Cumulative Socio-economic Disadvantage and Secondary Education in Finland

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Abstract
We analyse how the disadvantages that are associated with parental background, as measured using multiple indicators, are related to the probability of a child completing secondary school by the age of 22. We measure family background by the parents’ relative income poverty, the social assistance that they received, and their unemployment when their children were young. We further study how negative associations between such disadvantages and the education of their children are related to the educational attainment of the parents themselves. We use high-quality register data clustered according to families and include information on both children and their parents. The data are analysed with sibling methods using random-effect linear probability models. The results show that in particular, the long-term social assistance that parents received and the cumulative disadvantage are connected to the probability that their children will not complete secondary school. The experiences of parental poverty combined with social assistance strongly indicate that children will not complete secondary school. However, there is more variation between socio-economically disadvantaged families than there is between better-off families, which suggests that non-socio-economic factors modify the association between parents’ disadvantaged background and not completing secondary school.

Introduction
The association between family origin and the path to adulthood status is largely mediated by educational attainment (Breen and Karlson, 2013). Education can not only differentiate us within the labour market, but it can also explain exclusion from it; a certain type of education, such as secondary education in Finland, may be a prerequisite for both accessing higher levels of education and being able to access the labour market. The lack of it may also be considered an important indicator of social disadvantage everywhere in the developed world (Bäckman and Nilsson, 2011).

The Nordic countries have often been considered open societies in which the association between social origin and destination is rather weak. The Nordic welfare states, including Finland, constitute a so-called mobility regime in which the comprehensive welfare state and relatively weak income inequality have reduced social problems associated with social inheritance (Esping-Andersen and Wagner, 2012). However, previous research has indicated that differences in family background are associated with educational inequality in these countries; several studies have concluded that this association may even be becoming stronger (Jaeger and Holm, 2007).
The intergenerational transmission of education is a widely studied topic, but measuring parental background in this field has received only limited attention. Most previous research has applied very broad indicators of parental social status such as income, education, or occupational status. These indicators are usually applied one at a time, for instance, the highest occupational class of the parents (Bukodi and Goldthorpe, 2011; Breen and Karlson, 2013). Using a single, broad indicator for parental background can result in both overestimating and underestimating the connection between social origin and educational attainment. It has been suggested that the different indicators of social origin are not interchangeable and have an independent and distinct effect on a child’s educational attainment (Bukodi and Goldthorpe, 2013). Furthermore, parental social class, as measured through occupational standing, can act as a proxy for a wide range of social origin effects that are not necessarily related to disadvantage. If parental social class is used as only the indicator of social origin, this is likely to mean that the impact of class will be overestimated, because it will pick up distinct, but related, social origin effects (e.g. education, poverty, or unemployment) while social origin effects in total will be underestimated (Bukodi and Goldthorpe, 2013: p. 1035). It is not surprising that wider inequalities will emerge if parents’ social origins or disadvantaged backgrounds are measured more directly and if the combined effects of multiple indicators are considered.

We analyse how social disadvantages associated with parental background, measured by multiple indicators, are associated with the chances of a child successfully completing secondary school by the age of 22. We apply Finnish high-quality register data, which we analyse with sibling methods using random-effect linear probability models. Secondary education can be considered the first stage of educational selection in the Finnish schooling system. We further study how the negative associations between the disadvantages and the secondary education of the children are related to parental educational attainment.

As a novel contribution to the existing literature, we choose to measure disadvantaged parental social origins via multiple, direct indicators while also considering their accumulation. These indicators include parents’ relative income poverty, their unemployment, and the social assistance they received when their children were young. Our findings illustrate the importance of measuring several aspects of disadvantaged parental background instead of focusing on one typical predictor, such as social class.

While Finland ranks as one of the most educationally mobile societies in Europe (Pfeffer, 2008: p. 553), we lack certainty about how parental social disadvantages affect educational attainment in Finland. When we focus on disadvantages instead of social class or education of parents, it is possible that the differences may widen. Because Finnish society is more economically and socially polarized than in the past, this topic is especially interesting.

Secondary Education in Finland

Secondary education in Finland consists of two main tracks. After 9 years of compulsory education (the comprehensive school does not include tracking), those completing it at the age of 16 can choose between vocational (which includes apprenticeship training) and general education, i.e. attending secondary school. It typically takes 3 years to complete a degree at either type of school. All forms of secondary education are financed through the public sector, and participation is free of charge for the students. The proportion of young adults with only a minimum amount of education has been decreasing rapidly in Finland. Annually, 5–8 per cent of 16-year-olds drop out of the education system immediately after completing their compulsory schooling (Vanttaja and Järvinen, 2006). Approximately 85 per cent of young people complete secondary school by the age of 24 (Eurostat, 2014).

In Finland, completing secondary school is a prerequisite for admission to any type of higher education. Dropping out of school right after completing compulsory education increases the possibility of confronting various social problems in adulthood, such as poverty, unemployment, early retirement, exclusion from the labour market, and not participating in education in later life (Vanttaja and Järvinen, 2006; Bäckman and Nilsson, 2011; Brekke, 2014). Therefore, we can conclude that information on whether an individual has finished secondary school by the age of 22 is a good indicator of the individual’s risk of remaining in a low social position in later life.

The link between educational qualifications and adult social status has become stronger in Finland and elsewhere in Europe (Gesthuizen and Scheepers, 2010; Breen and Karlson, 2013). The effects of social origin on whether a person will drop out of school or continue with her or his education are stronger when making the transition from compulsory school to secondary school than at higher educational levels (Hansen, 1997; Schneider, 2008). The younger the individual is, the more dependent he or she is on social conditions at
home and the opinions, preferences, values, and goals of the parents (Muller and Karle, 1993).

Intergenerational Transmission and Parental Resources

Poverty, receiving social assistance, low education, having children at a young age, and unemployment are social problems that can be transmitted from one generation to the next (Hobcraft and Kiernan, 2001; Kauppinen et al., 2014). However, the actual mechanism by which disadvantages are passed from one generation to the next is not well understood. Do children learn values, attitudes, or behavioural models from their parents that hinder their later life? Alternatively, do children who grow up in disadvantaged families simply lack the resources essential for socioeconomic attainment, a lack later manifested in the disadvantaged status of the successive generation?

Two broad categories of transmission concerning parents' social origins and their children's level of educational attainment are often mentioned: genetic and environmental transmission. For instance, genetically inherited cognitive abilities can affect a student’s academic performance and thus be related to his or her educational attainment. However, genetic background is only part of the reason for some children not performing well educationally. Children from more advantaged social backgrounds tend to choose educational tracks that lead to higher degrees more often than children do from less advantaged backgrounds, even when their cognitive abilities and previous academic performance are considered (Jackson et al., 2007: p. 224).

One of the most influential theories explaining educational choice is the Breen-Goldthorpe model, which relies on more general assumptions about rational action and risk-averse decisions (Breen and Goldthorpe, 1997). According to this model, parents primarily seek to maintain the status of their children, and upward mobility is only a secondary goal for them. Thus, parents with multiple recourses are in a better position to help their children maintain the educational level of the family. There is a clear variation in the costs and benefits of higher education based on a student's social background (with the relative costs being higher at the lower levels), which explains the inequalities in educational attainment.

Despite often being used as a singular term, the notion of social origin consists of multiple resources including economic, cultural, and social capital (Jaeger and Holm, 2007: p. 739). Parental education matters the most (Hansen, 2008; Bukodi and Goldthorpe, 2013). Children with highly educated parents often aim at more ambitious educational careers than do others (Jaeger and Holm, 2007; Buis, 2013). There are various reasons for this. Children who possess cultural capital at home are more likely to be successful in school and thus have better opportunity to achieve higher levels of schooling than will children whose families have few cultural resources (Graaf and Kalmijn, 2001: pp. 61–43). Essentially, knowledge matters; highly educated parents are able to create a supportive home-learning environment, and they can use their own knowledge to help guide and improve their children’s educational career choices and opportunities. Children are also socialized based on their parents’ values, attitudes, goals, and behavioural models. Educated parents place a higher value on education and are more equipped to promote their children’s educational success (Buis, 2013). Parents also may have strategic knowledge, which refers to their ability to help their children navigate through their educational career choices.

Economic resources pertaining to social origin are also known to be an essential factor with respect to educational attainment and future work through both direct and indirect investments (Wiborg and Hansen, 2009; Bukodi and Goldthorpe, 2013). Parental poverty will have multiple effects; it prevents parents from offering financial help and thus encourages children to move into the labour market earlier than others do. Furthermore, low financial resources and poverty are connected to the deviant behaviour of adolescents, behaviour that in many ways mediates the effects of parental poverty on educational attainment (Albrecht and Albrecht, 2011: pp. 124–133). Perceived economic pressure and stress also can have negative effects on children.

Receipt of social assistance, i.e. the last resort in a social protection system, providing economic help to individuals or households when they cannot support themselves and have exhausted other alternatives, is a more direct measure of acute economic hardship than relative income poverty. This is true particularly when all households in need are eligible to apply for social assistance and when there is centralized national regulation of social assistance, such as in Finland.

In Finland, social assistance is a last-resort means-tested benefit that is part of municipal social work services, although regulated nationally. Its receipt is related to a wide range of disadvantages; common features of benefit recipients are deep poverty, weak labour market attachment, low social status, and accumulation of multiple social problems (Kuivalainen, 2013). Approximately 7 per cent of the population of Finland received social assistance in 2013 (THL, 2014).
The children who grow up in households in which parents receive social assistance are more likely to receive it than others are (Kauppinen et al., 2014). This correlation increases with the amount of time the parents have stayed on welfare (Edmark and Hanspers, 2011: p. 23). The phenomenon is often explained with a reference to a low level of parental social, economic, and cultural resources. The association between social assistance receipt and educational attainment may reflect the lack of these resources. Conversely, intergenerational associations concerning use of social assistance can occasionally be explained by habituation, learning (adjustment to stigma, knowledge about how to apply for social assistance; Wiborg and Hansen, 2009), or reliance on welfare provisions out of family habit, known as the so-called welfare dependency culture. Receipt can create passivity, dependency, and hopelessness, shortage of future prospects, and accumulation of multiple problems that affect the entire family (Marttila et al., 2010). Each of these complicating factors makes it harder to make decisions and choices necessary to continue to secondary education. Furthermore, for students whose families are on welfare, secondary education is not necessary for status maintenance; thus, there is no motive to obtain a higher degree (Becker and Hecken, 2009). Thereby receipt may hinder secondary education in multiple ways: it may aggravate the effects of low family resources, adjustment, and learning to a disadvantaged status or non-mainstream life goals. The children of recipients of social assistance may lack role models with regard to education and the labour market. The empirical evidence on the potential intergenerational effects of welfare dependency has nonetheless been rather limited.

Parental job loss is associated with a lesser likelihood of their children obtaining a post-secondary education and with weaker educational performance in general (Coelli, 2011; Levine, 2011). Families with greater resources are better able to cope with parental unemployment, with the ability varying according to household wealth, family income, and prior experiences with long-term unemployment (Kalil and Wightman, 2011). The causes behind the association between parental unemployment and weaker educational achievement are related, as previously mentioned, to income losses but also to the psychological stress of parents, parental depression, and diminished self-esteem (Kalil and Ziol-Guest, 2008: p. 501). Social stigma and parental pessimism towards the labour market and lacking positive role models can have implications for how long students stay in school (Coelli, 2011; Kalil and Wightman, 2011).

There are reasons to assume that the accumulation of all of the above-mentioned disadvantage measures has an even stronger effect on how long children stay in school. The cumulative disadvantage of parents has extensive consequences that can be observed in multiple outcomes (e.g. Bäckman and Nilsson, 2011; Whelan, Nolan and Maitre, 2013). Multiple indicators of disadvantage can better reflect not only the depth but also the breadth and the scope of inequality. Looking at the accumulation of data, we can see how the separate effects of disadvantage can cause detriment to aggregate and multiply (DiPrete and Eirich, 2006).

Data and Methods

Data and Measures

We used a register-based database from Statistics Finland (contract TK-52-1192-14). The data consisted of a 25 per cent sample of persons born between 1980 and 1986 who had lived in Finland for at least 1 year between 1991 and 2008 and all their biological siblings born between 1980 and 1986. The sample persons and their siblings were clustered into families. If several persons belonged to the same family, one of them was randomly selected as the main sample person. For both the sample persons and their siblings, the parental data were taken from the year when the main sample person was 15 years old.

If the main sample person did not live with his or her biological or adoptive parents when he or she was 15 years old, both the sample person and his/her siblings were removed from the data. Additionally, all persons who did not live in Finland between the ages 15 and 22 and their families were removed from the data. The data consisted of 157,135 children in 101,915 families.

Dependent variable

Our dependent variable is completion of secondary school, either upper general or upper vocational, by the age of 22. Lower secondary education in the International Standard Classification of Education is a part of compulsory education in Finland, so our outcome indicates whether a person completed a degree beyond the level of compulsory education.

Because the data crucial to our needs, the information on social assistance receipt, are only available from 1991 onwards and our data end in 2008, we are not able to follow children beyond the age of 22. However, this should not limit our conclusions substantially. Usually, individuals graduate from secondary school when they are 19 in Finland, and only a very small
number of individuals will complete secondary school after age 22.

Independent variables
We measured parental disadvantage using multiple indicators: social assistance received, poverty, and unemployment status. We also measured levels of parental education to study its relationship with the negative associations between the disadvantages and the children’s attainment of secondary education. This information was collected from the sample persons at the age of 15, a year before most adolescents graduate from comprehensive school and need to decide whether they want to continue their studies in secondary school. Parental poverty was measured by relative income poverty (less than 60 per cent of the median income of all parents). The dummy-coded indicator was devised using information on the deflated total income of parents, which was summed up and divided by the number of parents in the family. Parental unemployment and the receipt of social assistance were measured based on the number of months, which were summed up and divided by the number of parents in the family (0, 1–5, and 6 months or more).

The indicator for cumulative disadvantage is based on the above-mentioned indicators of parental disadvantage. It was categorized as follows: (i) no parental disadvantage(s), (ii) parental unemployment (at least 1 month), (iii) parental poverty, (iv) parental receipt of social assistance (at least 1 month), (v) parental unemployment (at least 1 month) and poverty, (vi) parental unemployment (at least 1 month) and receipt of social assistance (at least 1 month), (vii) parental poverty and receipt of social assistance (at least 1 month), and (viii) parental poverty and receipt of social assistance (at least 1 month) and unemployment (at least 1 month). These categories cover all possible logical combinations of the variables and allow us to consider the question of the accumulation of disadvantages.

Parental education was measured by mother’s level of education. It has been found to be more strongly associated with children’s educational attainment than father’s education (Korup, Ganzeboom and Van Der Lippe, 2002), and it was also more strongly associated with educational drop-out in our analyses. The estimates of other independent variables do not vary much regardless of which parent’s education was measured.

We argue that receiving social assistance is the most direct and precise indicator of social disadvantage, even better than the current income of parents or their unemployment. However, although poverty, unemployment, and receipt often overlap, they should refer to different mechanisms involved in intergenerational education attainment, particularly when included in a model at the same time. We may assume that poverty is the best indicator for various economic factors possibly influencing secondary education. When poverty is already controlled for, parental unemployment may indicate the lack of human capital of the parents that prevents them finding a job and influences upbringing and educational choice. It may also indicate labour market-related uncertainty that may have had spill over effects on other aspects of everyday life. Furthermore, it may also have an intergenerational effect by decreasing the self-esteem of all family members because of the stigma related to unemployment. The receipt of social assistance, then, is likely impacted by the persistence of both low income and unemployment, and further exacerbated by the accumulation of the other problems described above.

The applied control variables include gender and possible immigrant background (native Finns, Western or non-Western immigrants). We also controlled for family structure at the age of 15 using a dummy indicator for single parenthood and a categorized variable for the number of children in the families (one, two, or at least three children; two-child families were used as a reference group).

Methods
Because it is impossible to measure every aspect of family origin, the total effect of social origin can easily be underestimated. Only a limited number of background indicators can be included in the analysis, although we measured social origin in a rather comprehensive manner compared with earlier studies. To overcome this problem partially, we used sibling models, enabled by our data, which included the siblings of the sample persons. Each of our random effect models included a component for any variance at the family level (also referred to as between-family variance or family-level unobserved heterogeneity) not explained by the included covariates. Although our dependent variable was dichotomous, we estimated a random effect linear probability model. One advantage of using this model is that residual variance may also change when additional observed effects are controlled for and not treated as fixed, as in the case of random effect logit and probit models. Based on these variance components, we could compute sibling correlation, rho, similarly as intraclass correlation, i.e. as a proportion of the family variance with respect to the total variance in the model. In our
case, the total variance was simple family and residual variance taken together:

\[ \rho = \frac{\sigma^2_{\text{family}}}{\sigma^2_{\text{family}} + \sigma^2_{\text{residual}}} \]

By allowing the family variance to vary according to family type, we could further compute separate rhos for each of the different combinations of family disadvantages described below. This heteroscedasticity in random effects was achieved by omitting the fixed intercept term and introducing dummy variables representing the disadvantage categories into the random component of the model. This specification separates the overall random intercept into specific random intercepts for different types of families. If the rho was high in a certain family type, this suggested that many other shared family background-related factors apart from the factors separating the families into different types explain sibling similarity within this particular family type.

In an empty model without any controlled fixed effects, rho can be considered an estimate of the degree of similarity between siblings. It may be further argued that the more siblings are alike in educational attainment, the stronger the effect of a shared family environment. These shared factors include, for example, common genes, a common family and neighbourhood environment, and the influence of one sibling on another (Sieben and Graaf, 2003; Conley, 2008).

A sibling correlation is a broad measure of family background and neighbourhood factors (Sieben and Graaf, 2003; Conley, 2008). It is more than an intergenerational correlation or elasticity because sibling correlation also captures factors that are unrelated to the fixed effects that we are using as independent measures of family background. That is why sibling correlation is occasionally considered an omnibus measurement for the total effect of social background. However, sibling correlation does not entirely account for parental influence, either. It does not reflect the influence of genes that are not shared, time-specific events, differential treatment of siblings by their parents, and the supposed effects of birth order.

Our modelling strategy was as follows. We first estimated an empty model; next, we introduced the disadvantaged parental background indicators to the new models individually (see models 1–3 and 6–7). In addition, the mother’s level of education was controlled for in models 5 and 7. The parents’ economic situation, unemployment, and whether the parents receive social assistance are included in models 4 and 5 at the same time to analyse possible independent effects of these variables. In model 5, we also controlled the mother’s education. In models 8 and 9, we additionally allowed the family variance to vary according to the categories used for the parental cumulative disadvantage indicator. The mother’s level of education was controlled for only in model 9. The control variables are included in every model.

Results

Among the young people in the data, 83 per cent had completed secondary school by the age of 22 (see Table 1). There were differences between individuals from different types of families. These descriptive results already provide evidence for the importance of family disadvantage; 74 per cent of those who grew up in a poor family had completed secondary school by the age of 22, whereas 86 per cent of those whose family have not suffered economically had completed the degree. Seventy-seven per cent of those whose parents have been unemployed for at least 6 months completed secondary school, whereas 86 per cent of those whose parents had not been unemployed completed secondary school. Only 60 per cent of the children from families receiving long-term social assistance completed secondary school, whereas 85 per cent of children from families without experiences of social assistance completed secondary school. In addition to coming from families that received social assistance, the accumulation of all three types of disadvantage clearly predicted the future educational attainment of children; only 61 per cent of those whose parents had encountered multiple social problems had completed secondary school by the age of 22. Ninety-three per cent of children with highly educated mothers completed secondary school, whereas only 74 per cent of children with mothers who had not completed more than a compulsory education had finished secondary school at the age of 22.

Next, we focus on the results from the random-effect linear probability models (see Table 2). Model 1 shows that longer periods of unemployment experienced by parents reduced the probability that their children would complete secondary school. Children with parents who were unemployed for a long period had a 9 percentage points lower probability of completing secondary school compared with children of employed parents. Additionally, parental poverty and receiving social assistance for either a short or a long period were associated with the education level attained by the children. Children from poor families receiving social assistance were less likely to complete secondary school. Families receiving social assistance for a long period had the
largest effect on children (see models 1–3). Children with parents who received long-term social assistance had a 23 percentage points lower probability of completing secondary school than those whose parents did not receive social assistance. Children with poor parents had a 7 percentage points lower probability of having a secondary degree than did the children of the parents without economic problems.

Models 4 and 5 suggest that the parents’ economic situation, unemployment, and whether the parents receive social assistance independently affect the likelihood that the children will complete secondary school. Therefore, these variables cannot be interchangeable factors in terms of the disadvantages of family origin. The independent effect of such factors is especially strong in the case of parents receiving social assistance. These effects also remained statistically significant after we had controlled for the mother’s level of education.

The accumulation of disadvantages is particularly connected to children’s probability of completing secondary school (see model 6). Children from disadvantaged homes, as observed by unemployment or poverty, had a 4–5 percentage point lower probability to finish a secondary degree than had those whose parents were not disadvantaged. This difference increases to 10 percentage points when both unemployment and poverty are observed in the family. It increases to 16 percentage points when comparing those with parental social assistance receipt with those without parental disadvantage. Children with multiple parental disadvantages, as measured either by unemployment and social assistance receipt or by poverty and social assistance receipt, had approximately 20 percentage points lower probability of completing secondary school compared with those whose parents were not disadvantaged. Children from families in which all types of disadvantage were observed tended to do the worst; they had a 22 percentage points lower probability of completing secondary school compared with the children in the reference category. Comparison between models 4 and 6 shows that almost as large a difference in completion of secondary school is predicted by parental social assistance receipt on its own as by the accumulation of all types of disadvantages. This is understandable because the cumulative

### Table 1. Descriptive statistics by family characteristics

| Family features                        | %   | N      | Completion of secondary education, per cent |
|----------------------------------------|-----|--------|-------------------------------------------|
| **Economic situation of parents**      |     |        |                                           |
| Poor                                   | 25  | 39,459 | 74                                        |
| Other                                  | 75  | 117,676| 86                                        |
| **Unemployment months**                |     |        |                                           |
| 0                                      | 72  | 113,689| 86                                        |
| 1–5                                    | 14  | 21,605 | 78                                        |
| 6 or more                              | 14  | 21,841 | 77                                        |
| **Social assistance months**           |     |        |                                           |
| 0                                      | 90  | 141,282| 85                                        |
| 1–5                                    | 7   | 11,588 | 67                                        |
| 6 or more                              | 3   | 4,265  | 60                                        |
| **Family disadvantage indicator**      |     |        |                                           |
| No disadvantage                        | 55  | 85,745 | 88                                        |
| Unemployment                           | 16  | 25,328 | 84                                        |
| Poverty                                | 15  | 22,974 | 79                                        |
| Receipt                                | 1   | 1,864  | 72                                        |
| Unemployment and poverty               | 5   | 7,234  | 74                                        |
| Unemployment and receipt               | 3   | 4,739  | 67                                        |
| Poverty and receipt                    | 2   | 3,106  | 64                                        |
| Poverty and receipt and unemployment   | 4   | 6,144  | 61                                        |
| **Mother’s education**                 |     |        |                                           |
| Compulsory or less                     | 24  | 38,207 | 74                                        |
| Secondary                              | 63  | 99,343 | 85                                        |
| Tertiary                               | 13  | 19,585 | 93                                        |
| All                                    | 100 | 157,135| 83                                        |
Table 2. The effects of parental disadvantage on the attainment of secondary education (gender, single parenthood, immigrant background, and number of children in family are controlled for in every model)

| Family features                        | Model 1   | Model 2   | Model 3   | Model 4   | Model 5   | Model 6   | Model 7   |
|----------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Unemployment months (ref. 0)           |           |           |           |           |           |           |           |
| 1–5                                    | −0.052*** | −0.030*** | −0.025*** |           |           |           |           |
|                                        | (0.003)   | (0.003)   | (0.003)   |           |           |           |           |
| 6 or more                              | −0.090*** | −0.049*** | −0.038*** |           |           |           |           |
|                                        | (0.003)   | (0.003)   | (0.003)   |           |           |           |           |
| Economic situation (ref. other)        |           |           |           |           |           |           |           |
| Poor                                   | −0.074*** | −0.046*** | −0.030*** |           |           |           |           |
|                                        | (0.003)   | (0.003)   | (0.003)   |           |           |           |           |
| Social assistance months (ref. 0)      |           |           |           |           |           |           |           |
| 1–5                                    | −0.148*** | −0.125*** | −0.114*** |           |           |           |           |
|                                        | (0.004)   | (0.004)   | (0.004)   |           |           |           |           |
| 6 or more                              | −0.231*** | −0.197*** | −0.179*** |           |           |           |           |
|                                        | (0.006)   | (0.006)   | (0.006)   |           |           |           |           |
| Family disadvantage indicator (ref. no disadvantage) |           |           |           |           |           |           |           |
| Unemployment                           | −0.038*** | −0.028*** |           |           |           |           |           |
|                                        | (0.003)   | (0.003)   |           |           |           |           |           |
| Poverty                                | −0.045*** | −0.027*** |           |           |           |           |           |
|                                        | (0.004)   | (0.004)   |           |           |           |           |           |
| Receipt                                | −0.157*** | −0.136*** |           |           |           |           |           |
|                                        | (0.010)   | (0.009)   |           |           |           |           |           |
| Unemployment and poverty               | −0.101*** | −0.077*** |           |           |           |           |           |
|                                        | (0.005)   | (0.005)   |           |           |           |           |           |
| Unemployment and receipt               | −0.198*** | −0.172*** |           |           |           |           |           |
|                                        | (0.006)   | (0.006)   |           |           |           |           |           |
| Poverty and receipt                    | −0.194*** | −0.163*** |           |           |           |           |           |
|                                        | (0.008)   | (0.008)   |           |           |           |           |           |
| Poverty and receipt and unemployment   | −0.217*** | −0.184*** |           |           |           |           |           |
|                                        | (0.006)   | (0.006)   |           |           |           |           |           |
| Mother’s education (ref. compulsory or less) |           |           |           |           |           |           |           |
| Secondary                              | 0.072***  | 0.073***  |           |           |           |           |           |
|                                        | (0.002)   | (0.002)   |           |           |           |           |           |
| Tertiary or more                       | 0.137***  | 0.138***  |           |           |           |           |           |
|                                        | (0.003)   | (0.003)   |           |           |           |           |           |

(continued)
indicator does not consider the length of time that families receive social assistance. The long-term receipt of social assistance and long-term unemployment and the cumulative disadvantage of parents determine children’s probability of completing education independently of the mother’s level of education. When the mother’s level of education was controlled for in model 7, the estimates for the cumulative disadvantage changed relatively little compared with model 6. The result is interesting because in earlier studies, parental education had the greatest importance as an indicator of social origin. Children with mothers who have tertiary education had a 14 percentage point higher probability to complete a secondary education than did those whose mothers had no more than the compulsory education.

Controlling for any observed parental characteristics did not decrease rho significantly between Models 1–7. The rho for the empty model was 0.233, whereas the rho for models 1–7 varied between 0.187 and 0.213. This suggests that differences between families are mostly related to something other than observed parental socio-economic disadvantages. This can in part be explained by the fact that most of the children included in the data did not come from disadvantaged families.

Finally, we concentrate on the rhos in every category of cumulative parental disadvantage (see Table 3). The rhos are based on Models 8 and 9, where we allowed family-level unobserved heterogeneity to vary by the family disadvantage indicator. The rho is quite small in families without parental disadvantages; among these families, only approximately 5 per cent of variance existed between the families, and the variation was almost entirely at the individual level. Almost all children in these families continue to pursue secondary education. A more disadvantaged family of origin is associated with a larger rho. The models suggest that when the effect of parental disadvantage is already considered, a shared family background plays a larger role in secondary education for children who grow up in disadvantaged families.

Disadvantaged families differ from one another more than do families without socio-economic disadvantages. In well-off families, most children complete secondary school, and there is not much variation in this respect.
between families. In these well-off families, completing secondary school seems to be a rather uniform norm. The variation between families is especially large among families experiencing both parental poverty and receiving social assistance.

We may consider multiple alternative explanations for why the rho remains large in disadvantaged families after all the selected independent factors are controlled for. It could be a question of differences between disadvantaged families in terms of attitudes, goals, future prospects, values, and behaviour models. Alternatively, inherited cognitive abilities and academic performance might have a stronger effect on children from disadvantaged families. The possible explanations also include parental health problems, substance abuse, or higher vulnerability to regional differences in educational opportunities. Extended family members can affect children from disadvantaged families, for instance, by acting as positive role models (Jaeger, 2012: p. 918); whether such persons are available varies between the families. None of these possible explanations could be tested with the current data.

Conclusions

A disadvantaged family background predicts children’s probability of completing secondary school in Finland. In particular, children from families receiving long-term social assistance, with multiple socio-economic disadvantages or with less-educated mothers, are less likely to complete secondary school by the age of 22.

The sibling correlations provided new findings concerning the association between a disadvantaged family background and educational attainment. Variation is considerably larger between disadvantaged families. Actually, there is very little variation between advantaged families. Completing secondary school is a binding norm in advantaged families, but not very much in disadvantaged families. We were not able to explain the higher level of variation in terms of the observed family characteristics we had available. The findings can be related to non-socio-economic factors such as cognitive abilities, the academic performance of children, or the characteristics of extended family members.

Esping-Andersen and Wagner (2012) have argued that the equalization of life chances has primarily occurred at the bottom of the social hierarchy and that this is most clearly manifested in the more open Nordic societies. They also claim that income redistribution is leading to democratization of access to education. Those who come from the most disadvantaged backgrounds benefit the most from these changes. Our findings conflict with these arguments. At least at the level of earning a secondary education degree, the findings suggest that the equalization of education has primarily occurred among advantaged families. For these families, completion of such a degree seems to be more a binding norm than a matter of choice, but this is not the case for disadvantaged families.
In the future, disadvantaged parental position should be measured using multiple indicators that approach the problem more directly. The use of parents’ occupational status or income provides only a partial picture of the phenomenon. These indicators are too broad to capture disadvantage accurately and can be related to a wide range of social origin effects that are not necessarily related to parental disadvantages. According to our results, each indicator has an independent effect on educational attainment, and the effect varies between the indicators being used. Our findings suggest that instead of parental socio-economic disadvantage or the lack of economic resources generally, educational drop-out is affected by particularly severe disadvantage and by cultural mechanisms such as the lack of cultural capital indicated by low parental education.

Our indicators also had shortcomings. Due to data limitations, we measured parental disadvantage using information from only a single year, which has also been done in many previous studies (Bukodi and Goldthorpe, 2013). The parental information was collected when the child was 15, in other words, a year before students make the first important choice in their educational career in Finland. A more reliable indicator could be composed by using, for example, mean information on parents’ economic and social position from a number of years.

A sensitivity analysis looking at completion of secondary education by the typical completion age of 19 indicated that there was a stronger association between having a disadvantaged family background and failing to complete secondary education by the age of 19 than 22. A disadvantaged background is associated with a delayed graduation as well as with not graduating.

Future studies should focus in more detail on how the accumulation of parental disadvantages affects the accumulation of such disadvantages among children as they reach adulthood; multiple indicators could be applied, such as education, their position in the labour market, whether they receive social assistance, relative income poverty, early parenthood, and deviant behaviour. The question of whether cumulative disadvantages can be inherited and, if so, what are the possible mechanisms behind such inheritance clearly requires further analysis. Possible extensions include the timing of parental disadvantage during childhood and youth and the possible protecting mechanisms, and furthermore, identifying the cumulative factors accounting for success in life in a similar manner.

Our findings are more closely related to welfare than to educational policies. Welfare policies should aim at preventing long-term receipt of social assistance in families with children by increasing levels of less stigmatizing primary social security. Economic vulnerability can be intertwined with multiple social and health problems or with limited life control that cannot be solved only by redistributing income. Because our results indicate larger between-family variability in educational outcomes among more disadvantaged families, focusing on these other problems may be essential in policies aiming to reduce educational dropout.

A strong connection between parental disadvantage and completed secondary education may be a result of the welfare state’s ability to reduce social disadvantages; thus, those persons actually experiencing them are becoming an increasingly selected group in the Nordic countries. This may increase the importance of parental disadvantage in matters of social inheritance, and furthermore, multiply its cumulative nature. To test this assumption, we need more research with international comparative design.

Notes

1 As a test of robustness, we also estimated multilevel mixed-effects logistic regression models (Stata’s xtmelogit command) using the same variables. The estimates (average marginal effects) were practically the same.

2 Additional analyses were done by controlling for whether the student moved away from his or her parental home at an early age (before the age of 18). The rho decreased by only a few percentage points in every category of the parental cumulative disadvantage indicator. Likewise, the parameter estimates for the independent variables did not decrease significantly after controlling for this indicator.

3 Note that the residual variances did not decrease significantly between the different types of families.

4 The additional analyses (similar models excluding singletons) suggest that the number of children does not influence the results or rhos substantially. The results are statistically significantly different from those reported in the manuscript only in the case of those experiencing parental unemployment and poverty and receipt (see Model 6, −0.217 with singletons vs. −0.232 without them). This does not change our conclusions substantially.

5 Generally, there may be more variation in secondary education outcomes between advantaged families, but we focused here only on the completion of any secondary education. Therefore, we do not believe this small variation is an artefact caused by a ceiling.
effect, as there is no artificial upper limit in our measurement of completion of education.

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