

Is there a welfare trap? Duration Dependence in Social Assistance Reciprocity among Young Finns

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Biographical note

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Abstract

The probability of social assistance exit decreasing over time is called negative duration dependence. This is one of the most debated aspects of social assistance receipt. This study analyses duration dependence among young adults in Finland and aims to show how social assistance receipt *per se* affects the likelihood of exiting social assistance. It also examines whether parental reciprocity is associated with duration dependence. While the intergenerational transmission of social assistance has received extensive research attention, there is a scarcity of evidence on whether parental reciprocity is associated with social assistance exits and duration effects. This study uses full monthly history of social assistance receipt between ages 19 and 29. The analyses are based on Finnish register data and conducted using discrete-time event-history models (pooled logistic, random-effect logistic and fixed-effect logistic). The findings indicate that controlling for all time-invariant characteristics significantly reduces but does not completely remove duration dependence among young adults. They also show that those whose parents received social assistance are less likely to exit social assistance. In models controlling for all time-invariant characteristics, parental social assistance receipt is also linked with stronger duration dependence. The implications of these findings are discussed.

Keywords

Social assistance, duration dependence, intergenerational transmission, young adults, Finland

Introduction

Social assistance, a last-resort means-tested benefit, is used to provide an acceptable standard of living for households and families whose income would otherwise be insufficient (Immervoll, 2009). Although it is typically intended as a short-term relief, many studies have revealed patterns of long-term reliance on social assistance. Furthermore, there are indications that the probability of social assistance exit decreases over time, a pattern that can be called negative duration dependence. One issue that has attracted particular debate is the question of whether reciprocity is associated with benefit dependence, in other words whether it creates what is known as a 'welfare trap' (Contini and Negri, 2007). However, long-term reciprocity or negative duration dependence do not in themselves provide sufficient grounds for the conclusion that the benefit itself can cause such a trap effect.

Earlier studies on duration dependence in social assistance receipt have not specifically addressed the situation of young adults, yet it is precisely this age group that has the highest rates of social assistance receipt in the Nordic countries (Lorentzen et al., 2014). This study contributes to the literature by analysing duration dependence among young Finnish adults. Furthermore, this study gives new information on the role of social assistance receipt *per se* in explaining duration dependence by considering individual characteristics more comprehensively than in most previous research. It is also examined whether parental reciprocity is associated with social assistance exits and duration dependence. While the intergenerational transmission of social assistance has received much focus and has typically been studied by analysing young adults, there are no earlier investigations into these questions.

The analyses of this study are based on Finnish register data. They use full monthly history of social assistance receipt among young adults aged 19–29. Typically, studies of social assistance dynamics use a variable measuring whether or not an individual has received social assistance during a given year (Cappellari and Jenkins, 2008; Immervoll, Jenkins and Königs, 2015). However, annual information can paint too crude a picture. The analyses are conducted using discrete-time event-history analysis, taking account of repeated spells and unobserved heterogeneity.

Background

Duration dependence in social assistance receipt

The literature on social assistance receipt often emphasizes two dynamic patterns: while most recipients only receive social assistance for a short period of time, there is a group of individuals who can be described as long-term recipients. In the Nordic countries social assistance spells tend to be rather short (Gustafsson et al., 2002; Immervoll, Jenkins and Königs, 2015), particularly among young adults (Mood, 2013). However, individuals typically re-enter social assistance at shorter notice in the Nordic countries (Immervoll, Jenkins and Königs, 2015). Additionally, young adults are more likely than older adults to re-enter (Gustafsson et al., 2002). Young adulthood is characterised by important life course events such as school-to-work transition, transition to independent living, partnership formation and entering parenthood (Settersten, 2007). These events, and the economic vulnerability associated with many of them, increase the risk of social assistance receipt (e.g. Kauppinen et al., 2014).

Many researchers have been also interested in duration dependence: in other words, how the spell length affects the probability of social assistance exit.³ Furthermore, different explanations have been suggested for negative duration dependence. There are possible mechanisms to explain why decreasing exit rates could be explained also by reciprocity itself. The general idea behind these explanations is that the benefit could have effects on individuals' choices or their preferences and behaviour. Bane and Ellwood (1994) suggested three models. According to the rational choice model, recipients constantly evaluate their situation and, consequently, act based on their preferences. This model emphasises the role of economic incentives, other possible income sources and other possibilities. The second, expectancy model states that prolonged reciprocity (and failures to exit) decrease the individual's motivation (e.g. to search for a job) and sense of control. The third model is called the cultural model. This model has it that long-term reciprocity results in anti-social behaviour

³ State dependence refers to the effect of past benefit receipt on present benefit receipt. There are more studies on state dependence than on duration dependence (Cappellari and Jenkins, 2008). One important reason for this is the lack of data on continuous benefit histories, which effectively precludes the use of time-to-event approaches (Cappellari and Jenkins, 2008).

and lack of interest or even reluctance to integrate into mainstream society. These models, however, are focused on the individual recipient's behaviour and therefore will likely be limited. Other possible explanations may be related to the association of duration dependence in social assistance receipt with difficulties in escaping unemployment or poverty (Contini and Negri, 2007). For instance, long-term unemployment, that is often associated with receipt of social assistance, can send adverse signals to employers (Scarpetta, Sonnet and Manfredi, 2010). Furthermore, unemployment can have the effect of eroding jobseekers' skills (Scarpetta, Sonnet and Manfredi, 2010).

Negative duration dependence may, however, also be related to recipients' characteristics. If these characteristics explain the association, it means that the observed pattern would be due to selection bias. If individuals have a different risk of exiting social assistance and this risk is constant across all spells, the likelihood of exit will appear to decline over time since individuals with a high propensity to exit will leave social assistance first, while individuals with a lower propensity will have longer spells. It is likely that this kind of individual specific risk cannot be fully measured using observed variables.

Studies conducted in different countries have found that even when both observed and unobserved characteristics are taken into account, a longer duration of social assistance receipt reduces the likelihood of exiting social assistance (e.g. Bäckman and Bergmark, 2011; Hohmeyer and Lietzmann, 2020; Mood, 2013; Sandefur and Cook, 1998).⁴ However, it is rarely that these studies have controlled for all time-invariant characteristics. Although duration dependence seems to have an independent effect on the likelihood of exiting, individual characteristics nevertheless play an important role. For instance, based on annual information on social assistance receipt in Sweden and a unique research design, Mood (2013) found that around half of duration dependence is due to selection.

Social assistance receipt across generations

Earlier research has also addressed the association between parental and offspring social assistance receipt. Findings show that parental social assistance receipt is strongly related to disadvantages among young adults (e.g. Ringbäck Weitoft et al., 2008; Vauhkonen et al., 2017), and the evidence from the Nordic countries indicates intergenerational transmission of

⁴ There are, however, a few studies that have not found this pattern of negative duration dependence (Blank, 1989; Dahl and Lorentzen, 2003; Gustafsson et al., 2002;).

social assistance (e.g. Moisio et al., 2015; Stenberg, 2000). Among young adults, parental social assistance receipt is especially associated with long-term take-up of social assistance (Ilmakunnas and Moisio, 2019). Additionally, parental social assistance receipt has a stronger association than other frequently studied dimensions of parental disadvantage with offspring reciprocity (Kauppinen et al., 2014; Ringbäck Weitoft et al., 2008). Earlier research has pointed out that state dependence in social assistance receipt seems to be stronger among disadvantaged groups (Immervoll, Jenkins and Königs, 2015). Understanding how parental social assistance receipt is associated with social assistance dynamics helps to shed light on why there is such a high intergenerational correlation in reciprocity. Previous studies into this association have been limited since they have not analysed continuous social assistance histories (see e.g. Ilmakunnas and Moisio, 2019; Kauppinen et al., 2014).

There are numerous mechanisms of parental influence on their children and the transmission of (dis)advantage across generations. The most notable include monetary and non-monetary investments; information on jobs and educational institutions, contacts and networks; the genetic transmission of characteristics valued in the labour market; and parental shaping of children's skills, attitudes, beliefs and behaviour (e.g. Ermisch, Jäntti and Smeeding, 2012). The extant literature suggests specific mechanisms through which parental poverty could affect children and through which social assistance receipt could be inherited (e.g. Jenkins and Siedler, 2007). Furthermore, family income can have a causal effect on offspring outcomes (Cooper and Stewart, 2021). Yet, studies using sibling fixed-effect approaches in the Nordic countries have not found any evidence that parental social assistance receipt has a causal effect on offspring reciprocity (Edmark and Hanspers, 2015; Lorentzen, 2010;). This implies that the specific mechanisms involved in the inheritance of social assistance may not be that important, at least in the Nordic welfare state context. In fact, it seems that intergenerational transmission is mostly explained by low parental income and other associated disadvantages (Edmark and Hanspers, 2015; Ringbäck Weitoft et al., 2008; Stenberg, 2000).

There are different reasons why the effect of parental social assistance receipt is not necessarily constant over time. In line with the life course perspective (Elder, Johnson and Crosnoe, 2003), it is possible that, on the one hand, a disadvantaged social background makes it harder for the individual to cope with the issues and events that have led to social assistance receipt and, on the other hand, makes individuals more vulnerable to additional critical life events. There is also a possible direct relationship between parents' financial resources and their adult children's financial difficulties. It is unlikely that low-income parents are in the

position to support their adult children financially – at least for as long a period of time or with as large amounts of money. Parents support their adult children especially when they face temporary difficulties (Swartz et al., 2011), and Finnish research has shown that parents of higher status or income are more likely to give financial support to their children (Majamaa, 2013). Financial help from parents can help to prevent the prolongation of social assistance receipt and any additional problematic or unexpected life situations.

Finnish social assistance system

In Finland, social assistance is a last-resort means-tested benefit that is granted only if the applicant has no other source of income, or their current income is inadequate, or they have not yet received income they are due. The benefit unit is the household. Until the beginning of 2017, social assistance was administered by municipalities. The Finnish social assistance system has three parts: basic, supplementary and preventive social assistance. Basic social assistance accounts for over 90% of total social assistance expenditure. It is a monthly benefit intended to cover the essential costs of daily living. The amount of basic social assistance is adjusted based on household type and number of children.

The share of social assistance recipients among young adults is higher in Finland than in Norway and Sweden (Lorentzen et al., 2014). Possible explanations include the fact that social assistance in Finland often serves as a top-up benefit (Kuivalainen and Nelson, 2012); that unemployment has been at a higher level in Finland in recent decades (OECD, 2022); and that there are hardly any restrictions regarding specific population subgroups in Finland. Additionally, there is no maximum limit for the length of period that a household can receive social assistance. Having said that, the Finnish social assistance system has in the past two decades undergone reforms that have brought an increase in activation measures and sanctions (Kananen, 2012).

There are some specific policy elements that are particularly related to young benefit recipients. These relate to a wider discussion on additional conditions for benefit receipt, such as participation in training or activation measures. One of the employment benefits available in Finland is the labour market subsidy, which is available for persons with no work history and those who have exceeded the maximum period for other unemployment benefits. Individuals under 25 years of age with no vocational training are required to apply to vocational training in order to be eligible. This means that for those who fail to meet these conditions, there are no

other options than social assistance. Yet, this policy has more implications for the likelihood of individuals becoming social assistance recipients than for the dynamics of social assistance. Furthermore, since 2011 the authorities have been able to reduce the amount of social assistance paid to people aged under 25 who have dropped out of education or have not accepted a study place (Kananen, 2012).

Research questions and expectations

The first research question is: What are the relative roles of individual characteristics and social assistance receipt per se in explaining long spells of social assistance among young adults?

It is expected that among Finnish young adults, the longer the social assistance spell, the less likely it is for individuals to exit social assistance. It is also expected that controlling for both observed individual characteristics (various socio-demographic factors and parental background) and unobserved characteristics decrease duration dependence.

The second research question is: Do young adults whose parents received social assistance have longer social spells and do they exhibit stronger duration dependence?

It is expected that young adults whose parents received social assistance are less likely to exit from social assistance than those whose parents were not recipients even when spells of similar length are considered. It is expected that the association will also be found when observed and unobserved individual characteristics are taken into account. Additionally, it is expected that parental social assistance receipt is associated with stronger duration dependence.

Data and methods

Data and variables

The analyses are based on Finnish register data (Statistics Finland contract number TK-53-1049-13). The dataset comprises a 25% random sample of individuals born between 1982 and 1987, which allows individuals to be followed until 2016. The sample includes individuals who lived in Finland at least during one year during the period 1991–2012. In addition to basic demographic information, the data include variables measuring employment, main activity status, education, social assistance and income. The register information was combined by Statistics Finland.

In the analyses, individuals are followed from the year they turned 19 to the year when they turned 29. Although individuals become eligible for social assistance when they turn 18, means-testing means that some individuals living independently can receive social assistance even before age 18. Thus, it is difficult to precisely specify an age when individuals enter the risk set. Starting the follow-up from the beginning of the year when individuals turn 19 ensured that everyone from a birth cohort had been eligible for at least a month.

The dataset used includes information for each calendar month on whether an individual had received social assistance. This is a major advantage of this study. Many previous studies have used survey information, which can have problems related to attrition (Cappellari and Jenkins, 2008) or misreporting of reciprocity (Bruckmeier, Hohmeyer and Schwarz, 2018). Most previous studies have not had access to full monthly social assistance history. The use of a year as a period of analysis does not allow considering transitions within a year or spells that continue through the turn of the calendar year. In line with many previous studies, this study does not consider gaps of one month in social assistance receipt as exits (e.g. Bäckman and Bergmark, 2011; Schels, 2018). These short gaps are likely explained, at least in part, by administrative errors and other problems in payments, and their inclusion could result in overestimations of the likelihood of exit.

One weakness of this study is that all other information except social assistance receipt is measured at an annual level. For this reason, independent variables were assigned the values they had in the first month of the social assistance spell. Sensitivity analyses were conducted in which the value of independent variables was based on the closest annual data point. Another

related issue is that right-censoring, with the exception of reciprocity at the end of the follow-up, could not be taken into account as precisely as social assistance receipt. It is important to keep in mind that the typical approach – measuring reciprocity annually – has a similar, albeit opposite problem in that the information on social assistance receipt is inaccurate.

In this study, the dependent variable was exit from social assistance. The main independent variable of interest was the length of social assistance spell. Another independent variable that was focused on was a dummy for parental social assistance receipt (value 1 if parents received social assistance, otherwise 0). Parental social assistance receipt – and confounders for parental social assistance receipt: family type of the parental home, parental unemployment and highest parental educational attainment – was measured for the year when the persons were 15 years of age.⁵ Parental information refers to parents living in the same household as the individual. The variable for parental family type was a dummy variable (value 1 for single parents, otherwise 0). The variable for highest educational attainment among parents had four groups: 1) compulsory education, 2) secondary education, 3) lowest level of tertiary education⁶ and 4) tertiary education. Parental unemployment was measured using a dummy variable (value 1 if at least one of the parents had experienced unemployment, otherwise 0).

The following variables were also used as covariates: sex, age at the start of the spell, country of birth, household type, whether the person was living in the parental home, highest educational attainment, and degree of urbanisation of municipality of residence. Seasonal variation was considered by including a dummy variable for each calendar month. Age was measured at the level of month. The variable for country of birth received value 1 if the person was born outside Finland and value 0 if the person was born in Finland. The variable for household type had four groups: 1) single household, 2) two adults, no children, 3) single-parent family and 4) two adults and children. Living in the parental home was measured using a dummy variable (value 1 for those living in the parental home, otherwise 0). The variable for highest educational attainment had three groups: 1) compulsory education, 2) secondary education and 3) tertiary education. The dummy variable indicating whether the person lived

⁵ All social assistance recipients are not registered as unemployed, and vice versa. In the Finnish system, social assistance can also work as a top-up benefit for unemployment benefits.

⁶ 'Lowest level of tertiary education' was discontinued and removed from the Finnish education system in 1996 when universities of applied sciences were founded. The category principally referred to vocational college. Among the younger generations there are hardly any people with this educational level, but it is quite common among older generations.

in a rural municipality was measured using information on the degree of urbanisation of the municipality of residence (classification by Statistics Finland). Information on the variables used in the study is shown in Table 1.

Statistical methods

The main statistical method used in this study was discrete-time event-history analysis. The discrete-time approach was used since it is possible to exit social assistance only at the end of the month. The dataset used for event-history analysis included only those months in which an individual had received social assistance. A new spell was indicated when an individual began to receive social assistance again after exiting social assistance. In event-history analyses, left-censored spells, i.e. spells starting before the follow-up, were disregarded. Furthermore, analyses were conducted using only spells with no missing values in independent variables. For this reason, 2,996 individuals and 9,739 spells were not included in the analyses. The main reason was the lack of information on parental background (typically immigrants). 5,218 spells were ongoing when the follow-up of individuals ended. These right-censored spells were included in the analyses. The total number of spells used in the analyses was 111,321 and the total number of individuals was 35,580.

Independent variables and the distribution of social assistance months and spells were examined by means of cross-tabulation and summary statistics. The length of social assistance spells was descriptively illustrated using Kaplan-Meier survival curves (Andreß, Golsch and Schmidt, 2013). The Kaplan-Meier curves shown were conducted using pooled data with all social assistance spells.

In discrete-time event-history logistic regression models, the dependent variable was exit from social assistance. In this study, based on an inspection of the hazard function, the length of social assistance spell was included as a logarithmic transformation in the regression models. The variable was included in binary logarithm form, which made it possible to interpret the estimates as the effects when the length of social assistance spell doubles. A graph comparing observed hazard rates and the modelled function is provided in the Appendix. Adding an interaction term between parental social assistance receipt and the duration variable allowed the effects of parental receipt to vary across the values of the duration variable.

This study followed an approach reviewed by Teachman (2011) that allows for the analysis of repeatable events and that takes into account unobserved heterogeneity in a discrete-time

context. The regression analyses were started by estimating logistic models using pooled data. However, pooled logistic models do not allow taking account for dependence between spells of the same individual (Teachman, 2011).⁷ These models were followed by random-effect (RE) logistic models. The idea of these models is that RE describes individual specific unobserved risk factors that are fixed over time. RE is common to all of the same person's spells and it is not explained by observed characteristics alone. For example, it can be expected that some individuals are more prone to having long spells in a way that cannot be captured using the observed variables.

In the RE model, it is assumed that all time-invariant confounders are included (Allison, 2009; Andreß, Golsch and Schmidt, 2013). This assumption is strong, and it is likely that there are unobserved characteristics that are correlated with RE. For this reason, fixed-effect (FE) logistic models were also estimated (see Teachman, 2011). FE models control for all time-invariant unobserved characteristics (Allison, 2009; Andreß, Golsch and Schmidt, 2013). This is a major advantage compared to other models estimated in this and many previous studies. The FE approach uses only variation within individuals (Allison, 2009). For this reason, the FE models were estimated using only individuals with at least two spells of social assistance (see Allison, 2009; Andreß, Golsch and Schmidt, 2013).⁸ Research focusing on duration dependence has typically used RE models. In young adults' monthly social assistance histories, there is a lot of variation within individuals since the prevalence of social assistance receipt is high during young adulthood and young adults often have multiple spells of social assistance. Thus, it can be argued that the use of FE models was an appropriate choice. The FE models covered 61% of the individuals (27,941) and 85% of all spells (94,930) used in the pooled logistic and RE models. Time-invariant variables – such as parental reciprocity – cannot be estimated in FE regression. However, it was possible to analyse the effect of parental social assistance receipt on duration dependence using an interaction term (see Allison, 2009; Teachman, 2011).

The regression coefficients illustrated are odds ratios. Odds ratios below 1 indicate lower odds of exiting and ratios greater than 1 higher odds of exiting compared to a reference group. In the case of continuous variables, odds ratios refer to a situation where an independent

⁷ The number of social assistance spells can, of course, be controlled, but in that case it is assumed that all within-individual variation is explained by the number of spells (cf. Teachman, 2011).

⁸ Also, individuals having only spells of one month in duration are not included in the FE models (no within-individual variation in the outcome variable).

variable increases by one unit. For the interaction effects odds ratios illustrate the group differences in effects in multiplicative terms (Buis 2010). Multiplicative effects control for differences between the groups in baseline odds (Buis 2010). This is useful as it is shown that there were baseline differences in the likelihood of exiting social assistance by parental social assistance background. Furthermore, the interest lies in whether there are any differences in duration effects by parental social assistance. For this purpose, analysing group differences using odds ratios – and their statistical significance – is suitable.

It has been noted that comparisons of odds ratios between nested models involve certain problems (Mood 2010; Norton and Dowd, 2018). However, this is not an aim in this study. There has also been a concern about group effects in logistic regression models being group dependent (Mood 2010). However, as recently explained by Kuha and Mills (2020: 20), “[...], *there is no reason to think that there should be such a universal effect that we should be seeking to determine beyond the group-specific effects that are estimable from observable data. This is not a flaw or bias but an inherent characteristic of such effects.*”

The use of average marginal effects has been suggested when using logistic regression. However, average marginal effects cannot be meaningfully calculated for FE logistic regression, and therefore odds ratios are preferable in this case (Norton and Dowd, 2018). Since average semi-elasticities can be estimated also for FE logistic regression (Santos Silva 2020), these estimates are illustrated in the Appendix for models without interaction terms as a reliability analysis. Since a single average partial effect cannot be estimated for interaction terms, the difference in average semi-elasticities of the duration effect between the groups of parental social assistance receipt is provided in the Appendix.

Results

Descriptive statistics

Descriptive information on the variables used in this study is presented in Table 1. The information refers to the situation at the start of a social assistance spell. Individuals whose parents had received social assistance accounted for 24% of all spells. Men accounted for 51.3%. The most common household type was a single adult household. 12.1% of the spells were among individuals who lived in the parental home.

Table 1. Descriptive statistics for the data used in the analyses of social assistance exits.

Variable	% or mean (SD)
Calendar month	6.0 (3.3)
Parental SA receipt	24.3%
Parental single-parent household	32.7%
Parental unemployment	40.2%
Parental compulsory education	19.7%
Parental secondary education	50.6%
Parental lowest tertiary education	18.2%
Parental tertiary education	11.5%
Age	24.3 (3.1)
Women	48.7%
Born outside Finland	5.9%
Compulsory education	39.4%
Secondary education	56.9%
Tertiary education	3.8%
Lives in the parental home	12.1%
Single	45.1%
Single-parent	13.0%
Couple, no children	21.7%
Couple, children	20.1%
Lives in a rural municipality	11.5%
Number of months of social assistance	636 937
Number of spells	111 231
Number of individuals	35 580

Note: Variables refer to situation at the start of a social assistance spell. Pooled data including all spells.

Table 2 provides descriptive statistics on social assistance dynamics. Receiving social assistance at some point during young adulthood is highly common in Finland: 34.9% received social assistance at least once between ages 19 and 29. The share was 38.3% if left-censored spells

were also considered. The mean length of a social assistance spell was 5.4 months and the mean number of spells during the follow-up 3.1. However, the most common length of a spell was just one month, and the most typical case was an individual with only one spell. One-third of young adults had only one spell and just under 35% of all spells were one month long. These descriptives indicate that both short-term and long-term receipt of social assistance can be found among young Finns.

Table 2. Descriptive statistics on social assistance dynamics among young adults aged 19–29.

Descriptive information	Summary statistics
Share of young adults receiving social assistance at some point during ages 19–29	34.9%
Share of individuals receiving social assistance at some point during ages 19–29, left-censored spells considered	38.3%
Mean number of spells of social assistance per individual among recipients (standard deviation)	3.1 (SD 2.4)
Mean length of spells of social assistance among all spells (standard deviation)	5.7 (SD 9.9)
Share of individuals with only one spell of social assistance among recipients	33.6%
Share of spells one month in length	34.7%

Note: Gaps of one month were not considered as an exit from social assistance. Descriptive statistics were calculated using individuals with no missing information on independent variables used in the regression analyses.

Descriptive analyses of duration dependence

Next, duration dependence in social assistance is illustrated descriptively using Kaplan-Meier survival curves and information on all spells. These curves illustrate the fraction of individuals staying in social assistance for a given period of time from the start of a social assistance spell. Figure 1 shows that the longer the social assistance spell, the lower the likelihood of a young adult exiting social assistance. A large share of individuals exit social assistance during the very first months of the spell. One-third exited after the first month and almost half had left social assistance after two months. However, the share of individuals leaving social assistance decreases rapidly especially during the first months. The decrease slows down particularly after social assistance receipt has continued for slightly over a year.

Figure 1. Kaplan-Meier survival curve: the probability of exiting social assistance among young adults aged 19–29, pooled data including all spells. Note: the follow-up is restricted to 40 months

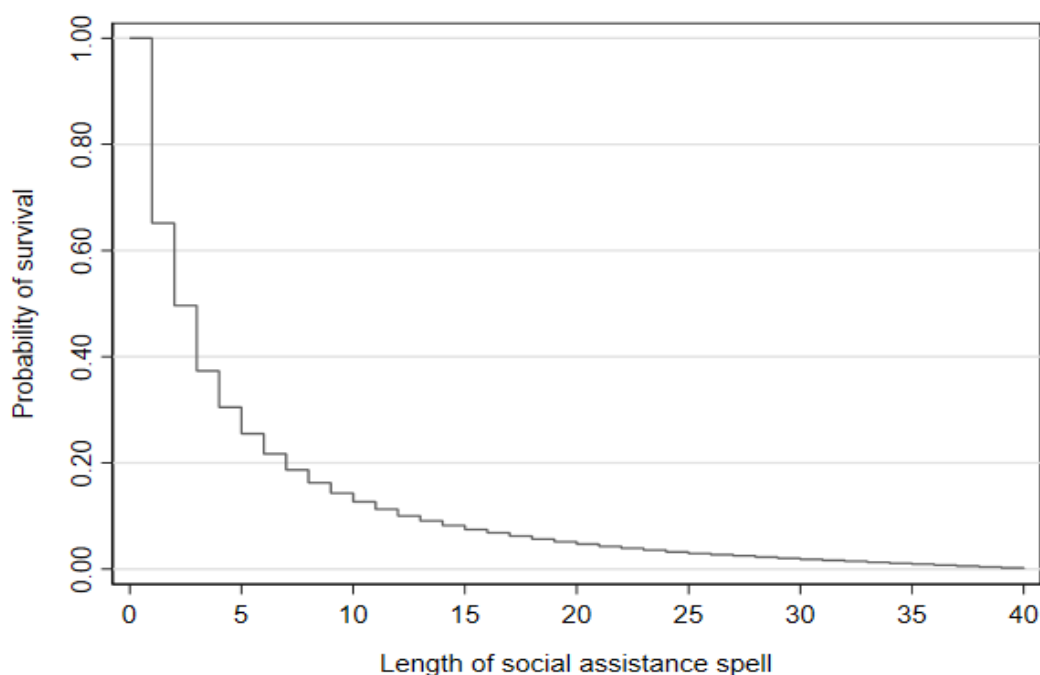
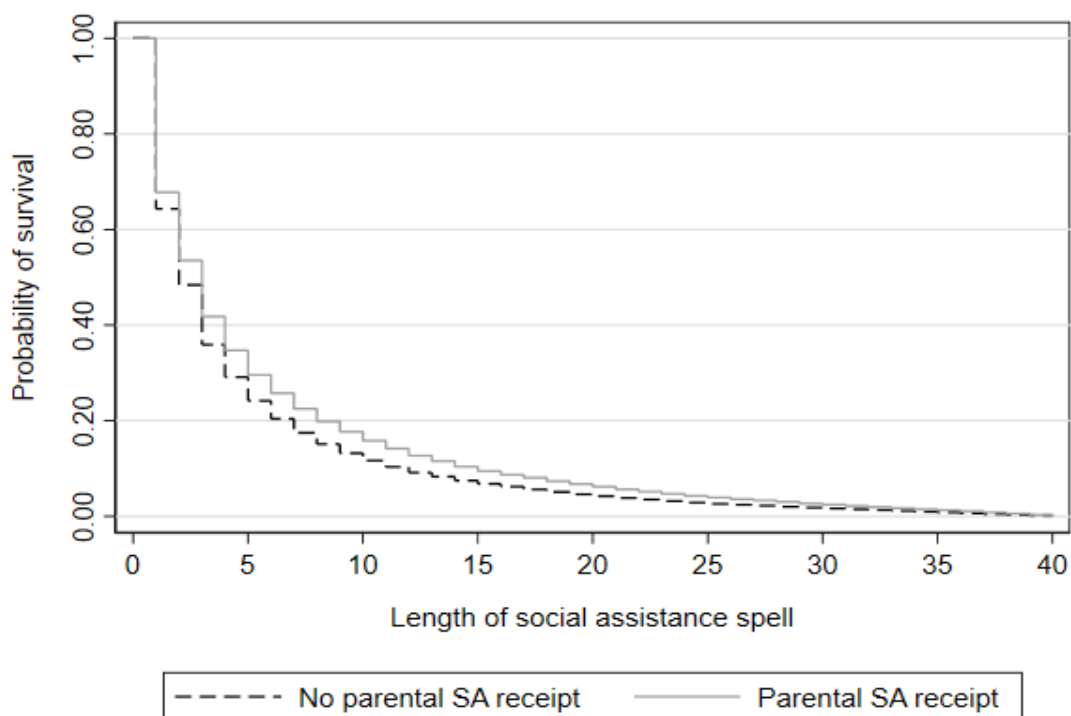


Figure 2 illustrates the patterns of duration dependence separately for parental social assistance receipt and non-receipt. It shows that there is a difference between the two groups. Additionally, the log-rank (and Wilcoxon) test for equality of survival functions showed that the difference between the groups was statistically significant (not shown). Those whose parents did not receive social assistance exited social assistance sooner than those whose parents received social assistance. However, the difference between the curves was not constant across the spell lengths. The difference between the curves shows a general tendency to narrow over time when the length of spells increases and exit rates decrease. During the very first months, however, the difference between the curves increased slightly. The smaller group differences in both very short and very long spells imply that selection can play a role when examining social assistance dynamics by parental social assistance receipt.

Figure 2. Kaplan-Meier survival curve: the probability of exiting social assistance among young adults aged 19–29 by parental social assistance receipt, pooled data including all spells. Note: the follow-up is restricted to 40 months.



Multivariate analyses

The aim of the multivariate models was to analyse the effects of spell duration and parental social assistance receipt and their interaction when considering both observed and unobserved factors. In the interpretation of the regression tables, the focus is only on these coefficients. The following models were estimated: models with a duration variable and dummy variables for calendar month and models both without and with interaction but with all observed characteristics.

The pooled logistic models illustrate the associations between independent variables and social assistance exit (dependent variable) when controlling for observed characteristics but not considering interdependencies between spells among recipients. The pooled logistic models showed that the longer the spell, the less likely it is for an individual to exit social assistance even when observed characteristics are controlled for (Table 3). When the length of social assistance spells doubles, it decreases the odds of exiting by a factor of 0.64 (model with all control variables). According to the pooled model, the duration effect did not seem to vary by parental social assistance receipt. Parental social assistance receipt was associated with a lower likelihood of exiting social assistance even when controlling for both time-varying and time-invariant observed characteristics: the odds for exiting social assistance were 8% lower for those whose parents received social assistance.

RE models allow for the possibility that individuals can have multiple spells in the dataset. Furthermore, individual unobserved heterogeneity can be taken into account. It follows that, compared to the pooled logistic model, these models bring us closer to the question of whether duration dependence could be caused by reciprocity itself. However, the assumptions regarding unobserved heterogeneity are strong in RE models. In general, the estimates obtained from the RE models resembled those found in the pooled logistic models (Table 3). The model including only variables for duration and calendar month showed that around 9% of the propensity to exit social assistance can be attributed to individuals. The estimates for duration dependence were slightly lower than in the pooled logistic models, although the magnitude of the duration effects was still large. A social assistance spell twice as long in duration decreased the odds of exiting by a factor of around 0.7. Again, no statistically significant interaction was found between parental social assistance receipt and spell duration. Controlling for other observed characteristics as well as unobserved heterogeneity, the odds

for exiting social assistance were 11% lower for those whose parents received social assistance.

FE models give the most accurate answers to the research questions of this study. Allowing for the possibility of multiple spells among recipients and considering all time-invariant individual characteristics, these models help to address selection bias. It is also important to note the within-individual interpretation of the estimates. It can be argued that this interpretation is more closely related to the causal question of whether there is duration dependence in social assistance (cf. between-individual variation used in the other models). The FE models included only individuals who had at least two spells and had at least one spell longer than one month in duration. All in all, a direct comparison of FE estimates with pooled and RE estimates is not recommendable.

In the FE models (Table 4), the odds ratio for the duration variable was below 1 but to a lesser extent. These estimates were statistically significant. Doubling the length of a spell reduces the odds of exiting by a factor of 0.90 when controlling for time-varying observed characteristics and all time-invariant individual characteristics.

Contrary to pooled and RE models, the FE model revealed statistically significant interaction between parental social assistance receipt and the duration variable. The estimates show that those whose parents received social assistance exhibited somewhat stronger duration dependence than those whose parents were not recipients. The duration effect for those whose parents did not receive social assistance can be multiplied by a factor of 0.94. The statistically significant and larger interaction effect in the FE model implies that time-invariant unobserved characteristics suppress the true relationship between parental social assistance receipt and the duration of social assistance spell (cf. pooled and RE models).

Table 3. Discrete-time logistic and random-effect logistic models. Exit from social assistance as a dependent variable, odds ratios.

	Logistic models			Random-effect logistic models		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Length of social assistance spell (binary log)	0.619*** (0.001)	0.640*** (0.002)	0.639*** (0.002)	0.700*** (0.003)	0.703*** (0.002)	0.704*** (0.003)
Parental social assistance receipt (ref: no parental receipt)		0.920*** (0.008)	0.913*** (0.012)		0.893*** (0.012)	0.901*** (0.014)
Parental social assistance receipt * Length of social assistance spell (binary log)			1.004 (0.005)			0.995 (0.006)
Single-parent family of origin (ref: two parents)		0.980* (0.008)	0.980* (0.008)		0.971** (0.011)	0.971** (0.011)
The highest parental educational attainment (ref: only qualification from compulsory education)						
Secondary education		1.052*** (0.010)	1.052*** (0.010)		1.067*** (0.014)	1.067*** (0.014)
Lowest level tertiary education		1.106*** (0.013)	1.106*** (0.013)		1.128*** (0.019)	1.128*** (0.019)
Tertiary education		1.067*** (0.015)	1.067*** (0.015)		1.073*** (0.020)	1.073*** (0.020)
Parental unemployment (ref: no parental unemployment)		0.969*** (0.008)	0.969*** (0.008)		0.957*** (0.010)	0.957*** (0.010)
Women (ref: men)		0.981** (0.007)	0.981** (0.007)		0.982 (0.010)	0.982 (0.010)
Born outside Finland (ref: born in Finland)		0.902*** (0.014)	0.902*** (0.014)		0.876*** (0.018)	0.876*** (0.018)
Living in the parental home		1.096*** (0.015)	1.096*** (0.015)		1.151*** (0.019)	1.151*** (0.019)

Is there a welfare trap? Duration Dependence in Social Assistance Reciprocity among Young Finns

	Logistic models			Random-effect logistic models		
(ref: having left the parental home)						
Household type (ref: single adult household)						
Couple, no children		1.363*** (0.013)	1.363*** (0.013)		1.385*** (0.015)	1.385*** (0.015)
Single-parent household		1.013 (0.013)	1.013 (0.013)		0.981 (0.016)	0.981 (0.016)
Couple with children		1.218*** (0.013)	1.218*** (0.013)		1.236*** (0.016)	1.236*** (0.016)
The highest educational attainment (ref: only qualification from compulsory education)						
Secondary education		1.524*** (0.012)	1.524*** (0.012)		1.650*** (0.017)	1.650*** (0.017)
Tertiary education		1.809*** (0.038)	1.809*** (0.038)		1.871*** (0.047)	1.872*** (0.047)
Age at the start of social assistance spell (measured at a monthly level)		0.968*** (0.001)	0.968*** (0.001)		0.971*** (0.001)	0.971*** (0.001)
Living in a rural municipality (ref: other municipalities)		1.147*** (0.013)	1.147*** (0.013)		1.157*** (0.017)	1.157*** (0.017)
Control for calendar months	YES	YES	YES	YES	YES	YES
Observations	636 937	636 937	636 937	636 937	636 937	636 937
Individuals				35 580	35 580	35 580
Log likelihood	-260764.0	-257546.9	-257546.6	-259016.8	-256442.8	-256442.4
LR Chi ²	54334.5***	60768.6***	60769.2***			
Wald Chi ²				15926.0***	25267.0***	25255.0***
BIC	521701.8	515481.4	515494.2	518220.7	513286.6	513299.1
sigma_u				0.5754	0.4778	0.4781
rho				0.0914	0.0649	0.0650
LR test of rho				3494.5***	2208.2***	2208.5***

Standard errors in parentheses. * p < 0.05, ** p < 0.01, *** p < 0.001.

Table 4. Discrete-time fixed-effect logistic models. Exit from social assistance as a dependent variable, odds ratios.

	Fixed-effect logistic models		
	Model 7	Model 8	Model 9
Length of social assistance spell (binary log)	0.896 ^{***} (0.003)	0.902 ^{***} (0.003)	0.919 ^{***} (0.003)
Parental social assistance receipt * Length of social assistance spell (binary log)			0.941 ^{***} (0.006)
Living in the parental home (ref: having left the parental home)		1.312 ^{***} (0.036)	1.314 ^{***} (0.036)
Household type (ref: single adult household)			
Couple, no children		1.286 ^{***} (0.021)	1.285 ^{***} (0.021)
Single-parent household		0.921 ^{**} (0.023)	0.921 ^{**} (0.023)
Couple with children		1.208 ^{***} (0.026)	1.207 ^{***} (0.026)
The highest educational attainment (ref: only qualification from compulsory education)			
Secondary education		1.274 ^{***} (0.028)	1.275 ^{***} (0.028)
Tertiary education		1.036 (0.050)	1.037 (0.050)
Age at the start of social assistance spell (measured at a monthly level)		1.011 ^{***} (0.002)	1.011 ^{***} (0.002)
Living in a rural municipality (ref: other municipalities)		1.024 (0.026)	1.023 (0.026)
Control for calendar months	YES	YES	YES
Observations	578 005	578 005	578 005
Individuals	21 800	21 800	21 800
Log likelihood	- 181384.6	- 181013.2	- 180973.9
LR Chi2	4436.8 ^{***}	5179.6 ^{***}	5258.1 ^{***}
BIC	362928.4	362291.7	362226.4

Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Reliability analyses

Various additional analyses were conducted to evaluate the reliability of the event-history models. The effects sizes of duration effects resembled those in the reported models when the models without independent variables were estimated also including individuals with missing information on these variables. This suggests that exclusion of those individuals does not affect the main conclusions on duration dependence. Controlling for the ordinal number of a spell (either as a continuous or categorical variable) did not affect the findings. When time-varying independent variables received a value based on the closest annual data point, the results obtained were the same as those reported. Assigning the last spell during the year of death as right-censored did not affect the estimates. Estimating the models separately by parental social assistance receipt did not affect the conclusions on duration effects. The analyses were also conducted considering gaps of one month as exits. Pooled logistic models revealed a statistically significant interaction, indicating that those whose parents did not receive social assistance had stronger duration effects. However, the odds ratio was only marginally above 1 (OR 1.01 in a model with all control variables).

The regression analyses were also conducted using average semi-elasticities instead of odds ratios (see Appendix). However, this did not affect the conclusions although, in the RE model, doubling the length of social assistance decreased the probability of social assistance exit 1% more among those whose parents had received social assistance. In the FE model, the difference was 5%. As mentioned, the interpretation of the RE and FE models differs. All in all, these findings are in line with the result that unobserved characteristics suppress the true relationship between parental social assistance receipt and the duration effects.

Summary

The descriptive analyses indicated that both short-term and long-term social assistance receipt is relatively common at some point of young adulthood in Finland. There were clear indications that the likelihood of exiting social assistance decreases as the length of time spent in social assistance increases. Furthermore, as hypothesised, young adults whose parents had received social assistance are more likely to stay in social assistance for longer period of times.

Event-history regression models made it possible to control for observed and unobserved characteristics and to take account of the possibility of multiple spells. As expected, negative duration dependence is overestimated when unobserved heterogeneity is not taken into account. Unobserved characteristics appear to be particularly important. Controlling for all time-invariant characteristics in FE models substantially reduced but did not remove the duration effects. In other words, there were signs of decreasing exit rates explained also by reciprocity itself.

As expected, parental social assistance receipt was associated with lower odds of exiting social assistance even when controlling for individual characteristics. Additionally, FE models showed that duration dependence is stronger among those young adults whose parents had received social assistance. In other words, parental social assistance receipt is associated not only with young adults' lower likelihood of exiting social assistance, but also with how social assistance receipt itself affects the future likelihood of reciprocity. This finding was only found when controlling for all time-invariant characteristics. Possible explanations include that selection into both very short and long spells of social assistance explained by unobserved characteristics can hide how parental reciprocity is associated with duration dependence among offspring. It is important to note, though, that individuals included in the FE analyses needed to have at least two spells and at least one spell longer than one month in duration. This limits the generalisability of this finding.

Discussion and conclusions

Welfare traps and negative duration dependence in social assistance are subjects of wide academic and public interest. The welfare dependence of young individuals is an area of particular concern. This study analysed the dynamics of social assistance receipt among young adults in Finland using register data with full monthly history of reciprocity. This study set out to investigate the relative roles of individual characteristics and social assistance receipt *per se* in explaining young adults' long-term reciprocity.

The results showed that young adults' likelihood of exiting social assistance decreases as the length of time spent in social assistance increases. As negative duration dependence can be related to individual characteristics, it was important to consider how controlling for observed and unobserved characteristics affects the picture. The findings revealed signs of decreasing exit rates explained also by reciprocity itself among young adults. It seems that individual characteristics (selection bias) do not fully explain duration dependence. Thus, these results are in line with previous studies that have had different approaches for considering unobserved heterogeneity (see Bäckman and Bergmark, 2011; Hohmeyer and Lietzmann, 2020; Mood, 2013; Sandefur and Cook, 1998). By means of controlling for all time-invariant characteristics, this study showed that negative duration dependence among young adults has much to do with unobserved characteristics. These characteristics can include, for instance, disadvantages in the parental family (e.g. health and social problems). These disadvantages have been shown to be important in explaining the correlation between parental social assistance reciprocity and offspring receipt during young adulthood (e.g. Ringbäck Weitoft et al., 2008; Stenberg, 2000). These findings highlight that future studies on duration dependence in social assistance should seek to control for all time-invariant characteristics in order to account for selection bias – an approach rarely used in research so far.

Studies have shown that disadvantages experienced during young adulthood can have long-term effects across the life course (e.g. Scarpetta, Sonnet and Manfredi, 2010). This means that if social assistance can *per se* affect future reciprocity during young adulthood, social assistance receipt can potentially have an independent effect over the whole life course. Thus, while social assistance transitions can be more typical among young adults compared to other age groups (see Gustafsson et al., 2002; Mood, 2013), young adults' reciprocity should not be seen as something that is explained only by the general characteristics of this life stage. The finding that exit rates decrease over time and that some young individuals become long-term

recipients has important policy implications. While universal policies are important, it is important to ensure that the young long-term recipients receive also social and health services. Furthermore, it is crucial to support the transition from social assistance to educational pathways.

Another aim in this study was to investigate how parental social assistance receipt is associated with young adults' likelihood of exiting social assistance and duration effects. Parental social assistance receipt was associated with a lower likelihood of exiting social assistance. When controlling for all time-invariant characteristics, parental reciprocity seemed to be linked with stronger duration dependence. This suggests that time-invariant unobserved characteristics suppress the true relationship between parental social assistance receipt and the duration of the social assistance spell. These findings should be taken into account when analysing the intergenerational transmission of social assistance. At any given point in time, long-term recipients of social assistance are always overrepresented. This can lead to overestimation of the intergenerational correlation since it is more likely for the reciprocity of those whose parents received social assistance to be included in the data. On the other hand, the standard approaches for intergenerational correlations do not consider the effects of parental reciprocity on how offspring reciprocity at a given point in time affects their future reciprocity. Thus, the overall impact of parental reciprocity can be underestimated. Also, an interesting topic for future research would be to study whether similar patterns of duration dependence can be found across generations.

The empirical approach used in this study had certain limitations. Due to missing information on parental background, many immigrants were excluded from the study. Also, it is possible that some time-varying factors were omitted that may be associated with duration dependence. In particular, there can be important relationships between different dimensions of disadvantage. Furthermore, variables for time-varying characteristics could not be measured as precisely as social assistance receipt. It is also important to note that this study cannot shed light on the mechanisms through which social assistance receipt itself affects the future likelihood of reciprocity or why parental social assistance receipt would cause stronger duration dependence. Administrative data is not suitable for studying these mechanisms in detail. Other kind of research designs (e.g. qualitative) or linking survey and register information is needed for gaining new information on these issues.

Social assistance receipt – as other dynamic processes – is a difficult subject to address in a longitudinal setting since the patterns identified are heavily shaped by individual characteristics. This means that descriptive analyses, while important, are not sufficient for making judgements about system-level consequences. Furthermore, there are strong grounds for studying social assistance dynamics using monthly instead of annual information. It is important that future studies give greater weight to providing more accurate measurements of reciprocity.

References

- Allison PD (2009) *Fixed Effects Regression Models*. Thousand Oaks, CA: SAGE.
- Andreß H, Golsch K and Schmidt A (2013) *Applied Panel Data Analysis for Economic and Social Surveys*. Berlin: Springer.
- Bäckman O and Bergmark Å (2011) Escaping welfare? Social assistance dynamics in Sweden. *Journal of European social policy* 21(5): 486–500.
- Bane M and Ellwood D (1994) *Welfare Realities. From Rhetoric to Reform*. Cambridge: Harvard University Press.
- Blank RM (1989) Analyzing the length of welfare spells. *Journal of Public Economics* 39(3): 245–273.
- Bruckmeier K, Hohmeyer K and Schwarz S (2018) Welfare receipt misreporting in survey data and its consequences for state dependence estimates: new insights from linked administrative and survey data. *Journal for Labour Market Research* 52(16): 1–21.
- Buis ML (2010) Stata tip 87: Interpretation of interactions in nonlinear models. *The Stata Journal* 10(2): 305–308.
- Cappellari L and Jenkins S (2008) The dynamics of social assistance receipt: measurement and modelling issues, with an application to Britain. IZA DP 3765. Bonn: IZA.
- Contini D and Negri N (2007) Would Declining Exit Rates from Welfare Provide Evidence of Welfare Dependence in Homogeneous Environments? *European sociological review* 23(1): 21–33.
- Cooper K and Stewart K (2021) Does Household Income Affect children's Outcomes? A Systematic Review of the Evidence. *Child Indicators Research* 14(3): 981–1005.
- Dahl E and Lorentzen T (2003) Explaining Exit to Work among Social Assistance Recipients in Norway Heterogeneity or Dependency? *European Sociological Review* 19(5): 519–536.

- Edmark K and Hanspers K (2015) Is Welfare Dependency Inherited? Estimating Causal Welfare Transmission Effects Using Swedish Sibling Data. *European Journal of Social Security* 17(3): 338–360.
- Elder GHJ, Johnson MK and Crosnoe R (2003) The Emergence and Development of Life Course Theory. In: Mortimer JT and Shanahan MJ (eds) *Handbook of the Life Course*. New York: Springer, pp. 3–22.
- Ermisch J, Jäntti M and Smeeding T (eds.) (2012) *From parents to children: the intergenerational transmission of advantage*. New York: Russell Sage Foundation.
- Gustafsson B et al. (2002) Paths through (and out) social assistance. In: Saraceno C (ed.) *Social Assistance Dynamics in Europe: National and Local Poverty Regimes*. Bristol: The Policy Press, pp. 173–234.
- Hohmeyer K and Lietzmann T (2020) Persistence of Welfare Receipt and Unemployment in Germany: Determinants and Duration Dependence. *Journal of Social Policy* 49(2): 299–322.
- Ilmakunnas I and Moio P (2019) Social assistance trajectories among young adults in Finland – What are the determinants of welfare dependency? *Social Policy & Administration* 53(5): 693–708.
- Immervoll H (2009) *Minimum-Income Benefits in OECD Countries: Policy Design, Effectiveness and Challenges*. IZA DP 4627. Bonn: IZA.
- Immervoll H, Jenkins S and Königs S (2015) Are Recipients of Social Assistance ‘Benefit Dependent’? Concepts, Measurement and Results for Selected Countries. IZA DP 8786. Bonn: IZA.
- Jenkins S and Siedler T (2007) *The intergenerational Transmission of Poverty in Industrialized Countries*. Discussion Papers 693. Berlin: German Institute for Economic Research.
- Kananen J (2012) Nordic paths from welfare to workfare: Danish, Swedish and Finnish labour market reforms in comparison. *Local Economy* 27(5–6): 558–576.

- Kauppinen TM et al. (2014) Social background and life-course risks as determinants of social assistance receipt among young adults in Sweden, Norway and Finland. *Journal of European Social Policy* 24(3): 273–288.
- Kuha J and Mills C (2020) On group comparisons with logistic regression models. *Sociological Methods & Research* 49(2): 498–525.
- Kuivalainen S and Nelson K (2012) Eroding minimum income protection in the Nordic countries? Reassessing the Nordic model of social assistance. In: Kvist J et al. (eds) *Changing social equality: The Nordic welfare model in the 21st century*. Bristol: Policy Press, pp. 69–88.
- Lorentzen T (2010) Social assistance dynamics in Norway: A sibling study of intergenerational mobility. Report 3. Bergen: Stein Rokkan Centre for Social Studies.
- Lorentzen T et al. (2014) Unemployment and economic security for young adults in Finland, Norway and Sweden: From unemployment protection to poverty relief. *International Journal of Social Welfare* 23(1): 41–51.
- Majamaa K (2013) The effect of socio-economic factors on parental financial support from the perspectives of the givers and the receivers. *European Societies* 15(1): 57–81.
- Moisio P et al. (2015) Trends in the Intergenerational Transmission of Social Assistance in the Nordic Countries in the 2000s. *European Societies* 17(1): 73–93.
- 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.
- Mood C (2013) Social Assistance dynamics in Sweden: Duration dependence and heterogeneity. *Social Science Research* 42(1): 120–139.
- Norton EC and Dowd BE (2018) Log odds and the interpretation of logit models. *Health Services Research* 53(2): 859–878.
- OECD (2022) Unemployment rate (indicator). doi:10.1787/52570002-en (accessed 27 April 2022).

- Ringbäck Weitoft G et al. (2008) Health and social outcomes among children in low-income families and families receiving social assistance – A Swedish national cohort study. *Social Science & Medicine* 66(1): 14–30.
- Sandefur GD and Cook ST (1998) Permanent exits from public assistance: The impact of duration, family, and work. *Social Forces* 77(2): 763–787.
- Santos Silva J (2020) AEXTLOGIT: Stata module to compute average elasticities for fixed effects logit. <https://EconPapers.repec.org/RePEc:boc:bocode:s458254> (accessed 27 April 2022).
- Scarpetta S, Sonnet A and Manfredi T (2010) Rising Youth Unemployment During The Crisis: How to Prevent Negative Long-Term Consequences on a Generation? OECD Social, Employment and Migration Working Papers 106. Paris: OECD Publishing.
- Schels B (2018) Young adults' risk of long-term benefit receipt and parents' socioeconomic background. *Acta Sociologica* 61(1): 17–33.
- Settersten RA (2007) Passages to Adulthood: Linking Demographic Change and Human Development. *European Journal of Population* 23(3/4): 251–272.
- Stenberg S (2000) Inheritance of welfare reciprocity: an intergenerational study of social assistance reciprocity in postwar Sweden. *Journal of Marriage and Family* 62(1): 228–239.
- Swartz TT et al. (2011) Safety nets and scaffolds: Parental support in the transition to adulthood. *Journal of Marriage and Family* 73(2): 414–429.
- Teachman J (2011) Modeling Repeatable Events Using Discrete-Time Data: Predicting Marital Dissolution. *Journal of Marriage and Family* 73(3): 525–540.
- Vauhkonen T et al. (2017) Intergenerational accumulation of social disadvantages across generations in young adulthood. *Research in Social Stratification and Mobility* 48: 42–52.

Appendix

Figure 3. Observed hazard rates and predicted hazard rates from the model with logarithmic transformation of the duration variable. Note: the follow-up is restricted to 60 months.

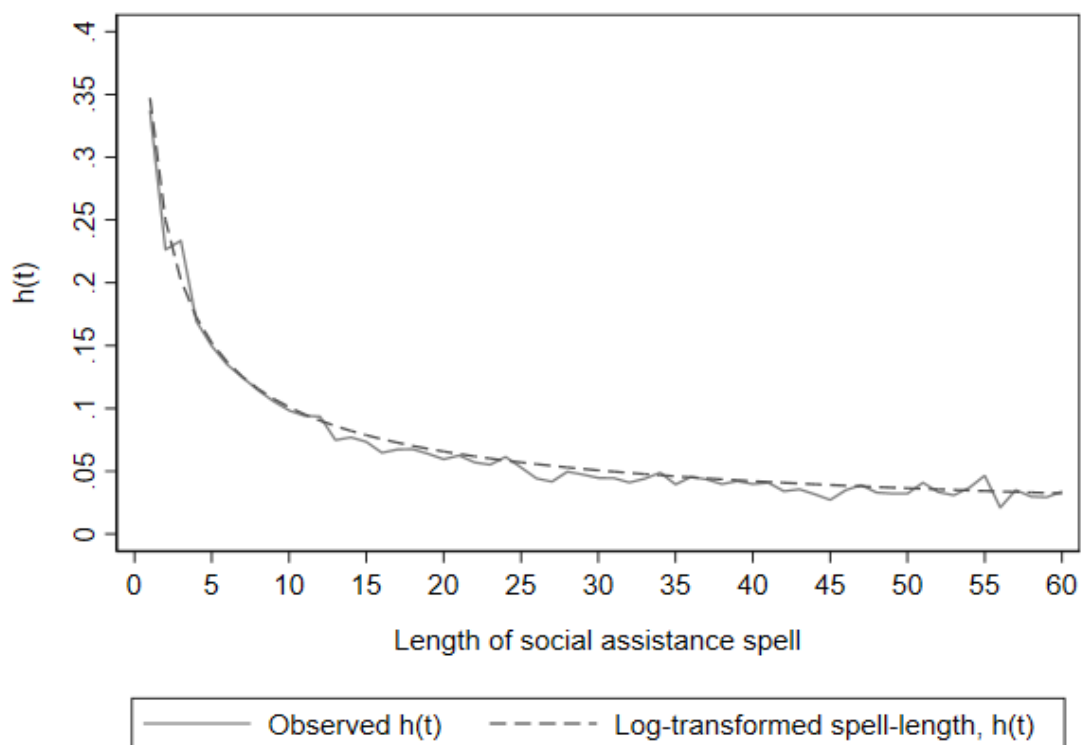


Table 5. Discrete-time logistic and random-effect logistic models. Exit from social assistance as a dependent variable, average semi-elasticities.

	Logistic models		Random-effect logistic models	
Length of social assistance spell (binary log)	0.399 ^{***} (0.002)	-0.371 ^{***} (0.002)	-0.271 ^{***} (0.003)	-0.277 ^{***} (0.003)
Parental social assistance receipt (ref: no parental receipt)		-0.070 ^{***} (0.008)		-0.089 ^{***} (0.010)
Parental social assistance receipt * Length of social assistance spell (binary log)				
Single-parent family of origin (ref: two parents)		-0.0168 [*] (0.007)		-0.023 ^{**} (0.009)

	Logistic models		Random-effect logistic models	
The highest parental education attained (ref: only qualification from compulsory education)				
Secondary education		0.042 ^{***} (0.008)		0.051 ^{***} (0.011)
Lowest level tertiary education		0.084 ^{***} (0.010)		0.095 ^{***} (0.013)
Tertiary education		0.054 ^{***} (0.012)		0.056 ^{***} (0.015)
Parental unemployment (ref: no parental unemployment)		-0.027 ^{***} (0.007)		-0.035 ^{***} (0.009)
Women (ref: men)		-0.016 ^{**} (0.006)		-0.0141 (0.008)
Born outside Finland (ref: born in Finland)		-0.086 ^{***} (0.013)		-0.106 ^{***} (0.017)
Living in the parental home (ref: having left the parental home)		0.076 ^{***} (0.011)		0.109 ^{***} (0.013)
Household type (ref: single adult household)				
Couple, no children		0.256 ^{***} (0.008)		0.253 ^{***} (0.008)
Single-parent household		0.011 (0.011)		-0.015 (0.013)
Couple with children		0.164 ^{***} (0.009)		0.166 ^{***} (0.010)
The highest education attained (ref: only qualification from compulsory education)				
Secondary education		0.352 ^{***} (0.006)		0.394 ^{***} (0.008)
Tertiary education		0.488 ^{***} (0.017)		0.487 ^{***} (0.019)
Age at the start of social assistance spell (measured at a monthly level)		-0.027 ^{***} (0.001)		-0.023 ^{***} (0.001)
Living in a rural municipality (ref: other municipalities)		0.113 ^{***} (0.009)		0.114 ^{***} (0.011)
Control for calendar months	YES	YES	YES	YES
Observations	636 937	636 937	636 937	636 937
Individuals			35 580	35 580

Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. The average semi-elasticities can be interpreted as a change in the logarithm of the probability of social assistance exit when the length of a social assistance spell doubles. When average semi-elasticities are small, they correspond to a percent change in the probability.

Table 6. Discrete-time fixed-effect logistic models. Exit from social assistance as a dependent variable, average semi-elasticities.

	Fixed-effect logistic models	
Length of social assistance spell (binary log)	-0.092 ^{***} (0.003)	-0.086 ^{***} (0.003)
Living in the parental home (ref: having left the parental home)		0.227 ^{***} (0.023)
Household type (ref: single adult household)		
Couple, no children		0.210 ^{***} (0.014)
Single-parent household		-0.068 ^{**} (0.021)
Couple with children		0.158 ^{***} (0.018)
The highest education attained (ref: only qualification from compulsory education)		
Secondary education		0.202 ^{***} (0.019)
Tertiary education		0.029 (0.040)
Age at the start of social assistance spell (measured at a monthly level)		0.009 ^{***} (0.002)
Living in a rural municipality (ref: other municipalities)		0.020 (0.021)
Control for calendar months	YES	YES
Observations	578 005	578 005
Individuals	21 800	21 800

Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. The average semi-elasticities can be interpreted as a change in the logarithm of the probability of social assistance exit when the length of a social assistance spell doubles. When average semi-elasticities are small, they correspond to a percent change in the probability. The average semi-elasticities for fixed-effect models were calculated using the user-written *aextlogit* Stata package (Santos Silva 2020).

Table 7. Average semi-elasticities of duration effect and their difference by parental social assistance receipt

	Logistic model	Random-effect logistic model	Fixed-effect logistic model
No parental social assistance receipt	-0.37 (0.002)	-0.27 (0.003)	-0.07 (0.003)
Parental social assistance receipt	-0.37 (0.004)	-0.28 (0.004)	-0.12 (0.005)
Difference between average semi-elasticities	-0.001 (0.004)	-0.01* (0.005)	-0.05*** (0.006)

Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Note: The estimates are based on regression models including variables for calendar month and all observed characteristics as well as the interaction term. Fixed-effect models use only variation within individuals and, thus, the interpretation of estimates is different compared to the estimates from the other models. The fixed-effect models were estimated using only individuals with at least two spells. The average semi-elasticities and their standard errors for the groups of parental social assistance receipt were estimated by calculating two regression models in which the coding of the dummy variable used in the interaction was reversed. The average semi-elasticities can be interpreted as a change in the logarithm of the probability of social assistance exit when the length of a social assistance spell doubles. When average semi-elasticities are small, they correspond to a percent change in the probability. The average semi-elasticities for fixed-effect models were calculated using the user-written *aextlogit* Stata package (Santos Silva 2020).