being different" (Cheung, Lwin, & Jenkins, 2012). In a study on educational success among high achievers with foster care experience, virtually all stressed the importance of being like everyone else, for example, having the freedom and financial support to take part in after-school activities and to socialize confidently with peers (Martin & Jackson, 2002). Results from a Swedish national survey among 12- and 15-year-olds showed that children who did not live with their birth parents (in the Swedish context, most often foster children) reported being bullied more often, having lower well-being, and not being able to afford the same clothes and engage in the same activities, and this was more prevalent in high performing schools compared to schools where students performed at a lower level (Berlin, 2012).

Further, we do not know if the foster children stayed in the foster family after graduating from primary school. Hence, the weak gradient in educational attainment at age 26 might be explained by the fact that many have moved out from their foster families. The support foster children get when they leave care, that is, the after-care factors, is of great importance (Mendes, Michell, Wilson, Lehmann, & Sanders, 2014). Since foster children generally experience weaker emotional bonds to their foster family and less reciprocity after age of majority, compared to other peers in birth families (Höjer & Sjöblom, 2010; Stein, 2006), this might result in a lower degree of intergenerational transmission of resources (Amato, 2005). Even though education is free in Sweden, the opportunity cost of continuing to higher education might be too high and returns too uncertain for foster children. Studies on the after-care situation for care leavers in Sweden show that they worry about how to cope with housing, personal finance, and employment when they leave care (Höjer & Sjöblom, 2010).

In summary, the answer to the initial questions is: Yes, FM's educational attainment matters—somewhat—for foster children, but the transmission of educational level was generally weak and inconsistent in the foster family setting.

Strengths and limitations

The strength of this study is that we have been able to use both BM's and FM's educational attainment, together with additional information on BM's and foster family's characteristics, for all foster children born in 1972–1978 in Sweden. However, the present study also has a number of limitations. First, the Child Welfare Intervention Register does not hold information on reasons for care entries, which would have been preferable as an indicator of pre-care experiences. Second, birth parents' substance abuse and psychiatric care data were collected throughout the period 1973–2005, which implies that our study subjects may have been adults when their birth parents had an event related to one of these indicators. Since hospitalization or death due to alcohol or substance abuse most often occur after many years of substance abuse, we used an extended time of observation. More importantly, it is still quite possible that these crude indicators of early childhood determinants underestimate the effect of these factors in real life. Third, it was not possible to identify reasons for missing values in the National School Register, which holds one of the key

variables in this study—grades in primary school. Fourth, paternal characteristics (birth fathers and foster fathers) were not included in the study due to the high prevalence of missing values. Including both maternal and paternal education would have given a more optimal model (Thaning & Hällsten, 2018), but that would have resulted in excluding a large proportion of the study population.

Conclusion

The results from this study show that the educational situation for foster children should not be left for foster parents to solely manage on their own, even when foster parents have a long formal education. Thus, delivery of educational support programs from agencies is vitally important. At present, tutoring programs have the best empirical support (Flynn, Marquis, Paquet, Peeke, & Aubry, 2012; Forsman & Vinnerljung, 2012; Harper & Schmidt, 2016) but several other interventions have shown promising results (e.g., Forsman, 2019; Männistö & Pirttimaa 2018; Tideman et al., 2011; Vinnerljung, Tideman, Sallnäs, & Forsman, 2014). Enhancing school performance among children in OHC is as important today as ever before, since educational differences are increasing in Sweden (OECD, 2018) and foster children are getting left further behind (Socialstyrelsen, 2016).

Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: We are grateful for financial support from the Swedish Research Council (Vetenskapsrådet), grant 2017-01746, and via the Swedish Initiative for Research on Microdata in the Social and Medical Sciences (SIMSAM), grant 340-2013-5164.

ORCID iD


Marie Berlin https://orcid.org/0000-0002-5008-5554

Supplemental material

Supplemental material for this article is available online.

References

Amato, P. R. (2005). The impact of family formation change on the cognitive, social, and emotional well-being of the next generation. *Future of Children*, *15*, 75–96.

Berlin, M. (2012). Kapitel 7. Utsatthet i högpresterande skolor [vulnerable children in high achiving schools]. In M. Berlin (Ed.), M. Bergström, P. A. Gustafsson, A. Hjern, & B. Modin, *Skolans betydelse för barns och ungas psykiska hälsa – en studie baserad på den nationella totalundersökningen i årskurs 6 och 9* (pp. 102–117). Socialstyrelsen.

Berlin, M., Vinnerljung, B., & Hjern, A. (2011). School performance in primary school and psychosocial problems in young adulthood among care leavers from long term foster care. *Children and Youth Services Review*, *33*, 2489–2497.

Berridge, D. (2007). Theory and explanation in child welfare: Education and looked-after children. *Child & Family Social Work*, *12*, 1–10.

Boudon, R. (1974). *Education, opportunity, and social inequality: Changing prospects in western society*. Wiley.

Bourdieu, P., & Passeron, J.-C. (1977). *Reproduction in education, society and culture*. Sage.

Breen, R. (2010). Educational expansion and social mobility in the 20th century. *Social Forces*, *89*, 365–388.

Breen, R., & Goldthorpe, J. H. (2014). Explaining educational differentials. In D. B. Grusky, & K. R. Weisshaar (Eds.), *Social stratification: Class, race, and gender in sociological perspective* (4th ed., pp. 524–535). Westview Press.

Brenøe, A. A., & Lundberg, S. (2018). Gender gaps in the effects of childhood family environment: Do they persist into adulthood? *European Economic Review*, *109*, 42–62.

Buchmann, C., DiPrete, T. A., & McDaniel, A. (2008). Gender inequalities in education. *Annual Review of Sociology*, *34*, 319–337.

Cameron, C., Jackson, S., Hauari, H., & Hollingworth, K. (2012). Continuing educational participation among children in care in five countries: Some issues of social class. *Journal of Education Policy*, *27*, 387–399.

Cheung, C., Lwin, K., & Jenkins, J. M. (2012). Helping youth in care succeed: Influence of caregiver involvement on academic achievement. *Children and Youth Services Review*, *34*, 1092–1100.

Coleman, J. S. (1988). Equality and excellence in education. In H. J. O'Gorman (Ed.), *Surveying social life: Papers in honor of Herbert H. Hyman*. (pp. 376–392). Wesleyan University Press.

Cox, T. L. (2013). Improving educational outcomes for children and youths in foster care. *Children & Schools*, *35*, 59–62.

Cuddeback, G. S. (2004). Kinship family foster care: A methodological and substantive synthesis of research. *Children and Youth Services Review*, *26*, 623–639.

Esping-Andersen, G. (2005). Education and equal life-chances: Investing in children. In O. Kangas & J. Palme (Eds.), *Social policy and economic development in the Nordic countries* (pp. 147–163). Palgrave Macmillan UK.

Flynn, R., Marquis, R. A., Paquet, M.-P., Peeke, L. M., & Aubry, T. D. (2012). Effects of individual direct-instruction tutoring on foster children's academic skills: A randomized trial. *Children and Youth Services Review*, *34*, 1183–1189.

Flynn, R., Tessier, N., & Coulombe, D. (2013). Placement, protective and risk factors in the educational success of young people in care: Cross-sectional and longitudinal analyses. *European Journal of Social Work*, *16*, 70–87.

Forsman, H. (2019). Exploring the letterbox club programme's impact on foster children's literacy: Potent intervention or general support? *Oxford Review of Education*, *45*, 502–518.

Forsman, H., & Vinnerljung, B. (2012). Interventions aiming to improve school achievements of children in out-of-home care: A scoping review. *Children and Youth Services Review*, *34*, 1084–1091.

Fox, N. A., Almas, A. N., Degnan, K. A., Nelson, C. A., & Zeanah, C. H. (2011). The effects of severe psychosocial deprivation and foster care intervention on cognitive development at 8 years of age: Findings from the Bucharest early intervention project. *Journal of Child Psychology and Psychiatry*, *52*, 919–928.

Fries, L., Klein, S., & Ballantyne, M. (2016). Are foster children's schools of origin always best? School quality in birth vs. Foster parent neighbourhoods. *Child & Family Social Work*, *21*, 317–327.

Harper, J., & Schmidt, F. (2016). Effectiveness of a group-based tutoring program for children in foster care. A randomized controlled trial. *Children and Youth Services Review*, *67*, 238–246.

Heath, A. F., Colton, M. J., & Aldgate, J. (1994). Failure to escape: A longitudinal study of foster children's educational attainment. *British Journal of Social Work*, *24*, 241–260.

Hertz, T., Jayasundera, T., Piraino, P., Selcuk, S., Smith, N., & Verashchagina, A. (2007). The inheritance of educational inequality: International comparisons and fifty-year trends. *The B.E. Journal of Economic Analysis & Policy*, *7*, Article 10. DOI: 10.2202/1935-1682.1775

Höjer, I., & Sjöblom, Y. (2010). Young people leaving care in Sweden. *Child & Family Social Work*, *15*, 118–127.

Humlum, M. K., Nandrup, A. B., & Smith, N. (2019). Closing or reproducing the gender gap? Parental transmission, social norms and education choice. *Journal of Population Economics*, *32*, 455–500.

Jackson, M. (2014). Determined to succeed. In D. B. Grusky & K. R. Weisshaar (Eds.), *Social stratification: Class, race, and gender in sociological perspective* (4th ed., pp. 562–569). Westview Press.

Kääriälä, A., Berlin, M., Lausten, M., Hiilamo, H., & Ristikari, T. (2018). Early school leaving by children in out-of-home care: A comparative study of three Nordic countries. *Children and Youth Services Review*, *93*, 186–195.

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

Männistö, I. I., & Pirttimaa, R. A. (2018). A review of interventions to support the educational attainments of children and adolescents in foster care. *Adoption & Fostering*, *42*, 266–281.

Martin, P. Y., & Jackson, S. (2002). Educational success for children in public care: Advice from a group of high achievers. *Child & Family Social Work*, *7*, 121–130.

Mendes, P., Michell, D., Wilson, J. Z., Lehmann, J., & Sanders, R. (2014). Young people transitioning from out-of-home care and access to higher education: A critical review of the literature. *Children Australia*, *39*, 243–252.

Munford, R., & Sanders, J. (2016). Foster parents: An enduring presence for vulnerable youth. *Adoption & Fostering*, *40*, 264–278.

O'Higgins, A., Sebba, J., & Gardner, F. (2017). What are the factors associated with educational achievement for children in kinship or foster care: A systematic review. *Children and Youth Services Review*, *79*, 198–220.

OECD. (2018). *Equity in education: Breaking down barriers to social mobility*. PISA, OECD Publishing.

Pears, K. C., Kim, H. K., & Brown, K. L. (2018). Factors affecting the educational trajectories and outcomes of youth in foster care. In E. Trejos-Castillo & N. Trevino-Schafer (Eds.), *Handbook of foster youth* (pp. 208–222). Routledge.

Rudolphi, F. (2013). Ever-declining inequalities? Transitions to upper secondary school and tertiary education in Sweden, 1972-1990 birth cohorts. In M. Jackson (Ed.), *Determined to succeed? Performance versus choice in educational attainment*. (pp. 185–227). Stanford University Press.

Sawyer, R. J., & Dubowitz, H. (1994). School performance of children in kinship care. *Child Abuse & Neglect*, *18*, 587–597.

Sebba, J., Berridge, D., Nikki, L., Fletcher, J., Bell, K., Strand, S. . . . O'Higgins, A. (2015). *The educational progress of looked after children in england: Linking care and educational data*. Rees Centre.

Socialstyrelsen. (2013). *Placerade barns skolgång och hälsa: Ett gemensamt ansvar [education and health of children in out-of-home care – a shared responsibility]*. Socialstyrelsen.

Socialstyrelsen. (2014). *Nationella adoptioner av barn i familjehem: En kartläggning av hur socialnämnderna uppmärksammar frågan [national adoption of children in foster care – how do local authorities pay attention to this issue?]*. Socialstyrelsen.

Socialstyrelsen. (2016). *Individ- och familjeomsorg: Lägesrapport 2016 [child welfare: Status report for 2016]*. Socialstyrelsen.

Stein, M. (2006). Research review: Young people leaving care. *Child & Family Social Work*, *11*, 273–279.

Thaning, M., & Hällsten, M. (2018). *The end of dominance? Evaluating measures of family background in stratification research.* The Department of Sociology Working Paper Series, no 34. Stockholm, Sweden: Stockholm University.

Tideman, E., Vinnerljung, B., Hintze, K., & Aldenius Isaksson, A. (2011). Improving foster children's school achievements: Promising results from a Swedish intensive small scale study. *Adoption & Fostering*, *35*, 44–56.

Trout, A. L., Hagaman, J., Casey, K., Reid, R., & Epstein, M. H. (2008). The academic status of children and youth in out-of-home care: A review of the literature. *Children and Youth Services Review*, *30*, 979–994.

UNESCO. (2012). *International standard classification of education ISCED 2011. UNESCO institute for statistics*. UNESCO-UIS.

Vinnerljung, B. (1999). Förekomst av adoptivbarn och långtidsvårdade fosterbarn bland placeringar av tonåringar i dygnsvård. [prevalence of adoptees and long term foster care children among new placements of teengers in out-of-home care]. *Socialvetenskaplig Tidskrift*, *4*, 313–328.

Vinnerljung, B., Berlin, M., & Hjern, A. (2010). Skolbetyg, utbildning och risker för ogynnsam utveckling hos barn [school performance, education and unfavourable delvelopment in children]. In D. Biterman (Ed.), *Social rapport 2010* (pp. 228–266). Socialstyrelsen.

Vinnerljung, B., Öman, M., & Gunnarson, T. (2005). Educational attainments of former child welfare clients – a Swedish national cohort study. *International Journal of Social Welfare*, *14*, 265–276.

Vinnerljung, B., Tideman, E., Sallnäs, M., & Forsman, H. (2014). Paired reading for foster children: Results from a Swedish replication of an English literacy intervention. *Adoption & Fostering*, *38*, 361–373.

Winokur, M. A., Holtan, A., & Batchelder, K. E. (2018). Systematic review of kinship care effects on safety, permanency, and well-being outcomes. *Research on Social Work Practice*, *28*, 19–32.

Wise, S., Pollock, S., Mitchell, G., Argus, C., & Farquhar, P. (2010). *Care-system impacts on academic outcomes*. Anglicare Victoria and Wesley Mission.

Zetlin, A., MacLeod, E., & Kimm, C. (2012). Beginning teacher challenges instructing students who are in foster care. *Remedial and Special Education*, *33*, 4–13.

Stockholm University Demography Unit – Dissertation Series
Published by Stockholm University
Editor: Gunnar Andersson

1. Gebremariam Woldemicael (1999). Infant and Child Mortality in Eritrea: Levels, Trends and Determinants
2. Gunnar Andersson (1999). Trends in Childbearing and Nuptiality in Sweden: A Period Analysis
3. Livia Sz. Oláh (2001). Gendering Family Dynamics: The Case of Sweden and Hungary
4. Diana Corman (2001). Success at Work and in Family Life: Studies in Selected Western Fertility and Family Dynamics
5. Hong Ying (2002). Effects of Changing Lives of Women on Fertility in Rural China: With Comparison to Their Husbands' Roles
6. Karin Tesching (2012). Education and Fertility: Dynamic Interrelations between Women's Educational Level, Educational Field and Fertility in Sweden
7. Lesia Nedoluzhko (2012). Demographic Journeys along the Silk Road: Marriage, Childbearing, and Migration in Kyrgyzstan
8. Jani Turunen (2013). Stepfamily Dynamics in Sweden: Essays on Family Structure and Child Well-being
9. Sara Thalberg (2013). Students and Family Formation. Studies on educational enrolment and childbearing in Sweden
10. Maria Brandén (2013). Gendered Migration Patterns within a Sex Segregated Labor Market
11. Li Ma (2014). Female Employment and Fertility Change in South Korea
12. Martin Kolk (2014). Multigenerational Processes in Demography
13. Sofi Ohlsson-Wijk (2015). Family Formation in Sweden around the Turn of the New Millennium
14. Johan Dahlberg (2016). Parents, children and childbearing
15. Elina Elveborg Lindskog (2016). Effects of violent conflict on women and children: Sexual behavior, fertility, and infant mortality in Rwanda and the Democratic Republic of Congo
16. Linda Kridahl (2017). Time for retirement: Studies on how leisure and family associate with retirement timing in Sweden
17. Helen Eriksson (2018). Studies on Parental Leave and Co-residence using Swedish Register Data
18. Kathrin Morosow (2019). Side Effects: Unintended Consequences of Family Leave Policies
19. Ari Klængur Jónsson (2020). Beyond a Second Demographic Transition? Fertility and family dynamics in Iceland
20. Marie Berlin (2020). Out-of-Home Care and Educational Outcomes. Prevalence, Patterns and Consequences

Stockholm University
SE-106 91 Stockholm

ISBN 978-91-7911-090-1
ISSN 1404-2304

Department of Sociology

Stockholm University