The reproduction of benefit receipt: Disentangling the intergenerational transmission

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The reproduction of benefit receipt: Disentangling the intergenerational transmission

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A R T I C L E   I N F O

A B S T R A C T

Adult children of benefit recipients are more likely to also receive benefits themselves. This may be a spurious effect, resulting from similarities between parents and children, but it is also possible that parental benefit receipt generates more benefit recipiency among their offspring. Such a non-spurious effect may be due to children's educational attainment, information, beliefs, and norms about welfare or work. We analyse longitudinal administrative data on benefit receipt among parents and children in the Netherlands. We approach causality through the timing of parental benefit receipt, and find indications for a non-spurious effect on adult children's benefit receipt. Parental benefit receipt lowers the child's educational attainment, and this subsequently results in more benefit receipt. The remaining effect is more likely related to beliefs and norms than to information provision.

1. Introduction

Various papers have studied the intergenerational correlation in benefit receipt, mostly with regard to the US (Gottschalk, 1996; Lee et al., 2008; Levine and Zimmerman, 1996; Mitnik, 2008; Pepper, 2000) and Scandinavian countries (Bratberg et al., 2015; Dahl et al., 2014; Stenberg, 2000). The key issue addressed in the literature on the 'reproduction of benefit receipt' is whether parental welfare dependency has a causal impact on benefit receipt in the next generation, or whether this correlation is spurious. This paper reassesses this causality issue, but also tries to ascertain which specific mechanisms are at work.

If a non-spurious effect exists, there are at least three possible mechanisms that may explain the intergenerational transmission of benefit receipt. Firstly, benefit receipt affects beliefs and norms about welfare and work. Parental benefit receipt might increase the acceptance of benefit receipt and the perceived efficacy of relying on collective income provisions (Bertrand et al., 2000; Dahl et al., 2014; Dahl and Gielen, 2018). Secondly, if parents receive benefits, application costs may decline, as parents are able to provide their children with first-hand information on how the system works (Dahl et al., 2014; Vartanian, 1999). Thirdly, parental benefit receipt can have a negative impact on children's educational level, and as a result increase their benefit receipt (Dahl and Gielen, 2018). The perception that education is meaningful and will contribute to a successful career is less strong among children of benefit recipients, who consequently may be less motivated to invest in their education (Wilson, 1987).

Alternatively the correlation could be spurious, resulting from characteristics shared between parents and children that are related to benefit receipt (Levine and Zimmerman, 1996; Mitnik, 2008). For example, parents and children are often exposed to the

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same local labour market conditions, share the same ethnic background, and are similar in characteristics such as ability and health. Due to these associated characteristics parental and children's benefit receipt will be correlated, but there will be no causal effect (Dahl et al., 2014; Mitnik, 2008).

The various mechanisms have very different policy implications. Social policy is often designed and reformed under the assumption that (long-term) benefit receipt should be prevented as it may evoke processes in which beliefs and norms that make people prefer welfare over work are transmitted from parents to children. Although often mentioned by policymakers, it is unclear whether such 'welfare cultures' really exist (Lee et al., 2008; Macdonald et al., 2014). If structural factors are more important in explaining intergenerational transmission than cultural mechanisms, adequate welfare state arrangements that allow parents to invest in their children's human capital will be more effective in preventing benefit receipt in the next generation than restrictive policies that prevent long-term benefit receipt (Corak, 2004). Finally, if the reproduction of benefit receipt is mainly explained by intergenerational correlation in abilities and competences, it may be more efficient not to interfere and to tolerate some levels of reproduction (Page, 2004; Piketty, 2000).

In this paper we ask (1) how strong is the intergenerational correlation in benefit receipt in the Netherlands, and (2) how can this intergenerational correlation be explained? We use longitudinal administrative data on the entire population of the Netherlands on the timing and duration of benefit receipt. This allows us to follow individuals over time and to relate benefit receipt of both fathers and mothers to benefit receipt of their children. The unique longitudinal data create opportunities to gain new insight in which mechanisms are most likely to explain the intergenerational correlation. We do so by estimating models explaining children's benefit receipt from parental prior and later benefit receipt.

The size of the dataset also makes it possible to distinguish between the three main types of programs: unemployment insurance (*werkloosheidsuitkering*), disability insurance (*arbeidsongeschiktheidsuitkering*) and social assistance benefits (*bijstand*). Unemployment insurance benefits in the Netherlands are time limited (3 months–3 years depending on work history) and are available to people who involuntary lost their job, provided they actively seek new employment. Disability insurance covers employees who have become incapacitated. Both unemployment and disability insurance benefits are individual benefits, which provide 70–75% of previous earnings, irrespective of assets or other sources of income in the household. Social assistance provides an income to all households who have no other sources of income or whose combined income sources are below the social minimum. In multi-person households, social assistance is provided to all adults and means-tested based on income and assets of all household members.[1] The Dutch unemployment, disability and social assistance schemes form an inherently linked system, which covers the risk of being unable to work due to market circumstances or medical incapacity. People may move from one scheme to the other: people who have reached the maximum duration in social insurance schemes and have not been able to find a job, typically end up in social assistance, which for those cases effectively is a follow-up benefit. There is also hidden unemployment among disability insurance recipients (Koning and Van Vuuren 2007). It is not possible to assess the degree of incapacitation in a perfectly objective manner, therefore economic factors such as job loss or unemployment are also found to affect entry into disability schemes (IBO, 2017; Koning and Van Vuuren 2007; Rege et al., 2012). Because of the interconnected nature of the three schemes our main analyses will focus on total benefit receipt. But we will also analyse the three welfare programs separately, since this provides additional insights in the mechanisms behind the intergenerational transmission of benefit receipt.

2. Four possible mechanisms

2.1. Beliefs and norms about welfare and work

An important assumption in the literature is that there is a stigma attached to benefit receipt and a norm to provide for oneself through paid employment (Mood, 2004). Moffitt (1983) shows that people experience a disutility of welfare receipt; some people do not claim benefits although they are entitled to them. The more people in the social environment adhere to the norm to work, the more intensely this norm is felt by the individual (Lindbeck et al., 1999; Mood, 2010a), and the less likely people are to claim benefits. Clark (2003) shows that people who have more unemployed others in their social environment experience a smaller decrease in well-being if they become unemployed and are (therefore) less active in searching for a new job and more likely to remain unemployed. Similarly, Stutzer and Lalive (2004) find a stronger decrease in well-being and a quicker return to work after entering unemployment in regions with stricter work norms. Parents are an important part of one's social environment, therefore children of benefit recipients can be expected to experience less welfare stigma or less strong work norms (Page, 2004) and therefore to be more likely to claim benefits themselves.

In addition, if one's parents receive benefits, this will increase the perceived reliability of collective income provision (especially compared to people whose parents applied for benefits but did not receive them). Therefore, children of benefit recipients might perceive less urgency to find a (new) job or invest in their career or education. Two papers by Dahl and colleagues use unique identification strategies to identify the causal effect of parental benefit receipt on children's benefit receipt and find that having parents who applied for benefits but not (or no longer) receive them, decreases children's benefit receipt (Dahl et al., 2014; Dahl and Gielen, 2018) and increases children's educational level (Dahl and Gielen, 2018).

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[1] However, as an exception to this rule, the income (from work, disability or unemployment insurance) of co-residing adult children is not included in the means test for parental social assistance eligibility. (Children do not have to support their parents from their income). This means that parental benefit receipt is not contingent on their (co-residing) children's income from work or welfare benefits.

2.2. Information and application costs

Secondly, benefit recipients in one's social network can provide information about the welfare system, eligibility and application strategies (Bertrand et al., 2000). People can only apply for a certain benefit if they are aware of the program's existence and their own eligibility (Van Oorschot, 1998; Mood, 2010a). If people have more information about eligibility criteria, they can make a more accurate prediction of their own eligibility, which makes eligible people more likely to claim benefits (Mood, 2010a). In addition, information about the welfare system reduces the application costs (Gottschalk, 1996; Moffitt, 1992; Mood, 2010a). People will only apply for benefits if the perceived profits outweigh the perceived (application) costs (Van Oorschot, 1998). Moreover, benefit recipients in one's social network can provide information about successful application strategies; that is children of benefit recipients might learn how to "play the system" (Antel, 1992).

2.3. Education

Benefit receipt could also be transmitted from parents to children through the child's educational attainment. Parental benefit receipt may reduce children's self-esteem and lead to stigmatisation by teachers and therefore reduce children's educational success (Ku and Plotnick, 2003; Hofferth et al., 2000). In addition, children of benefit recipients are less likely to observe that investments in education will contribute to a successful career or are necessary for a secure income and therefore tend to perceive education as less important (Borjas, 1995; Dahl and Gielen, 2018; Page, 2004; Wilson, 1987). Therefore, children from welfare families might be less motivated to attain, and less successful in attaining, higher levels of education (Ku and Plotnick, 2003). The low educational level of the children subsequently decreases their job status and job security. High status workers have more specific skills and on the job training and are therefore less easy to replace. Also legal protection is generally higher for higher status jobs (Wolbers, 2000). After dismissal, or in periods with low labour demand, high educated workers will defeat lower educated workers in the competition for lower status jobs. Therefore, lower educated people will be more likely to become (long-term) unemployed than higher educated people, thus more likely to become benefit recipients.

2.4. Spurious intergenerational correlation in benefit receipt

The intergenerational correlation in benefit receipt may also be spurious. In that case, parental benefit receipt is not the cause of their children's benefit receipt, but characteristics shared between parents and children explain benefit receipt in both generations. Parents and children often live in the same area and are therefore exposed to the same local labour market conditions (Mitnik, 2008). Areas with, for instance, limited access to jobs will increase benefit receipt in both generations. Moreover, children resemble their parents in health, race and ethnic background (Becker and Tomes 1979; Solon, 1992). Due to discrimination on the labour market, race and ethnic background will affect job opportunities and thereby benefit receipt. Health will affect earning potential and benefit eligibility and thereby benefit receipt. In these mechanisms, parental benefit receipt is not the cause of children's health situation or labour market region, nor of their children's benefit receipt. Rather, health or labour market situation are correlated between parents and children and affect benefit receipt in both generations.

3. Separating mechanisms empirically

3.1. Causal versus spurious effects

Several papers on intergenerational correlation in benefit receipt try to establish whether the correlation is explained by a causal effect. Are you on benefits *because* your parents were on benefits? Or is the intergenerational correlation in benefit receipt explained by other characteristics that are correlated with benefit receipt and shared by parents and children (Bratberg et al., 2015)? This research line typically uses econometric techniques to infer causality.

Firstly, sibling studies are used to control for family characteristics that are shared by brothers and/or sisters (Mitnik, 2008; Bratberg et al., 2015). A longer exposure to parental disability benefit receipt is found to increase the likelihood of children to receive benefits also when family fixed effects are taken into account (Bratberg et al., 2015). This provides some support for a causal effect. However, alternative explanations cannot be ruled out. Differences between siblings in exposure to parental benefit receipt will be correlated with changes in other family characteristics such as income, parental health status and (therefore) investments in children's human capital and also these characteristics affect children's probability of benefit receipt (Bratberg et al., 2015).

Secondly, instrumental variables approaches study the effect of predicted, instead of actual, parental benefit receipt on the probability of children's benefit receipt (Moffitt, 1992; Levine and Zimmerman, 1996). Traditional instrumental variables include local welfare dependency, poverty rate or labour market opportunities, and individual poverty, educational level or household type (Levine and Zimmerman, 1996; Moffitt, 1992). It is, however, (almost) impossible to find good instrumental variables; that is, variables that are correlated with parental benefit receipt but uncorrelated with other parental characteristics. An exception is the study by Dahl et al. (2014). They make use of the random assignment of judges to disability insurance applicants in Norway and find a significant effect of judge leniency on the probability of benefit receipt in the next generation. Average judge leniency is highly correlated with the probability that parents receive benefits but uncorrelated with other parental characteristics due to the random assignment process. This study thus shows that there is a causal effect of parental benefit receipt on children's benefit receipt.

A final approach to assess causality is applied in the studies of Gottschalk (1996), Corak et al. (2004) and Ekhaugen (2009). This is

the approach that we will use as well. These studies use information about parental benefit receipt at two moments in time, both before and after they measure children's benefit receipt. They argue that personal characteristics shared between parents and children, such as ethnicity, area characteristics or ability, will equally affect prior and future parental benefit receipt and children's benefit receipt. If there is only a spurious effect, the correlations of children's benefit receipt with parental prior and future benefit receipt will therefore be similar in size. Only prior parental benefit receipt can have a causal effect on children's benefit receipt. In a model explaining children's benefit receipt, the effect of prior parental benefit receipt thus captures both the causal and the spurious effect, while the effect of future parental benefit receipt only captures the spurious effect. The causal component of the intergenerational effect can therefore be identified as the difference in effect size (Ekhaugen, 2009).

This estimation of the causal effect rests on the assumption that children's benefit receipt and parent's earlier benefit receipt do not have a causal effect on future parental benefit receipt. However, parents who received benefits in the past might have less opportunities on the labour market, less strong work norms and lower application costs which increases the likelihood of future parental benefit receipt (Macmillan, 2013). Moreover, parents can be affected by their children's benefit receipt, for instance if their children provide information on how to apply. In both these situations the correlation between children's benefit receipt and future parental benefit receipt will increase, which implies an *underestimation* of the causal effect (Corak et al., 2004).

There is a second reason why the causal effect will be underestimated in our specific case. Over the past decades, there have been a number of reforms in the Dutch social security schemes, resulting in stricter eligibility conditions, lower benefit levels and/or shorter maximum duration of receipt (Vrooman, 2016). Therefore, the entire group of benefit recipients is likely to have become more selective over the years. This implies that parents who receive benefits in 2013–2014 and children who receive benefits in 2010–2011 will have more adverse characteristics than parents who received benefits in 1999–2000. Consequently, the spurious correlation of children's benefit receipt will be larger with parents' future benefit receipt than with parents' prior benefit receipt. This too will lead to an underestimation of the causal effect.

The difference in effect size between prior and future parental benefit receipt should therefore be interpreted as the minimum size of the causal effect. If the effect of prior parental benefit receipt is significantly larger than the effect of future parental benefit receipt, this suggests a causal effect. A non-significant difference, however, does not necessarily mean that the effect is entirely spurious.

A second assumption behind this approach is that if a non-spurious effect is found, this is an effect of parental benefit receipt and not an effect of time-varying parental characteristics associated with benefit receipt. For example, when parents are temporarily ill, or unemployed (and receive benefits) when the child is young, it is unclear what causes the subsequent higher benefit receipt of the child. We assume that these characteristics only work via the child's educational attainment. Time varying parental characteristics such as illness or unemployment will hamper children's educational attainment and *only* therefore their benefit receipt. They will not have a direct effect on children's welfare norms, information or benefit receipt. We therefore include educational attainment of the child in our models and pay special attention to what happens to the effects of prior and future parental benefits with and without taking children's educational attainment into account.

Gottschalk (1996) finds support for a causal effect of mother's benefit receipt on children's benefit receipt in the US for non-Blacks, while for Blacks, the correlation is found to be (partly) spurious. Ekhaugen (2009) studies the effect of parental unemployment on children's unemployment in Norway. She finds no significant difference in effect size between parents' prior and parents' future unemployment and therefore concludes that there is no evidence for a causal effect. Corak et al. (2004) study unemployment insurance receipt in both Canada and Sweden. They find that in Canada the effect of father's prior unemployment insurance receipt on children's first unemployment insurance receipt is significantly larger than the effect of father's future receipt, while in Sweden this difference is not significant. Therefore, they conclude that, while there is a causal effect in Canada, in Sweden the effect of father's unemployment insurance receipt might be entirely spurious.

Studying the timing of parental benefit receipt thus can give insight in whether the intergenerational correlation is mainly spurious or whether there is room for a causal mechanism. Based on the theory a causal effect of parental benefit receipt on children's benefit receipt can be expected. *We therefore expect to find an effect of prior parental benefit receipt which is significantly larger than the effect of future parental benefit receipt (hypothesis 1).* If there is no significant difference in effect size this might indicate that the intergenerational correlation is entirely spurious. In that case personal characteristics correlated between parents and children induce benefit receipt in both generations.

3.2. Children's education as mediator

If the effects of prior and future parental benefit receipt suggest that there may be a causal effect on children's benefit receipt, this might work via children's education. Parental benefit receipt reduces educational motivation and success in the school system and thereby educational attainment (Ku and Plotnick, 2003). Subsequently, a low educational level will reduce job status and job security (Wolbers, 2000) and thereby increase benefit receipt. Therefore, *educational attainment will mediate the causal effect of parental benefit receipt on benefit receipt in the next generation (hypothesis 2).* If the causal effect (operationalised as the difference in effect size between prior and future benefit receipt) disappears when education is taken into account, this indicates that the most likely mechanism to explain this part of the intergenerational correlation is an indirect effect of parental benefit receipt (or other time varying parental characteristics) through education. Partial mediation suggests that other mechanisms also play a role. If including education in the model has no effect on the size of the causal effect, this suggests that benefit receipt is not transmitted from parents to children through educational attainment. Other causal mechanisms, such as social norms or information on the welfare system, are then most likely to explain the intergenerational transmission.

Apart from a possible reduction in the causal effect of parental benefit receipt, the inclusion of educational attainment in our

models will most likely reduce the spurious intergenerational correlation as well. This would show in a decrease in effect size of both prior and future benefit receipt. Parental characteristics correlated with benefit receipt such as ability or educational level will affect children's educational attainment and thereby their benefit receipt.

3.3. Beliefs and norms or information about the welfare system?

If the causal effect is not fully mediated by education, the remaining causal effect can be due to beliefs and norms and/or to information about the welfare system. We use two empirical strategies to gain insight in which of these two mechanisms is most likely to explain the intergenerational effect.

Firstly, we use the timing of prior parental benefit receipt. Parents who recently received benefits will have more up-to-date information about the welfare system and application strategies than parents who received their benefits longer ago. We explain children's benefit receipt over the years 2010 and 2011. *Based on the information mechanism, we expect to find a stronger causal effect of parental benefit receipt in 2008-2009 than of parental benefit receipt in 1999-2000 (hypothesis 3).* However, if the effect of parental benefit receipt longer ago is stronger or equally strong, it is unlikely that benefit receipt is transmitted through information about the welfare system.

Secondly, we distinguish between various benefit programs. Information about benefit eligibility and application strategies is program-specific. Therefore, based on the information mechanism, parental benefit receipt will only affect children's probability of benefit receipt from the same benefit program as their parents. Markussen and Røed (2015) distinguish two types of social insurance programs. They find positive effects of peer participation in the same program, but negative cross-effects: peer participation in one social insurance program has a negative effect on participation in the other program. This suggests that information sharing might be a relevant causal mechanism. *Based on the information mechanism, we expect to find a positive effect of parental benefit receipt in the same program but no (positive) effect of parental benefit receipt in other benefit programs (hypothesis 4).* However, such results might also be explained by program specific stigma (Markussen and Røed, 2015, see also Dahl et al., 2014). If cross-effects are positive, e.g. parental unemployment or disability insurance receipt promotes children's social assistance receipt; this suggests that beliefs and norms about welfare in general are more likely to explain the intergenerational transmission than information about specific welfare programs. Part of such cross-effects, however, may be the result of the substitutability between the different welfare programs. Individuals who are no longer eligible for unemployment or disability benefits might end up in (the less generous) social assistance program. Reforms of the welfare system probably have exacerbated this problem. Parents and children with the same incapacity (or other correlated characteristics) might end up in different programs because of changes in eligibility criteria. The results of these analyses can thus only be tentative because substitution effects may confound the estimation of the causal components.

4. Data

For this paper we use longitudinal administrative data from the Netherlands System of Social Statistical Datasets (SSD). This is a collection of linked longitudinal administrative databases on the entire population of the Netherlands that allows us to link parents to children and to follow people over time. We have data on parents' and children's benefit receipt from 1999 until 2014. Our dependent variable is whether or not an individual received (a specific type of) benefit within the two year period 2010–2011.[2] We focus on all individuals born in the years 1980 up to and including 1982. We selected this three year age cohort, firstly because individuals have to be at least 27 years old in 2010 to be eligible for all types of benefits, and secondly because among older children, parents are more likely to have reached retirement age and therefore to have exited the (employed or unemployed) labour force. Within this age group, we select all individuals who live in the Netherlands in 2010–2011 and for whom at least one parent is known in the data.[3] This leads to a selection of 532,460 individuals.

For these individuals we have information on their personal characteristics (gender, age, ethnicity, household type and whether they finished higher education) and on if they receive (a specific type of) benefit within the years 2010 and 2011. In addition, we have information on parental benefit receipt. We study the effect of prior parental benefit receipt on children's benefit receipt while we control for later parental benefit receipt (in 2013 and 2014). We measure prior parental benefit both in the earliest available years (1999–2000) and over the most recent years prior to their children's benefit receipt (2008–2009).[4]

The individuals in our dataset are not independent but clustered in higher level units in two ways. Firstly, our dataset includes siblings, who by definition share parental characteristics. For 526,400 individuals we have information on their mother which allows us to link them to their siblings. Although most individuals (77%) do not have any siblings within our (age limited) dataset, some people share the same mother with up to 3 others. The intraclass correlation coefficient (ICC) indicates that the correlation in benefit

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[2] We chose these years as they are the most recent years that still allow us to control for (non-adjacent years of) future parental benefit (2013–2014). Focusing on children's benefit receipt in 2011/2012 yields the same results.

[3] Our key data source is 'kindoudertab' which contains only children with at least one known parent. If parents have never lived in the Netherlands they cannot be linked to their children, this group will therefore not be present in our data. This dataset includes 563,898 children born in 1980 up to and including 1982. However, some children have died or emigrated and are therefore not present in the data in 2010 and 2011.

[4] Extra analyses, measuring prior parental benefit in other years, all yield very similar results (see appendix 1). Besides measuring parental benefit receipt in 1999/2000 and 2008/2009 we also estimated models measuring prior parental benefit receipt in 2003/2004 and 2006/2007. The results are thus robust for the choice of measurement years.

receipt of individuals who share the same mother[5] is 0.160. It is therefore necessary to take into account the multilevel structure of the data in order to accurately estimate the significance of effects of parental characteristics on children's benefit receipt.

Secondly, individuals are clustered in households if two or more individuals within our dataset are living together. Benefit receipt of household members is interdependent, because eligibility may depend on household characteristics, but also because household members can influence each other. The ICC indicates that the correlation in benefit receipt between household members is 0.409, thus household members of benefit recipients are much more likely to also receive benefits. To guarantee independence of our cases we randomly selected only one individual per household. The 532,460 individuals are clustered within 480,150 households; 52,310 individuals are deleted because another member of their household was already included.[6]

In the multilevel regression models, we cluster on family level using the mother as cluster variable. Therefore, individuals of which the mother is unknown (5559 persons) are excluded from the analyses. All models are estimated on the remaining 474,591 people.

4.1. Operationalisation

Our dependent variable is whether or not a child receives benefits within the years 2010 and 2011. This variable is derived from the administrative data from Statistics Netherlands on an individual's main source of income[7] in a given month. Statistics Netherlands distinguishes four types of benefit programs: social assistance, unemployment insurance, disability insurance, and all other (major cash) benefits.[8] If, in at least one month within the two year period, one of these four benefit schemes is a person's main source of income, (s)he is classified as recipient of that type of benefit. In the analyses of separate benefit programs, we only focus on social assistance, unemployment insurance and disability insurance, but in our calculation of total benefit receipt also individuals who have another major cash benefit as main source of income are included (Table 1).

Based on the same dataset, we calculated whether fathers and mothers received at least one month benefits (as main source of income) within the years 1999–2000, 2008–2009 and 2013–2014. However, for some children the parent is not known, or not present in the data in those years. To be able to include all children, we created a categorical variable, including the category 'unknown' for parents who are abroad, deceased or otherwise unknown. Parents who are born in or before 1935 (1949) turn 65 - the official retirement age in the Netherlands - in 2000 (2014) and are therefore not at risk of benefit receipt for the entire period. Therefore, these parents are classified as retired. All other parents are classified based on whether or not they received benefits in at least one month (Table 2).

Apart from models explaining children's total benefit receipt, we also estimate models with children's benefit receipt in the three separate schemes as dependent variables. In these models we include both a variable on whether the parents received benefits in the same program and a variable on whether the parents received benefits in any of the other programs as independent variables.

Educational level is based on registrations of the completion of different types of education. The attainment of higher education is registered in the Netherlands since 1986 and will therefore provide reliable information on our selection of children born in 1980–1982. Registrations on the completion of high school or vocational training are only available since 1999 and 2004, respectively. These do not provide a reliable source of information on educational level, as many children born in 1980–1982 might have completed these school types before the registration started. We therefore only separate people who finished higher education in the Netherlands[9] from all others. As control variables we include personal characteristics (year of birth, gender, ethnic background[10]), and household type of the children.[11] Household type is based on the household situation on the first of January 2010[12] (Table 3).

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[5] Individuals can also share a father with other siblings. For 505,813 individuals the father is known and the ICC for clusters within fathers is 0.144. Fathers and mothers are cross-classified, but will largely overlap. Because it is not possible to estimate cross-classified models and because more fathers are unknown we chose to only cluster on mothers.

[6] An alternative solution would have been to estimate cross-classified models with clustering on both siblings and households. The large number of groups (480,150 unique households and 468,007 unique mothers) however makes it (almost) impossible to estimate cross-classified models, as these models depend on the estimation of covariances between all combinations of groups.

[7] Individuals are classified as employed, self-employed, otherwise active, unemployment insurance, disability insurance, social assistance, other benefits, retired, student, or without income.

[8] Other benefits include major cash benefits similar to unemployment insurance, disability insurance and social assistance for specific target populations. Note that our definition of benefit receipt does not include supplemental income sources such as parenting benefits/child support or housing benefits.

[9] If people complete higher education abroad, this is not included in the Dutch registration data, thus these people are not included in the category 'higher education'. This will lead to a bias in our data. However, in this research this group will be relatively small, as many people who migrated to the Netherlands after they finished education abroad do not have parents in the Netherlands and are therefore already excluded from our data set.

[10] We use the Statistics Netherlands definition of ethnic groups. Non-Western minorities are people of whom at least one parent is born in Africa, Latin America or Asia (except Indonesia and Japan). Within non-western minorities Statistics Netherlands distinguishes the four largest ethnic minority groups (Turks, Moroccans, Surinamese and Antilleans) based on the mother's country of birth (or the father's country of birth if the mother is born in the Netherlands). Western minorities are people of whom at least one parent is born in another country outside the Netherlands.

[11] We estimated extra models in which we also control for birth year of both the father and the mother. These models yield similar results. However, as this leads to 110 extra variables and does not change the conclusions we chose to present the models without birth year control dummies.

[12] We distinguish singles, couples, couples with children, single parents, other households, institutional households and children living at the parental home.

Table 1

Descriptive statistics dependent variables (N = 474,591).

Source: own calculations based on the SSD provided by Statistics Netherlands

Children's benefit receipt over the years 2010–2011 (percentages)				
	Total	Social assistance	Unemployment	Disability
≥1 month receipt	19.0	4.7	9.3	4.4

Table 2

Descriptive statistics parental characteristics (percentages) (N = 474,591).

Source: own calculations based on the SSD provided by Statistics Netherlands

	1999–2000		2008–2009		2013–2014	
	Mother	Father	Mother	Father	Mother	Father
Parent total benefit receipt						
No receipt	82	77	77	65	59	40
≥1 month receipt	16	15	17	16	18	16
Parent social assistence receipt						
No receipt	91	88			72	54
≥1 month receipt	8	4			5	2
Parent disability benefit receipt						
No receipt	92	84			69	48
≥1 month receipt	6	8			8	8
Parent unemployment benefit receipt						
No receipt	96	89			72	50
≥1 month receipt	3	3			5	6
Parent unknown	1	7	4	11	5	14
Parent 65+	0	1	3	8	17	30

Table 3

Descriptive statistics child characteristics (N = 474,591).

Source: own calculations based on the SSD provided by Statistics Netherlands

	Percentage
Higher education	34
Year of birth	
1980	34
1981	33
1982	33
Ethnic group	
Native Dutch	80
Turkish	3
Moroccan	3
Surinamese	3
Antillean	1
Western	7
Other non-western	3
Household type (2010)	
Single	26
Couple	33
Couple + children	23
Single parent	3
Other household type	2
Institutional household	1
Living at the parental home	13

5. Results

5.1. Intergenerational correlation of benefit receipt

The intergenerational correlation (Phi) is calculated between whether the child received (a specific type of) benefits over the years 2010 and 2011, and whether the parent received (a specific type of) benefits over the years 1999 and 2000. The correlation in total benefit receipt is 0.15 with mothers and 0.14 with fathers. Intergenerational correlations of specific types of benefits are mostly

Table 4

Intergenerational correlation between parental benefit receipt 1999–2000 and children's benefit receipt 2010–2011[13].

Source: own calculations based on the SSD provided by Statistics Netherlands

		Total	Social assistance	Unemployment	Disability
Mother N = 467,206	Total benefit receipt	0.15	0.15	0.05	0.08
	Social assistance	0.15	0.17	0.05	0.06
	Unemployment	0.03	0.02	0.02	0.02
	Disability	0.06	0.04	0.03	0.05
Father N = 437,278	Total benefit receipt	0.14	0.14	0.05	0.07
	Social assistance	0.11	0.14	0.03	0.05
	Unemployment	0.04	0.03	0.03	0.02
	Disability	0.08	0.07	0.03	0.06

much smaller, except the correlation in social assistance receipt (0.17 with mothers, 0.14 with fathers). Especially social assistance receipt thus turns out to be correlated between parents and children (Table 4).

5.2. A model explaining benefit receipt

We estimate a multilevel linear probability model[14] explaining the probability that an individual receives benefits in 2010 and 2011 from parental benefit receipt and personal characteristics. In the first model (Table 5) we estimate the association between prior parental benefit receipt and children's benefit receipt. Compared to children whose parents did not receive benefits, children with parents who did receive benefits are more likely to receive benefits themselves. Children whose mother received benefits have a 12 percentage point higher probability to receive benefits, if (also) their father received benefits this adds (an additional) 10 percentage points to the probability. This is quite a strong association, considering that the probability of benefit receipt is only 14% among children of whom both parents never received benefits. Furthermore, children whose parents are retired or unknown are more likely to receive benefits than children whose parents did not receive benefits.

In model 2 we include both prior and future parental benefit receipt. Future parental benefit receipt is associated with children's benefit receipt, which indicates that the intergenerational correlation in benefit receipt might be (partly) spurious. Personal characteristics shared between parents and children such as health or ability induce prior and future parental benefit receipt and children's benefit receipt. In Table 6 we show our estimate of the causal component of the intergenerational correlation. This estimate is calculated as the coefficient of prior parental benefit receipt minus the coefficient of future parental benefit receipt (see also Ekhaugen, 2009). We find significant causal components: the coefficient of prior parental benefit is significantly larger than the coefficient of future parental benefit receipt[16] which confirms hypothesis 1. This suggest that on top of the spurious correlation between parents' and children's benefit receipt, prior maternal (paternal) benefit receipt leads to a 3.4 percentage point (4.4 percentage point) higher probability of benefit receipt for the child. However, this might also be (partly) an effect of time varying parental characteristics associated with benefit receipt through children's education.

In model 3 (Table 5) we include children's education. People who finished higher education in the Netherlands have an 11 percentage point lower probability to receive benefits than the lower educated group. When educational level is taken into account, the associations of both prior and future parental benefit receipt with children's benefit receipt decrease. This indicates that part of the spurious correlation disappears when children's educational level is taken into account. However, the associations of prior parental benefit decrease more than those of future parental benefit. As a result, the estimated causal components decrease (Table 6). This supports hypothesis 2; the intergenerational transmission of benefit receipt is partly mediated by children's education. Parental benefit receipt (or time varying parental characteristics associated with benefit receipt) reduces children's educational attainments and thereby induces children's benefit receipt. The estimated causal component for mothers' benefit receipt is reduced by 12.6% and for fathers' benefit receipt by 9.9%. Even so, the causal components are not fully mediated; they remain significant when education is

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[13] Correlations are estimated on the 474.591 people in the data. However, for some children parents are retired or unknown, these people are excluded from the correlations, therefore, the N is a bit lower.

[14] Different model specifications, including a linear regression model and a negative binomial model, using the *number of months* children receive benefits within the two year period 2010–2011 as dependent variable yield very similar results. However, the distribution of our dependent variable is not in line with the assumptions of these methods as most people who receive benefits receive them in all 24 months. Therefore, we decided to use a binary dependent variable. We used a linear probability model, and not the more common logit or probit models, as our analysis relies on the comparison of parameters within and between models which is problematic in probit or logit models (Mood, 2010b).

[15] R-square is calculated on individual level as $\frac{\sigma_{e0}^2 - \sigma_{e1}^2}{\sigma_{e0}^2}$ in which σ_{e0}^2 is the unexplained variance at the individual level (σ_e^2) of the intercept only model and σ_{e1}^2 is the unexplained variance at the individual level of the presented model. Similarly R-square is calculated on family level as $\frac{\sigma_{u0}^2 - \sigma_{u1}^2}{\sigma_{u0}^2}$ (see also Hox, 2010).

[16] We used two methods to test whether the coefficients for prior and future parental benefit receipt were equal, with very similar results. Firstly, we calculated the standard errors of the causal component ($\beta_{prior} - \beta_{future}$) using $\sqrt{SE_{prior}^2 + SE_{future}^2}$. Following Paternoster et al. (1998), we used this standard errors in a z-test to test the equality of the two regression coefficients ($z = \frac{\beta_{prior} - \beta_{future}}{\sqrt{SE_{prior}^2 + SE_{future}^2}}$). Secondly, we performed a Wald chi-square-test of equality of the coefficients. Based on both test we find that all causal components in all models are significant (p < 0.01).

Table 5

Multilevel linear probability models explaining children's benefit receipt.

Source: own calculations based on the SSD provided by Statistics Netherlands

	Model 1	Model 2	Model 3	Model 4	Model 5
	B	B	B	B	B
Mothers prior benefit receipt (ref = no benefit receipt) (1999–2000)					(2008–2009)
≥1 month receipt	0.124**	0.097**	0.087**	0.064**	0.059**
Retired	0.096**	0.098**	0.081**	0.032	0.018**
unknown	0.067**	0.048**	0.042**	0.020**	0.014**
Fathers prior benefit receipt (ref = no benefit receipt) (1999–2000)					(2008–2009)
≥1 month receipt	0.103**	0.087**	0.076**	0.053**	0.043**
Retired	0.069**	0.068**	0.059**	0.025**	0.017**
unknown	0.120**	0.092**	0.084**	0.047**	0.037**
Mothers future benefit receipt (ref = no benefit receipt) (2013–2014)					
≥1 month receipt		0.063**	0.057**	0.046**	0.036**
Retired		−0.002	0.005**	0.005**	0.002
Unknown		0.035**	0.029**	0.029**	0.028**
Fathers future benefit receipt (ref = no benefit receipt) (2013–2014)					
≥1 month receipt		0.043**	0.036**	0.032**	0.027**
Retired		0.008**	0.012**	0.004*	0.001
unknown		0.037**	0.031**	0.024**	0.024**
High education			−0.110**	−0.098**	−0.100**
Year of birth (ref = 1982)					
1981				0.001	0.001
1980				0.001	0.001
Female (ref = male)				0.024**	0.024**
Ethnicity					
Turkish				0.076**	0.093**
Moroccan				0.139**	0.160**
Surinamese				0.065**	0.076**
Antillean				0.081**	0.094**
Western				0.025**	0.028**
non-Western				0.029**	0.042**
Household type (ref = single)					
Couple				−0.082**	−0.082**
Couple + kids				−0.082**	−0.081**
Single parent				0.250**	0.255**
Other household				−0.042**	−0.040**
Institutional household				0.561**	0.564**
Parental home				0.001	0.000
Constant	0.144**	0.125**	0.168**	0.192**	0.194**
R^2 individual[15]	0.0%	0.0%	0.6%	2.2%	2.2%
R^2 family	12.1%	14.0%	17.8%	25.5%	24.8%

*$p < 0.05$; **$p < 0.01$.

Table 6

The causal component: $\beta_{prior} - \beta_{future}$.

Source: own calculations based on the SSD provided by Statistics Netherlands

	Model 2	Model 3	Model 4	Model 5
Prior parental benefit receipt measured in	1999–2000			2008–2009
Mother ≥ 1 month BR	0.034**	0.030**	0.018**	0.023**
Father ≥ 1 month BR	0.044**	0.040**	0.021**	0.016**
Controls				
Education		X	X	X
Child characteristics			X	X

Child characteristics include year of birth, gender, ethnicity and household type.

*$p < 0.05$; **$p < 0.01$.

taken into account. This suggests the existence of a direct effect of parental benefit receipt on benefit receipt in the next generation. This supposedly results from beliefs and norms or from welfare information, since it is not likely that these are affected by other time varying parental characteristics.

In model 4 (Table 5) more child characteristics are taken into account. Women have a 2 percentage point higher probability of benefit receipt than men. Native Dutch people are less likely to receive benefits than non-Western and Western minorities. Couples (with or without children) are less likely to receive benefits than singles, while single parents and people in institutional households are much more likely to receive benefits. Although we did not theorize on this, we find that including these variables reduces the

estimated causal effects of parental benefit receipt on benefit receipt in the next generation (Table 6). The reduction of the causal effects due to mediation by these child characteristics is even stronger than the reduction due to mediation by the child's educational attainment. This indicates that parental benefit receipt affects child characteristics, and these child characteristics subsequently increase children's benefit receipt. Possibly, parental benefit receipt increases the probability that children form single parent households. Children of benefit recipients might perceive lower opportunity costs of single or early parenthood as they have lower expectations for their own career (Plotnick, 2007), expect lower returns from marriage or cohabitation because potential partners will be (perceived) to be less likely to hold a stable job (Wilson, 1987), or feel less financial need to get married as they expect to be able to rely on collective income provisions.[17] Single parenthood will subsequently increase the probability of benefit receipt (Sandefur and Cook, 1998).

We re-estimate the same four models, distinguishing parents who received benefits over the complete two year period from parents who received benefits in some but not all months, in order to give some insights in the effect of treatment dose. About half of the parents who receive benefits do so for the entire 24-month period; the remainder were only temporarily receiving benefits. Children whose mother (father) received benefits for the full period turn out to be three (two) percentage points more likely to receive benefits than children with partial exposure. This is a relatively small difference, as children whose mother (father) temporarily received benefits are ten (nine) percentage point more likely to receive benefits, compared to children who were not exposed to parental benefit receipt. However, only the spurious relation is stronger if parents received benefits for the entire period; the estimated causal components are *smaller* for this group than for those whose parents only temporarily received benefits. While children of parents who received benefits in all 24 months are more likely to receive benefits, longer exposure to parental benefit receipt does not increase the causal effect on children's benefit receipt. This suggests that temporary exposure to parental benefit receipt may also – or especially – affect children's information, beliefs or norms about the welfare system, which translates into a higher probability of benefit receipt.

In model 5, prior parental benefit receipt is measured over the years 2008–2009 instead of over 1999–2000. Based on the information mechanism, we expect to find stronger causal effects of more recent parental benefit receipt, as these parents can provide more up to date welfare state information (*hypothesis 3*). Comparing the estimated causal components of models 4 and 5 (Table 6) shows that for fathers, the effect of benefit receipt in 1999–2000 is largest, while for mothers the effect of benefit receipt in 2008–2009 is largest. However, for both fathers and mothers the differences in the size of the causal components are not significant.[18] Based on the timing of prior parental benefit receipt, hypothesis 3 has to be rejected. There is no evidence that suggests that benefit receipt is especially transmitted through *recent* information about the welfare system.

Another empirical strategy to gain insight in the relative importance of the information mechanism versus the beliefs and norms mechanism is to study the effect of parental participation in the same or different benefit programs. Based on the information mechanism we expect positive causal effects of parental benefit receipt in the same benefit program, but no causal effects of parental benefit receipt in other programs *(hypothesis 4)*. Table 7 shows three models explaining the probability that children receive social assistance, unemployment benefits and disability benefits respectively. In all three models, both prior and future parental benefit receipt in the same program and prior and future parental benefit receipt in other programs have positive and significant effects on the probability that a child receives benefits. This indicates that both parental benefit receipt in the same program and parental benefit receipt in other programs is related to children's benefit receipt, due to spurious correlation. Characteristics shared between parents and children such as local labour market conditions, ability or ethnic background increase benefit receipt in both generations, but possibly in different benefit programs. For instance, local labour demand may affect unemployment insurance receipt among parents with (long) employment histories, while among children who try to find their first job it could affect social assistance receipt.

In Table 8 we calculated the estimated causal components of the intergenerational correlation. If the effect of prior parental benefit receipt is significantly larger than the effect of future parental benefit receipt, this suggests a causal effect.[19] For unemployment benefits, we find a significant causal component of paternal benefit receipt in the same program and insignificant causal components of parental benefit receipt in other welfare programs. Therefore, for unemployment insurance hypothesis 4 is confirmed. This suggests that unemployment insurance receipt might be transmitted from fathers to children via program specific information on how and where to apply for unemployment insurance. However, this effect can also be explained by program specific beliefs and norms, i.e. the idea that unemployment insurance is acceptable while other benefits are not.

For social assistance and disability benefits, we find insignificant causal components of parental benefit in the same program. Therefore hypothesis 4 is rejected for these programs. There is no evidence that suggests that social assistance and disability insurance receipt are transmitted from parents to children via *program specific* welfare state information. We do find significant causal components of parental benefit receipt in other programs, which suggests that the intergenerational transmission might instead be explained by the transmission of beliefs and norms about welfare in general. However, as explained before, these cross effects might

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[17] Dahl and Gielen (2018) find that children of benefit recipients whose benefits were reduced or ended due to welfare reforms are more likely to get married than children of benefit recipients unaffected by these reforms.

[18] We used Suest (Weesie, 2000) to estimate if the causal components in models 4 and 5 are significantly different from each other ($\beta^4_{prior} - \beta^4_{future} = \beta^5_{prior} - \beta^5_{future}$). Estimation of significance of the difference in the size of the causal components using the method of Paternoster et al. (1998) ($z = \frac{cc^4 - cc^5}{\sqrt{SE_{cc^4}^2 + SE_{cc^5}^2}}$) yields the same results.

[19] As explained in endnote 16, we use two methods to test whether the causal components are significant. Again the two methods yield similar results.

Table 7

Multilevel linear probability models explaining children's receipt of a specific type of benefits * p < 0.05; **p < 0.01.

Source: own calculations based on the SSD provided by Statistics Netherlands

	Social assistance	Unemployment	Disability
	B	B	B
Mother prior same benefits (ref = no benefits)			
≥1 month receipt	0.045**	0.018**	0.016**
Retired	0.040**	−0.013	−0.001
Unknown	0.035**	−0.005	−0.001
Father prior same benefits (ref = no benefits)			
≥1 month receipt	0.025**	0.026**	0.017**
Retired	0.007*	0.007	0.003
Unknown	0.028**	0.012**	0.005**
Mother prior other benefits (ref = no benefits)			
≥1 month receipt	0.013**	0.012**	0.016**
Father prior other benefits (ref = no benefits)			
≥1 month receipt	0.017**	0.007**	0.008**
Mother future same benefits (ref = no benefits)			
≥1 month receipt	0.054**	0.014**	0.023**
Retired	0.002	0.000	−0.001
Unknown	0.011**	0.013**	0.007**
Father future same benefits (ref = no benefits)			
≥1 month receipt	0.030**	0.011**	0.018**
Retired	−0.001	0.003**	−0.000
Unknown	0.009**	0.009**	0.007**
Mother future other benefits (ref = no benefits)			
≥1 month receipt	0.010**	0.017**	0.006**
Father future other benefits (ref = no benefits)			
≥1 month receipt	0.008**	0.010**	0.005**
High education (ref = other)	−0.030**	−0.029**	−0.031**
Year of birth (ref = 1982)			
1981	−0.000	0.000	0.001
1980	−0.002*	0.000	0.002**
Female (ref = male)	−0.006**	−0.003**	0.033**
Ethnicity			
Turkish	0.032**	0.041**	0.041**
Moroccan	0.093**	0.039**	0.056**
Surinamese	0.037**	0.062**	0.004*
Antillean	0.069**	0.046**	−0.003
Western minority	0.009**	0.021**	0.003**
other non-Western minority	0.025**	0.025**	−0.006**
Household type (ref = single)			
Couple	−0.038**	−0.026**	−0.005**
Couple with children	−0.031**	−0.036**	0.001
Single parent	0.291**	−0.001	0.026**
Other household	−0.026**	0.003	−0.009**
Institutional household	0.025**	−0.109**	−0.004
Living at the parental home	0.004**	−0.003	−0.003**
Constant	0.049**	0.102**	0.025**
r2 individual	2.8%	0.1%	0.5%
r2 family	29.8%	6.3%	100.0%

be confounded by substitution between programs. We therefore conclude that this part of the analysis does not provide clear evidence in favour of either one of the causal mechanisms.

6. Conclusion

This paper provides insight in the intergenerational correlation in benefit receipt in the Netherlands and the relative importance of the various mechanisms that can explain this correlation. We find correlations of 0.15 and 0.14 between benefit receipt of adult children with prior benefit receipt of mothers and fathers, respectively. Especially social assistance receipt is correlated between parents and children, while intergenerational correlations in unemployment benefits or disability benefits are much lower.

In our conceptual model we distinguish four mechanisms through which benefit receipt can be transmitted from parents to children. Firstly, we try to separate causal mechanisms from spurious effects. Following Gottschalk (1996) we use the timing of parental benefit receipt to control for unobserved heterogeneity. If the correlation is spurious, characteristics shared between parents and children will equally affect prior and future parental benefit receipt and children's benefit receipt. Therefore, the effects of prior and future parental benefit receipt on children's benefit receipt will be similar in size. We find that, even after taking child's

Table 8

The causal component: $\beta_{prior} - \beta_{future}$.

Source: own calculations based on the SSD provided by Statistics Netherlands

	Social assistance	Unemployment	Disability
Same benefits:			
Mother ≥ 1 month receipt	−0.009	0.004	−0.007
Father ≥ 1 month receipt	−0.005	0.015**	−0.001
Other benefits:			
Mother ≥ 1 month receipt	0.003	−0.004	0.010**
Father ≥ 1 month receipt	0.010**	−0.004	0.003
Controls			
Education	X	X	X
Child characteristics	X	X	X

Child characteristics include year of birth, gender, ethnicity and household type.

Note that the negative causal components indicate that the positive effect β_{future} is larger than the positive effect β_{prior} and is thus not an indication of a negative causal effect.

*p < 0.05 **p < 0.01.

educational attainment into account, the effect of prior parental benefit receipt is significantly larger than the effect of future parental benefit receipt, which indicates that the intergenerational correlation is not entirely spurious. These results suggest that there is a (small) causal effect of parental benefit receipt on benefit receipt in the next generation.

Subsequently, we try to disentangle which mechanisms explain the intergenerational transmission of benefit receipt. Firstly, parental benefit receipt might reduce children's success or motivation to obtain higher educational credentials. Children's lower educational level will subsequently induce their benefit receipt. Our outcomes support this: education partly mediates the estimated causal effect of parental benefit receipt on benefit receipt in the next generation. But note that we cannot be completely sure that education mediates the effect of parental benefit receipt and not of temporary characteristics of the parents that make them more likely to receive benefits and their children to not reach a higher education. The mediation effect of children's educational level seems to be small, but this may be due to data limitations. We can only separate highly educated people from all others. Parental benefit receipt might, however, also affect whether children complete lower levels of education such as vocational training; and especially a vocational degree will reduce benefit receipt compared to children with no basic qualifications. A more accurate indicator of educational attainment would, therefore, most likely have resulted in a stronger mediation effect. Therefore, further research with better measures of children's educational attainment is necessary to gain more insight in the importance of this mechanism.

Our estimate of the causal effect remained significant after taking educational attainment of the children into account, indicating that other mechanisms may be at work. The remaining causal effect can be either due to information about the welfare system or to beliefs and norms about welfare and work. Welfare parents can lower the social costs of benefit receipt by changing beliefs and norms about welfare or lower the application costs by providing information on how and where to apply for benefits. We used two empirical strategies to investigate which of these two mechanisms most likely explains the remaining causal effect.

Firstly, we assessed the timing of prior parental benefit receipt. Parents who recently received benefits can provide the most up to date information about the welfare system. Therefore, if the information mechanism is important, we expect the effect of *recent* parental benefit receipt to be stronger than the effect of benefit receipt longer ago. However, for both fathers and mothers, the causal effects of recent benefit receipt and benefit receipt longer ago are similar in size. Therefore, it is unlikely that benefit receipt is transmitted from parents to children via welfare information.

Secondly, we distinguish various welfare programs and look at the causal effects of parental benefit receipt within the same and other welfare programs. Based on the information mechanism, we expect that only parental benefit receipt in the same program induces benefit receipt in the next generation. Since only parents with experience in the same program can provide information on how and where to apply for these specific benefits. However, we find no causal effects of parental benefit receipt in the same program on children's social assistance and disability insurance receipt. Also based on this result we thus conclude that it is unlikely that benefit receipt is transmitted from parents to children via (program specific) welfare information.

However, unemployment insurance receipt seems to be the exception. We find only a causal effect of parental benefit receipt in the same program, and no causal effect of benefit receipt in other programs. There are two possible explanations for this finding. Firstly, unemployment insurance often only covers short periods of income loss. Therefore, the (perceived) application costs might be higher than the benefits, which could lead to non-take up. Information on how to apply or on how easy it is to apply lowers these costs and therefore makes even short periods of benefit receipt weigh up to the application costs. Secondly, unemployment insurance receipt might be more accepted and less stigmatised than other benefits as individuals pay premiums when employed and therefore feel entitled to 'their own' unemployment insurance. Parental unemployment insurance receipt might than lower *program specific stigma* as parents transmit this idea of entitlement to their children, while other benefits are still perceived as unacceptable.

Although our results all in all suggest that benefit receipt is more likely transmitted over generations through beliefs and norms than through information, we have no direct measurement of the beliefs and norms prevailing among children of parents on and off benefit. As a consequence, we were not able to assess *how* parental benefit receipt affects an individual's beliefs and norms, and how these subsequently affect benefit receipt. In further research, it would be worthwhile to test whether there are individual differences

in work ethic, welfare stigma or job search behaviour, if these differences can be explained from benefit receipt among parents, peers or neighbours, and how these norms affect individual benefit receipt.

Intergenerational correlation in benefit receipt is partly inevitable, since characteristics shared between parents and children such as health or ability affect benefit receipt in both generations. Parents and children with low employment capacity should both be able to receive benefits. However, the spurious intergenerational correlation might also be due to intergenerational similarities in, for instance, ethnic background. Parents and children with a non-native background might both experience labour market discrimination and therefore both be more likely to receive benefits. More equal labour market opportunities can then reduce the spurious part of the intergenerational correlation.

This research suggests that there may be a causal effect of parental benefit receipt on benefit receipt in the next generation. Therefore, a reduction of the dependency of parents on welfare benefit is likely to reduce benefit receipt among their offspring. Part of the causal effect is mediated through education. Children of benefit recipients will be less motivated to finish higher education, as the perception that education is meaningful and contributes to a successful career might be less strong among this group. Subsequently, their lower educational level will reduce job security and induce benefit receipt. The remaining intergenerational transmission is most likely explained by the beliefs and norms mechanism. According to this mechanism, parental benefit receipt reduces the strength of the norm to work and induces the belief that collective income provisions are acceptable and reliable. Therefore, children of benefit recipients might be more likely to apply for benefits and less motivated to search for a job. Both effects could be mitigated by providing employed role models to children of benefit recipients, for instance in mentoring programs or by (subsidizing) participation in sports or leisure organisations.

From a societal perspective the conclusions of our study are mixed. We find evidence of a limited causal intergenerational transmission effect. The intergenerational correlation of benefit receipt is, however, to a considerable extent spurious. Reducing or preventing parental (long-term) benefit receipt will therefore only lead to a rather small reduction of benefit receipt in the next generation. If one wants to ensure that children of benefit recipients are able to develop their full potential, other policy measures which create more equal opportunities on the labour market probably will be more effective.

Acknowledgments

Appendix 1

Table A1
Multilevel linear probability models explaining children's benefit receipt (2010–2011) from prior parental benefit receipt in various years.

	Model 4	Model 5	Model 6	Model 7
	B	B	B	B
Mothers prior benefit receipt (ref = no benefit receipt)	1999–2000	2008–2009	2003–2004	2006–2007
≥1 month receipt	0.064**	0.059**	0.058**	0.061**
Retired	0.032	0.018**	0.012	0.016**
unknown	0.020**	0.014**	0.018**	0.018**
Fathers prior benefit receipt (ref = no benefit receipt)	1999–2000	2008–2009	2003–2004	2006–2007
≥1 month receipt	0.053**	0.043**	0.046**	0.044**
Retired	0.025**	0.017**	0.026**	0.022**
unknown	0.047**	0.037**	0.044**	0.036**
Mothers future benefit receipt (ref = no benefit receipt) 2013–2014				
≥1 month receipt	0.046**	0.036**	0.043**	0.038**
Retired	0.005**	0.002	0.004*	0.003*
Unknown	0.029**	0.028**	0.028**	0.027**
Fathers future benefit receipt (ref = no benefit receipt) 2013–2014				
≥1 month receipt	0.032**	0.027**	0.031**	0.029**
Retired	0.004*	0.001	0.003	0.001
unknown	0.024**	0.024**	0.025**	0.027**
High education	−0.098**	−0.100**	−0.099**	−0.099**
Year of birth (ref = 1982)				
1981	0.001	0.001	0.001	0.001
1980	0.001	0.001	0.001	0.001
Female (ref = male)	0.024**	0.024**	0.024**	0.024**
Ethnicity				
Turkish	0.076**	0.093**	0.084**	0.087**
Moroccan	0.139**	0.160**	0.149**	0.154**
Surinamese	0.065**	0.076**	0.072**	0.074**
Antillean	0.081**	0.094**	0.087**	0.091**
Western	0.025**	0.028**	0.027**	0.028**
non-Western	0.029**	0.042**	0.037**	0.039**

Table A1 (*continued*)

	Model 4	Model 5	Model 6	Model 7
	B	B	B	B
Household type (ref = single)				
Couple	− 0.082**	− 0.082**	− 0.082**	0.082**
Couple + kids	− 0.082**	− 0.081**	− 0.082**	0.081**
Single parent	0.250**	0.255**	0.253**	0.254**
Other household	− 0.042**	− 0.040**	− 0.040**	0.041**
Institutional household	0.561**	0.564**	0.563**	0.564**
Parental home	0.001	0.000	0.001	0.001
Constant	0.192**	0.194**	0.192**	0.193**
R2 individual	2.2%	2.2%	2.2%	2.2%
R2 family	25.5%	24.8%	24.8%	24.8%

$*p < 0.05$; $**p < 0.01$.
Source: own calculations based on the SSD provided by Statistics Netherlands

Table A2
The causal components: $\beta_{prior} - \beta_{future}$

	Model 4	Model 5	Model 6	Model 7
Prior parental benefit receipt measured in	1999–2000	2008–2009	2003–2004	2006–2007
Mother ≥ 1 month BR	0.018**	0.023**	0.015**	0.023**
Father ≥ 1 month BR	0.021**	0.016**	0.015**	0.015**

$*p < 0.05$; $**p < 0.01$.
Source: own calculations based on the SSD provided by Statistics Netherlands

References

Antel, John J., 1992. The intergenerational transfer of welfare dependency: some statistical evidence. Rev. Econ. Stat. 74 (3), 467–473.
Becker, Gary S., Tomes, Nigel, 1979. An equilibrium theory of the distribution of income and intergenerational mobility. J. Polit. Econ. 87 (6), 1153–1189.
Bertrand, Marianne, Luttmer, Erzo F.P., Mullainathan, Sendhil, 2000. Network effects and welfare cultures. Q. J. Econ. 115 (3), 1019–1055.
Borjas, George J., 1995. Ethnicity, neighborhoods, and human capital externalities. Am. Econ. Rev. 85 (3), 365–390.
Bratberg, Espen, Nilsen, Øivind, Vaage, Kjell, 2015. Assessing the intergenerational correlation in disability pension recipiency. Oxf. Econ. Pap. 67 (2), 205–226.
Clark, A., 2003. Unemployment as a social norm: psychological evidence from panel data. J. Labor Econ. 21 (2), 323–351.
Corak, Miles, 2004. Introduction. In: Corak, Miles (Ed.), Generational Income Mobility In North America and Europe. Cambridge University Press, pp. 1–37.
Corak, Miles, Gustafsson, Bjorn, Osterberg, Torum, 2004. Intergenerational influences on the receipt of unemployment insurance in Canada and Sweden. In: Corak, Miles (Ed.), Generational Income Mobility in North America and Europe. Cambridge University Press, pp. 245–288.
Dahl, Gordon B., Gielen, Anne C., 2018. Intergenerational Spillovers in Disability Insurance. (NBER Working Paper).
Dahl, Gordon B., Kostøl, Andreas Ravndal, Mogstad, Magne, 2014. Family welfare cultures. Q. J. Econ. 129 (4), 1711–1752.
Ekhaugen, Tyra, 2009. Extracting the causal component from the intergenerational correlation in unemployment. J. Popul. Econ. 22 (1), 97–113.
Gottschalk, Petter, 1996. Is the correlation in welfare participation across generations spurious? J. Publ. Econ. 63 (1), 1–25.
Hofferth, Sandra, Smith, Julia, McLoyd, Vonnie, Finkelstein, Jonathan, 2000. Achievement and behavior among children of welfare recipients, welfare leavers, and low-income single mothers. J. Soc. Issues 56 (4), 747–774.
Hox, Joop J., 2010. Multilevel Analysis. Techniques and Applications. Routledge, Sussex.
IBO, 2017. Geschikt voor de arbeidsmarkt (Interdepartementaal Beleidsonderzoek). Den Haag: Ministerie van Financiën.
Koning, Pierre, Van Vuuren, Daniel, 2007. Hidden unemployment in disability insurance. Labour 21 (4–5), 611–636.
Ku, Inhoe, Plotnick, Robert, 2003. Do children from welfare families obtain less education? Demography 40 (1), 151–170.
Lee, M.A., Singelmann, J., Yom-Tov, A., 2008. Welfare myths: the transmission of values and work among TANF families. Soc. Sci. Res. 35 (2), 516–529.
Levine, Phillip B., Zimmerman, David J., 1996. "The Intergenerational Correlation in AFDC Participation: Welfare Trape or Poverty Trap?". IRP Working Paper 1100–96.
Lindbeck, Asser, Nyberg, Sten, Weibull, Jorgen W., 1999. Social norms and economic incentives in the welfare state. Q. J. Econ. 114 (1), 1–35.
Macdonald, R., Shildrick, T., Furlong, A., 2014. "In search of 'intergenerational cultures of worklessness': hunting the yeti and shooting zombies. Crit. Soc. Policy 34 (2), 199–220.
Macmillan, Lindsey, 2013. "The longer term costs of worklessness: do fathers' workless spells causally affect their children's workless experiences in adulthood. In: Unpublished PhD Chapter. University of Bristol.
Markussen, Simen, Røed, Knut, 2015. Social insurance networks. J. Hum. Resour. 50 (2), 1081–1113.
Mitnik, Oscar A., 2008. Intergenerational Transmission of Welfare Dependency: the Effects of Length of Exposure. University of Miami Working Paper.
Moffitt, Robert, 1983. An economic model of welfare stigma. Am. Econ. Rev. 73 (5), 1023–1035.
Moffitt, Robert, 1992. Incentive effects of the US welfare system: a review. J. Econ. Lit. 30 (1), 1–61.
Mood, Carina, 2004. Social influence effects on social assistance recipiency. Acta Sociol. 47 (3), 235–251.
Mood, Carina, 2010a. Neighborhood social influence and welfare receipt in Sweden: a panel data analysis. Soc. Forces 88 (3), 1331–1356.
Mood, Carina, 2010b. Logistic regression: why we cannot do what we think we can do, and what we can do about it. Eur. Sociol. Rev. 26 (1), 67–82 Oxford University Press.
Oorschot, W Van, 1998. Failing selectivity: on the extent and causes of non-take-up of social security benefits. In: Andress, H. (Ed.), Empirical Poverty Research In a Comparative Perspective. Ashgate, Aldershot 101–32.
Page, Marianne E., 2004. New evidence on the inter generational correlation in welfare participation. In: Corak, Miles (Ed.), Generational Income Mobility In North

America and Europe. Cambridge University Press 226–44.

Paternoster, Raymond, Brame, Robert, Paul, Mazerolle, Piquero, Alex, 1998. Using the correct statistical test for the equality of regression coefficients. Criminology 36 (4), 859–866.

Pepper, John V., 2000. The intergenerational transmission of welfare receipt: a nonparametric bounds analysis. Rev. Econ. Stat. 82 (3), 472–488.

Piketty, Thomas, 2000. Theories of persistent inequality and integenerational mobility. In: Atkinson, A., Bourguignon, F. (Eds.), Handbooks In Economics.

Plotnick, Robert D., 2007. Adolescent expectations and desires about marriage and parenthood. J. Adolesc. 30 (6), 943–963.

Rege, M., Telle, K., Votruba, M., 2012. Social interaction effects in disability pension participation: evidence from plant downsizing. Scand. J. Econ. 114 (4), 1208–1239.

Sandefur, G.D., Cook, S.T., 1998. Permanent exits from public assistance: the impact of duration, family, and work. Soc. Forces 77 (2), 763–787.

Solon, Gary, 1992. Intergenerational income mobility in the United States. Am. Econ. Rev. 82 (3), 393–408.

Stenberg, S.Å., 2000. Inheritance of welfare recipiency: an intergenerational study of social assistance recipiency in postwar Sweden. J. Marriage Fam. 62 (1), 228–239.

Stutzer, Alois, Lalive, Rafael, 2004. The role of social work norms in job searching and subjective well-being. J. Eur. Econ. Assoc. 2 (4), 696–719.

Vartanian, Thomas P., 1999. Childhood conditions and adult welfare use: examining neighborhood and family factors. J. Marriage Fam. 61 (1), 225–237.

Vrooman, J.C., 2016. Taking Part in Uncertainty; the Significance of Labour Market and Income Protection Reforms for Social Segmentation and Citizens' Discontent. The Netherlands Institute for Social Research |SCP/Utrecht University, The Hague/Utrecht.

Weesie, Jeroen, 2000. Seemingly unrelated estimation and the cluster-adjusted sandwich estimator. Stata Tech. Bull. 9 (52).

Wilson, William Julius, 1987. The Truly Disadvantaged. Chicago University Press, Chicago.

Wolbers, Maarten, 2000. The effects of level of education on mobility between employment and unemployment in The Netherlands. Eur. Sociol. Rev. 16 (2), 185–200.