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Pathways of Disadvantage: Unpacking the Intergenerational Correlation in Welfare

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NON-TECHNICAL SUMMARY

This research studies the pathways that link welfare receipt across generations in Australia. Our analysis not only calculates the intergenerational correlation in welfare, but also quantify the portion of that correlation that operates through key mechanisms. Our data come from administrative welfare records for young Australians (aged 23 – 26) and their parents over nearly two decades which have been linked to survey responses from young people at age 18.

Together, the pathways we consider jointly account for nearly a third (32.2 percent) of the intergenerational correlation in welfare participation and more than half (52.6 percent) of the link between parental welfare participation and young people's total welfare benefits.

The primary mechanism linking welfare receipt across generations is the failure to complete high school. Young Australians in welfare-reliant families experience more disruptions in their schooling through school changes, residential mobility, school expulsions and school suspensions. They also receive less financial support from their families. Both of these negatively affect their chances of completing high school and avoiding the welfare roll.

Young Australians' risk-taking behavior – for example, smoking, illicit drug use, delinquency and pregnancy – is also a key pathway in transmitting welfare reliance across generations. Physical and mental health, academic achievement, and work-welfare attitudes, in contrast, have a more modest role in intergenerational welfare. The lack of strong evidence that work-welfare attitudes drive the intergenerational correlation in welfare receipt is at odds with cultural explanations of intergenerational welfare which attribute welfare dependency to the values that children acquire from their parents and neighbors.

Taken together, our results present a clear focus for policy action; schools, communities and governments must find better ways to support the education of children in welfare-reliant families. The importance of parental financial support in transmitting disadvantage across generations calls into question the wisdom of Australian policies that increasingly shift the financial burden of supporting young people from the public purse to their families.

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ABSTRACT

Our goal is to investigate the pathways that link welfare receipt across generations. We undertake a mediation analysis in which we not only calculate the intergenerational correlation in welfare, but also quantify the portion of that correlation that operates through key mechanisms. Our data come from administrative welfare records for young people (aged 23 – 26) and their parents over nearly two decades which have been linked to survey responses from young people at age 18. The mediators we consider jointly explain nearly a third (32.2 percent) of the intergenerational correlation in welfare participation and more than half (52.6 percent) of the link between parental welfare participation and young people's total welfare benefits. The primary mechanism linking welfare receipt across generations is the failure to complete high school. Adolescents in welfare-reliant families experience more disruptions in their schooling (e.g., school changes and residential mobility, expulsions and suspensions) and receive less financial support from their families both of which impact on their chances of completing high school and avoiding the welfare roll. Young people's risk-taking behavior (smoking, illicit drug use, delinquency and pregnancy) is also a key mechanism underpinning intergenerational welfare reliance. Physical and mental health, work-welfare attitudes and academic achievement, in contrast, have a more modest role in transmitting welfare receipt across generations.

Keywords: intergenerational welfare; social mobility; socioeconomic disadvantage; social assistance; welfare; Australia

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1. Introduction

Children in welfare-reliant families experience more adverse events and often must overcome additional hurdles in completing their education, moving into employment and achieving financial security. The result is that in many countries there is a strong intergenerational correlation in worklessness and welfare participation (see Moffitt 1992; Page 2004; and Black & Devereux 2011 for reviews). The nature of the challenges disadvantaged children face – and their consequences – are not fully understood, however. Growing up in a poor family does not always lead to poverty in adulthood (Duncan & Brooks-Gunn 1997); yet we still do not fully understand how some poor children escape intergenerational poverty and what keeps others rooted there (McLachlan et al. 2013). Identifying the pathways through which intergenerational disadvantage occurs – and designing effective policy solutions – is critical to helping poor children avoid becoming poor adults.

We contribute to the evidence base on intergenerational disadvantage by analyzing the pathways through which parents' welfare participation is passed on to their children. Welfare receipt is a broader marker of entrenched disadvantage than is traditional income poverty. It reflects not only a lack of income, but also low levels of wealth, poor health, inadequate housing and limited aspirations. As such, our analysis extends previous studies of intergenerational income persistence (e.g., Blanden et al. 2007). The mediation analysis we undertake moves beyond the calculation of overall intergenerational correlations in welfare participation by also quantifying the portion of that correlation that operates through key mechanisms (see Hicks & Tingley 2011). This allows us to develop important insights into the relative importance of different pathways in producing intergenerational disadvantage.

The data we exploit come from the 2006 Youth in Focus (YIF) Project which collected detailed survey data from a representative sample of young Australians (aged 18) and matched those data to their families' administrative welfare records over the previous decade. Subsequently, the YIF data were updated to incorporate the 2006–2014 administrative welfare records of young people themselves. These matched survey-administrative data are ideally suited to our purposes. The YIF survey data provide the critical contextual detail that administrative sources do not (Corak 2006), while our administrative records provide accurate, detailed (fortnightly) information about welfare participation in a way that surveys typically cannot (Pierret 2001). Together, these data offer a truly unique opportunity to study the welfare participation of an entire birth cohort and their families over two decades.

Explanations for intergenerational welfare participation can be classified into three main categories (see Stenberg 2000; Bartholomae et al. 2004; Page 2004; and Boschman et al.

2019 for reviews). Cultural (or behavioral) explanations center on the role of childhood welfare in reducing the information and/or social (stigma) costs associated with welfare participation in adulthood. Structural (or economic) explanations, on the other hand, attribute intergenerational welfare dependency to the effects of constrained financial, parenting or social resources on investments in children's development. Finally, policy-related explanations consider the incentives to work or adopt specific family structures that are inherent in the design of the welfare system itself.

A strength of our analysis is that we use a single analysis framework and the same data to consider a broad range of potential mechanisms including: educational attainment and achievement, employment, risk-taking behavior, health, attitudes towards work and welfare, locus of control and parenting (financial support, co-residence, parenting style). Previous studies have had a more limited focus, assessing some mechanisms in isolation and others not at all. This has left critical gaps in the literature. While theories of welfare cultures, for example, largely attribute welfare participation to the values and norms that children learn from their parents and neighbors (see Patterson 1986; Duncan et al. 1988; Corcoran 1995), there is no empirical evidence that work-welfare attitudes actually contribute to the intergenerational correlation in welfare participation. Similarly, parenting clearly matters for human development (Heckman 2011; Dopeke et al. 2019); yet we do not understand the extent to which intergenerational welfare participation arises out of families' parenting decisions. Our comprehensive approach allows us to not only fill these gaps, but also to assess the relative importance of alternative mechanisms in producing intergenerational disadvantage and shine a light on the most promising avenues for policy interventions.

Taken together, the mediators we consider jointly explain nearly a third (32.2 percent) of the intergenerational correlation in welfare participation and more than half (52.6 percent) of the link between parental welfare participation and the total welfare dollars that young people receive. The primary mechanism linking welfare receipt across generations is the failure to complete high school. More than a third of the overall relationship between parents' welfare participation and their adult children's total welfare benefits is due to differences in young people's chances of dropping out of high school. Intergenerational welfare also operates through the curriculum choices and educational achievements of those who do complete high school as well as young people's risk-taking behavior and the co-residential and financial support that they receive from their parents. In contrast, physical and mental health and work-welfare attitudes have at best a modest role in transmitting welfare receipt across generations. Several of these results represent new findings, bringing a fresh perspective to the literature on intergenerational disadvantage.

We pair our overview analysis with a thorough investigation of the pivotal role of education in generating intergenerational disadvantage. Our measures of students' middle-school experiences, curriculum choices, academic achievements and motivation for dropping out of high school allow us to investigate the role of education in transmitting welfare receipt across generations in a way that has not been possible before. Boschman et al. (2019), for example, attribute the small mediating effect of children's education that they find to the limitations of their data. Richer data such as ours are necessary to fully understand the importance of education as a mechanism producing intergenerational welfare receipt. In particular, we highlight the complex educational challenges faced by disadvantaged children. Children in welfare-reliant families, for example, experience more suspensions and expulsions from school, raising the risk of dropping out of high school and, subsequently, receiving welfare benefits themselves. Parental welfare is also associated with increased smoking and risk-taking more generally, both of which, in turn, are associated with greater chances of dropping out of high school. The good news is that – if disadvantaged young people do manage to complete high school on an academic track – most of these early life experiences will not result in greater welfare receipt subsequently. There is a clear policy mandate: schools, communities and governments must find better ways to support the education of children in welfare-reliant families.

2. Australian Social Policy Context

Australia is characterized by a regulated labor market with high minimum wages (Bray 2013); a health system that provides universal health care (Glover 2016); an education system with a high degree of choice and competition (Perry & Southwell 2014); and a welfare system that provides low, but essentially universal, cash benefits for those in most need (Whiteford 2010). Social mobility is lower than is the case in much of Europe, but higher than is true in the United States (Cobb-Clark 2019).

The 1991 Social Security Act provides the legislative basis for the social security system and social security law is administered by the Department of Human Services through an administrative agency known as Centrelink. Responsibility for social policy is shared between the Department of Social Services (DSS), the Department of Education, and the Department of Employment, Skills, Small and Family Business.

Unlike the case in the United States, the Australian social assistance system delivers welfare benefits to a broad cross-section of the working-age population through a range of core social assistance benefits (see Table 1). Disabled individuals (aged 16+) receive a *Disability*

Support Pension (DSP); those who are responsible for caring for a severely disabled person can receive the *Carer Payment* (CP). Low-income families with young dependent children receive parenting benefits. Single-parent families are eligible for *Parenting Payment Single* (PPS), while couple-headed families are eligible for *Parenting Payment Partnered* (PPP). Unemployed individuals (aged 22+) meeting certain activity tests receive unemployment benefits in the form of *Newstart Allowance* (NA).[1] Finally, *Youth Allowance Jobseeker* (YAJ) provides support to young adults (aged <22) who are unemployed.[2]

Table 1 Here

Australia ranks sixth lowest in the OECD in terms of the proportion of gross domestic product spent on public social spending cash transfers (OECD 2019); yet nearly 80 percent of public social cash spending occurs through income and asset-tested benefits – a rate that is nearly three times that in the U.S. and U.K. (OECD 2014). Unemployment and student allowances are also subject to activity tests (e.g., seeking work; studying or training). Parenting payments disproportionately flow to women, however, all other benefits are largely gender-neutral. Consequently, the rate of social assistance receipt among working-age women (36.3 percent) is only 6 percentage-points higher than that among working-age men (30.7 percent) (Tseng & Wilkins 2003, Table 4).

This institutional context makes Australia a particularly interesting case study for understanding the mechanisms underpinning intergenerational welfare participation. Unlike the United States where welfare is a state responsibility, Australia offers the opportunity to study the dynamics of welfare participation at a national level. Moreover, all Australian social benefits are administered (and recorded) through a single national administrative agency (Centrelink). This means that we can study participation not only in specific welfare programs, but also the entire social safety.

3. Empirical Strategy

3.1 Mediation Analysis

The pathways to welfare receipt are rooted in people's early life experiences. Human capabilities form through a cumulative process subject to critical investment periods (see Cunha & Heckman 2007; Kautz et al. 2014). Yet families' capacity to invest in their children's

[1] In contrast to Canada and the United States which operate unemployment insurance systems, unemployment benefits in Australia are a key element of the social assistance system and are paid out of general tax revenue.
[2] Although Youth Allowance (YA) also supplements the incomes of young adults who are studying or training – and hence is considered to be an income-support payment by the Australian Government – given our focus on social and economic disadvantage, we exclude YA (student), YA (apprentice) and YA (other) from our definition of welfare. See Cobb-Clark et al. (2017) for details.

education, health and human development will almost certainly be disrupted by the episodes of poverty, instability and family crisis that are the catalyst for welfare participation. The risk is that this permanently limits children and adolescent's life chances through the numerous life outcomes (e.g., mental and physical health, employment, risky behavior, financial wellbeing, etc.) that fundamentally depend on the cognitive, non-cognitive and socio-emotional skills that they acquire. At the same time, adverse personal circumstances (e.g. poor health, relationship breakdowns), structural factors (recessions, tight housing markets), and bad luck can all contribute to people's need for social assistance.

Our objective is to shed light on the various pathways through which parental welfare participation is transmitted to their children. Mediation analysis is ideally suited to this task. It allows us to quantify the extent to which the effect of a treatment (in our case, parental welfare participation) on an outcome (children's welfare receipt) is explained by a particular mechanism (see, e.g., Baron & Kenny 1986; Blanden et al. 2007; Karlson & Holm 2011; Karlson et al. 2012; Tubeuf et al. 2012; Cobb-Clark & Zhu 2017; Mendolia & Siminski 2017). This allows us to consider each in isolation as well as their overall joint effect.

We focus on several key mechanisms. Educational attainment is one mechanism that appears to transmit delinquency and disadvantage to adult wages and employment (Gregg & Machin 2000) and early life conditions to adult health (Tubeuf et al. 2012) and wealth (Mendolia & Siminski 2017). Some studies link welfare participation to low self-efficacy (external locus of control), i.e., the belief that much of what happens in life is beyond one's own control (see Kunz & Kalil 1999 for a review). There is also evidence that disadvantage is associated with youth engaging in more risky behavior (e.g., Gruber 2009; Cobb-Clark et al. 2012; Omura et al. 2014; Heerde et al. 2015), which may increase contact with police. Unfortunately, "involvement with the criminal justice system may be an increasingly common stumbling block along the path to adulthood" (Raphael 2007 p. 2). Disadvantaged young people also do not always receive the same financial and co-residential support from their families in making the human capital investments that are critical to labor market success (Edidin et al. 2012; Cobb-Clark & Gørgens 2014). Finally, we investigate the role of work-welfare attitudes and parenting which are often thought to play a role in limiting social and economic mobility (e.g., Duncan et al. 1988; Ermisch 2008).

3.2 Estimation Model

We begin by assuming that youth's welfare receipt (W_i^Y) – as measured by either the extensive (participation) or intensive (total dollars) margin – is given by the following:

$$W_i^Y = \alpha_0 + \alpha_1 W_i^P + \alpha_2 X_i + \alpha_3 M_{ij} + \varepsilon_i, \quad (1)$$

and

$$M_{ij} = \gamma_0 + \gamma_1 W_i^P + \gamma_2 X_i + e_i, \quad (2)$$

where W_i^P is parental welfare participation, X_i is a vector of family background and demographic characteristics and ε_i and e_i are idiosyncratic error terms. The mediating factors (or vector of factors) that we consider, M_{ij}, are indexed by j and are functions of parental welfare participation as well as family background and demographic characteristics. Thus, α_1 captures the direct effect of parental welfare participation on the youth's welfare receipt, while γ_1 captures the effect of parental welfare participation on the mediating factor.

Next, we obtain the total and mediating effects by substituting (2) into (1):

$$\begin{aligned} W_i^Y &= \alpha_0 + \alpha_1 W_i^P + \alpha_2 X_i + \alpha_3(\gamma_0 + \gamma_1 W_i^P + \gamma_2 X_i + e_i) + \varepsilon_i \\ &= (\alpha_0 + \alpha_3\gamma_0) + (\alpha_1 + \alpha_3\gamma_1) W_i^P + (\alpha_2 + \alpha_3\gamma_2) X_i + (\varepsilon_i + \alpha_3 e_i). \end{aligned} \quad (3)$$

In Equation (3), the mediating effect of parental welfare receipt operating through M_{ij} is $\alpha_3\gamma_1$, while the overall effect of parental welfare participation on youth's welfare receipt is equal to the direct plus mediating effect ($\alpha_1 + \alpha_3\gamma_1$). We refer to this as our baseline model.

Often researchers estimate models with (Equation 1) and without (Equation 3) controls for mediating factors allowing the overall effect of the regressor of interest to be compared to its direct effect (e.g., Mendolia & Siminski 2017). One of the difficulties with this is that the order in which covariates are added to the model can have substantial effects on the conclusions one draws (Gelbach 2016). Instead, we follow Tubeuf et al. (2012) in directly estimating the determinants of the mediating factors themselves, allowing their impact to be calculated and more complex relationships between mediating variables to be considered.[3] In our case, we first generate an estimate of the direct effect of parental welfare participation on youth's welfare receipt (α_1) by estimating Equation (1). We then estimate γ_1 using a series of mediating effects models based on Equation (2). Finally, we calculate the overall effect of parental welfare participation on their adult children's welfare receipt using the relationships given in Equation (3). All models are estimated using linear regression. Standard errors for mediating effects are bootstrapped (400 replications) using a stratified sample with replacement.

3.3 Identification

Estimating the causal effect of an intervention (treatment) on outcomes can be achieved through a well-designed randomized experiment. Often, however, we wish to know not only

[3] Blanden et al. (2007) adopt a similar approach when decomposing the intergenerational correlation in income.

whether a treatment had an impact, but also why. Identifying causal mediating effects is more challenging than identifying treatment effects. Knowing that the Perry Preschool Project enhanced children's skills and improved their educational outcomes, for example, is not sufficient to establish that it is the improvement in skills that caused the improvement in outcomes (Heckman et al. 2013). The causal identification of mediating factors requires that sequential ignorability be maintained; i.e., i) conditional on pre-determined covariates, the treatment of interest is independent of all potential values of the outcome and mediating factors; and ii) the observed mediating factor is independent of all potential outcomes given the observed predetermined covariates and treatment of interest (see, Imai et al. 2010; Hicks & Tingley 2011; Mendolia & Siminski 2017).

In our case, neither of these conditions is likely to be met. Parental welfare participation is not exogenously assigned; nor do we have (quasi) experimental variation in welfare access among equally disadvantaged families.[4] Gottschalk's (1996) method of exploiting parents' future welfare participation to bound the likely causal component of the intergenerational relationship in welfare receipt is not appropriate in our case given the age of young people in our sample and the length of our data window; we simply do not have sufficient measures of parents' future welfare participation.[5] One advantage of our data, however, is that the mediating factors we consider are measured at least five years (age 18) before youths' welfare outcomes (age 23–26) reducing the potential for reverse causality. Still, there may still be unobserved confounders that affect both our mediating factors and youths' welfare participation even after we control for parents' welfare histories and other observed co-variates. For these reasons, we regard this as a descriptive analysis; our results do not identify causal mechanisms per se.

Nonetheless, our analysis is very informative about the drivers of economic opportunity and the likely channels through which intergenerational welfare receipt is occurring. Isolating the problems to be solved – and the types of interventions that might prove useful –requires that we understand the "landscape of needs and opportunities"; large-scale descriptive analyses like ours provide this landscape (Leob et al. 2017, p. 1). Knowing that much of the effect of parental welfare participation flows through children's diminished educational attainment and increased risk-taking, for example, not only clarifies the policy priorities, but also allows the resources available for supporting children in welfare-reliant families to be better targeted.

[4] See Cobb-Clark et al. (2017) for a discussion of studies investigating the causal effect of access to welfare on welfare participation.

[5] See Boschman et al. (2019) who adopt an approach similar to Gottschalk's in an attempt to isolate causal mediation effects.

4. Data

Our analysis relies on data from the Youth in Focus (YIF) Project which was designed to study the intergenerational transmission of socioeconomic disadvantage.[6] The YIF Project is unique in combining survey data for a birth cohort of young Australians (aged 18) with data from the Transgenerational Data Set (TDS) which provides historical administrative data (from age eight) on the social security benefits their families received while they were growing up. Although the YIF Project ended in 2008, an extension of the TDS data in 2014 allows us to analyze the social assistance young people subsequently receive in early adulthood (to age 26).

Together, these matched administrative-survey data provide a valuable opportunity to circumvent many of the data limitations that have plagued researchers in the past and develop new insights into the mechanisms producing intergenerational welfare receipt. Our administrative data are drawn from the Australian Government's administrative system and capture the universe of Australians receiving social assistance over an 18-year period allowing us to minimize the biases associated with measurement error, recall issues, sample attrition or short study periods. Our survey data provide the contextual perspective necessary to understand the pathways through which welfare participation is passed from parents to children.

4.1 Data Construction and Estimation Sample

The YIF Project used Centrelink administrative records to identify all young people born between October 1987 and March 1988 who ever had contact with the Australian social security system before March 2005. Young people are in the administrative data if they receive benefits themselves. Most, however, are in the data because a family member (usually a parent) received at least one Centrelink payment at some point before 2005 (when they turned 18) which depended in part on his or her relationship to the youth. The Centrelink data for this birth cohort and their families make up the TDS.

The Australian social security system is nearly universal for families with children with some payments such as the Child Care Benefit having no income test at all and others, such as the Family Tax Benefit, being denied only to families in the top quintile of the income distribution.[7] At the other extreme are social assistance (welfare) payments that are directed towards low-income individuals and subject to income, asset and/or activity tests. Census data indicate that over 98 percent of our birth cohort is in the TDS data (Breunig et al. 2009).

[6] For details see Breunig et al. (2007; 2009) and http://youthinfocus.anu.edu.au.
[7] To place these payments in context, similar benefits in the United States are provided to families through the tax system in the form of standard deductions for dependent children and childcare rebates.

In 2006, phone interviews and a self-completion questionnaire were conducted with a stratified random sample of the young people (then aged 18) captured in the TDS.[8] The resulting YIF survey data provide detailed information about young people's family background, relationship with parents, educational outcomes, attitudes, mental and physical health, and risk-taking behavior (Breunig et al. 2009). Importantly, over 96 percent (N = 3,916) of survey respondents also agreed to have their YIF survey data linked to their TDS data providing fortnightly information on the welfare payments their families received while they were growing up. We use the 2014 version of the TDS constructed by the DSS which includes fortnightly payments by Centrelink over the 1996–2014 period.[9] This allows us to link the social security records of YIF respondents in young adulthood (aged 18–26) to those of their families while they were growing up (aged 8–17) and to their survey responses at age 18.

4.2 Welfare Receipt

We use the TDS data to create summary measures of welfare receipt for young adults and their families. Each youth is matched to their primary caregiver and we create parental welfare participation measures using the primary caregiver's administrative welfare records.[10] Parental welfare participation is measured between 1996 and 2002 when youths (aged 8–15) are ineligible to receive welfare benefits in their own right. Young people's own welfare receipt is measured during early adulthood (ages 23-26) when their formal education is ending and they are entering the workforce. We capture the extensive welfare margin using indicators of welfare participation – separately for youths and their families – over these defined periods.[11] The intensive welfare margin is captured by the total dollars of support youth received.

We use these variables to investigate the intergenerational correlation in welfare receipt for our YIF sample. In Table 2 (top panel) we condition youth welfare receipt on parental welfare participation. Young adults are on average 17.8 percentage points (pp.) (1.9 times) more likely to receive welfare between the ages of 23–26 if their parents received welfare while

[8] Specifically, the TDS was used to stratify youths into one of six groups depending on the recency and intensity of the family's welfare receipt. As a result, all summary and descriptive statistics are weighted.
[9] Multiple versions of the TDS have been constructed over the years. The initial TDS was constructed in the 1990s and was the basis for the early work of the DSS staff on intergenerational disadvantage (McCoull & Pech 2000; Pech & McCoull 2000). In the early 2000s, a second version of the data (TDS2) was created and matched to survey data as part of the YIF Project which ended in 2008 (Breunig et al. 2009). In 2014, the TDS2 data were extended (referred to as TDS2-E) to include updated administrative records for 2008-2014. We use TDS2-E data.
[10] Biological relationships are not observed in the Centrelink data; however, we do know the person who had the primary caring responsibility for the youth at every point in time up until the youth turned 18 years old. This allows us to identify the person who had the longest duration of primary care, and in cases of ties, select the mother using an algorithm based on gender and age. This strategy has been used in previous research and it successfully identified biological mothers (biological parents) in 96.5 (98.6) percent of cases (Breunig et al. 2009).
[11] Appendix Table A1 provides detailed variable definitions. Appendix Table A2 presents summary statistics.

they were growing up. Children in welfare reliant families also receive $5,591 more in welfare benefits on average. This disparity total welfare benefits is driven by differences in the duration of receipt (5.6 vs. 16.1 fortnights); average benefits per fortnight differ by only $17 AUD.

Table 2 Here

4.3 Mediators

We supplement the TDS administrative data with unique data from the YIF survey about the youth's experiences and outcomes up to age 18. This provides the detail necessary to investigate a broad range of potential channels through which welfare participation may be passed across generations. We focus our attention on factors that are significant predictors of young people's welfare participation and which appear to be influenced by parents' welfare experiences.[12] To this end, we create measures of the following potential mediators of intergenerational welfare participation: i) education; ii) risky behaviors; iii) parenting; iv) work-welfare attitudes; v) health; vi) employment; and vii) locus of control.[13] Previous studies have shown that all matter for the transitions that children make into successful adult roles.

We define our key measures as follows. **Education:** Educational attainment and achievement is captured with: i) an indicator of whether the youth dropped out of high school; ii) an indicator of whether the youth received a university entrance score (known as an ATAR score)[14]; and iii) youths' university entrance score (ranked from 30-99.99).[15] **Risky Behavior:** Our risky behaviors include indicators for: i) currently smoking tobacco; and ii) ever becoming pregnant (gotten someone pregnant). We also conduct a principal component analysis (PCA) which revealed support for two components: drug use (e.g., marijuana and illicit drugs) and delinquent behavior (e.g., contact with police (juvenile justice); running away from home; hanging out with a bad crowd; problem drinking) for which we create standardized factor scores. **Parenting:** We capture parenting using measures of parenting style and parents' financial support. Specifically, we construct factor-based indexes of parenting style – i.e., respectful parenting and parental monitoring – following Cobb-Clark et al. (2019). Parents' financial support is captured through indicators for whether the young person: i) lives

[12] Factors do not have a significant effect on youths' welfare participation will have no mediating effect as $\widehat{\alpha_3} = 0$; thus, we do not consider them in the analysis. Orri et al (2019) follows a similar approach. See the Data Appendix for an explanation of how we rule some variables into and others out of the set of potential mediators.
[13] Details regarding our variable construction are provided in the Data Appendix.
[14] The Australian Tertiary Admissions Rank (or ATAR) corresponds to the percentile rank (30.0 – 99.99) of each student in the overall cohort of high school graduates within their Australian state and conversion formulas allow students to be compared across jurisdictions. ATAR scores are used to select students for entry into universities.
[15] A follow-up survey was conducted with young people (aged 20) in 2008. We use these data to provide information about youths' educational attainment if they had not yet left high school in 2006.

independently; and ii) has been financially assisted by their parents in last the 12 months when they were aged 17–18. **Work-welfare Attitudes:** Our attitude measures include indicators of whether the youth believes: i) the unemployed are the government's (rather than a family) responsibility; ii) unemployment benefits are too low (rather than too high); and iii) their own ambition is extremely important for getting ahead in life. **Health:** We capture mental and physical health using indicators of whether the youth (age 18): i) has been diagnosed with depression and/or received treatment for mental or emotional issues; ii) has health issues that limit (or would limit) work; iii) is obese (BMI≥30); and iv) their degree of physical activity. **Employment:** We use by an indicator of whether the youth was ever employed. **Locus of Control:** Finally, we use a PCA to construct a standardized index that is increasing in internal control (i.e., the belief that outcomes stem from one's own effort) (e.g., Caliendo et al. 2015).[16]

By age 18, young people growing up in welfare-reliant families already differ in their life experiences and future prospects (see Table 2 bottom panel). They are more likely to drop out of high school (18.3 pp.), and, conditional on completing high school, they are less likely to obtain a university entrance score (12.4 pp.) and if they do, they score lower than their peers. They are also more likely to experience depression (4.2 pp.) and live independently (8.0 pp.) but are less likely to receive financial support from their parents (16.0 pp.). While their views about the importance of ambition for getting ahead in life are similar to those of their peers, young people growing up on welfare are more likely to support a generous welfare system (5.8-12.0 pp.). Young people in welfare families also engage in more risky behaviors, are generally less internal (more external) in their perceptions of control and are more likely to be obese and engage in less physical exercise. Finally, the parenting they have received is characterized by a lower degree of respectfulness and monitoring. In other respects, however, young people growing up on welfare have experiences and outcomes that do not differ from other young people in non-welfare-reliant families.[17]

5. Results

Young people have higher rates of welfare participation and receive more in welfare benefits between the ages of 23–26 if their parents also received welfare while they were growing up

[16] See Appendix Tables A1 and A2 for details. Note that item non-response differs across measures. In particular, our measures of parenting style, risk behaviors, and locus of control rely on data from YIF the self-completion questionnaire which has a lower response rate (71 percent) than the main interview which was conducted by phone (Breunig et al. 2009). As we are not interested in comparing coefficients across regressions, we choose to retain the largest possible sample by not conditioning on having complete data for all measures (see Table A2).

[17] Unconditionally, most of our mediators are significantly related to parental welfare participation (Table 2). Once we estimate Equation (2) and condition on basic demographics and background controls, however, some of these significant differences disappear (i.e., $\widehat{\gamma_1} = 0$) implying that there is no mediating effect.

(see Table 2). Our objective is to understand the potential mechanisms that underlie this intergenerational relationship in welfare receipt. Our analysis proceeds in two parts. We first undertake an overview analysis in which the relative importance of a broad range of potential mediators are considered; this allows us to rule some mechanisms into the possibility set and others out. We then conduct a more detailed investigation of the single most important pathway linking welfare participation across generations – the failure to complete high school – accounting for the effects of parental welfare participation on some of the key drivers of educational outcomes (e.g., risk taking, financial support, ADHD, residential mobility, etc.).

5.1 Overview: The Pathways to Intergenerational Welfare Receipt

Results from our overview analysis of the key channels linking parents' welfare participation to that of their children are presented in Table 3; parallel results linking parental welfare participation to the amount of welfare benefits their children receive can be found in Table 4. The results in Table 3 are informative about the extensive margin of young people's welfare reliance; the results in Table 4 reflect the intensive margin. In both tables, the overall effect of parental welfare participation on the welfare receipt of their adult children is given in column 1. These estimates of the overall intergenerational relationship in: i) welfare participation; and ii) total benefit receipt (conditional on demographic and family background characteristics) result from estimating the model in Equation (3). The overall effect of parental welfare participation is the sum of the direct effect of parental welfare (column 2) and the share of the parental welfare effect that operates through each mediator (i.e., the mediating effect) (column 3). Large mediating effects (in relative terms) indicate that the mediating factor represents a clear pathway linking welfare receipt across generations (see column 4). Our education, employment, and locus of control measures are analyzed individually; for these mediators, each row in Tables 3 and 4 presents the results of a separate estimation of the baseline model in Equations (1) – (3). Risky behavior, parenting, attitudes, and health are captured by multiple mediators, however, which we analyze as a group.[18] The overall effect of the mediators as a group is presented in the first row of each panel, while the separate mediating effects of each individual mediator follow in subsequent rows.

Conditional on their demographic characteristics, family background and geographic locations, young people are 12 percentage points (1.6 times) more likely to receive welfare benefits between the ages of 23–26 if their parents were also welfare participants than if they

[18] In effect, the mediating factor, M_{ij}, in the baseline model in Equations (1) – (3) is replaced by a vector with the individual mediators as elements.

were not (see Table 3); they also receive $3,874 more in total benefits (see Table 4).[19] The intergenerational correlation in welfare participation in Australia is in line that in other countries. Boschman et al. (2019), for example, find that, in the Netherlands, people are 1.9 times more likely to receive welfare benefits if their mothers also receive benefits than if neither parent does; this ratio climbs to 2.6 if, in addition, their fathers also receive benefits. Similarly, Page (2004 p. 231) estimates that U.S. women are 2.8 times as likely to receive welfare if their mothers also received welfare, while Stenberg (2000, Table 1, p. 231) estimates that in Sweden the likelihood of adults receiving social assistance is approximately 2.5 times higher if their families received social assistance while they were growing up.

Tables 3 and 4 Here

5.1.1 Education

Education emerges as the primary pathway linking welfare receipt across generations. Nearly a quarter (22.0 percent) of the overall effect of parents' welfare participation on their adult children's welfare participation stems from the disparity in young people's chances of completing high school. Consistent with the considerable international evidence linking socio-economic disadvantage with dropping out (Ku & Plotnick 2003; Bukodi & Goldthrpe 2012; Kallio et al. 2016), we find that young people in welfare-reliant households are 11.5 percentage points (pp.) less likely to complete high school.[20] Given the established link between failing to complete high school and future welfare reliance (e.g., Coelli et al. 2007), it is not surprising that they have higher welfare participation rates as a result. The failure to complete high school explains an even larger share of the total effect of parents' welfare participation on the intensity of young people's welfare reliance. One third (33.2 percent) of the overall effect of parents' welfare participation on the total dollars that young people receive in benefits between ages 23–26 is due to their heightened chances of dropping out of high school.

Parental welfare participation is also transmitted to young people through the curriculum choices and educational achievements of those who do complete high school. Australian students who graduate from high school meeting minimum coursework requirements (e.g., minimum academic units, English language requirements, etc.) are assigned an ATAR score based on their academic performance in 11th and 12th grades. Offers of university admission

[19] Estimates of the overall effect of parental welfare vary slightly across the rows in Tables 3 and 4 because the estimation sample varies as a result of item non-response.

[20] See Appendix Table B1 for estimates from Equation (2) which capture the effects of parental welfare participation on the mediating factors, once conditioning on basic demographics and background variables.

are made centrally on the basis of students' ATAR scores (Marks et al., 2001).[21] We find that 12.9 percent of the total effect of parental welfare participation on their children's participation operates through the fact that high school graduates in welfare-reliant families are less likely to earn an ATAR score; 5.7 percent is due to the penalty associated with parental welfare on the actual ATAR scores for those receiving them. Young people's ATAR results are even more important in explaining the overall effect of parental welfare participation on the intensity of their welfare reliance; 22.2 percent of the effect operates through simply receiving an ATAR score, while 11.2 percent operates through the ATAR score itself.[22]

Thus, young people's welfare receipt is primarily linked to that of their parents through the education they attain; educational achievement plays an important, but more modest role. Similarly, Fallesen and Bernardi (2018) find that in Denmark the chances that adolescents enroll in and complete upper secondary school is reduced the longer their parents spend on welfare; there is no effect on their grade point averages, however. Using administrative data for the Netherlands, Boschman et al. (2019) find a small effect of higher education in mediating the intergenerational correlation in benefit receipt.

5.1.2 Risk-Taking Behavior and Parenting

There is ample evidence that poor adolescents take more chances. Young people growing up in welfare-reliant families are more likely to have early and unprotected sex, experience adolescent pregnancy, engage in delinquent acts, consume illicit substances and be arrested (e.g., Harris & Marmer 1996; Duncan & Brooks-Gunn 1997; Cobb-Clark et al. 2012). The long-term effect of family social problems may, in fact, operate through deviant behavior (Bäckman & Nilsson 2011). Critically, the choices made in adolescence may have long-run (perhaps unintended) consequences for young people's life chances.

Psychologists have a long history of relating adolescent risk-taking to the quality of the parent-child relationship as well as to specific parenting practices including parenting style, family management techniques, communication and parental monitoring (see Boyer 2006 and

[21] In some states and territories, students' ATAR scores are derived solely from a state-wide exam; in others, the final results of specific subjects are used in combination with standardized tests. A national conversion allows comparisons to be made across students educated in different jurisdictions and university places are allocated centrally based on student preferences. Programs in fields such as law or medicine are highly competitive and often require ATAR scores in the 99th percentile, while most degree programs at Australia's top-tier universities accept only those students in the top quartile of the distribution. Students with ATAR scores toward the bottom of the scale are usually not offered any university placement at all.

[22] We also estimated our baseline model replacing the continuous ATAR score with an indicator for receiving an ATAR score below 75—the minimum required to be accepted into one of Australia's eight leading research—intensive universities (known as the Group of Eight). We find that this indicator explains 4.4 percent of overall effect of parental welfare participation on their children's participation.

Ryan et al. 2015 for reviews).[23] Unfortunately, "economic hardship diminishes parents' ability to interact with and socialize children in ways that are beneficial to their well-being" (Guo & Harris 2000, p. 431).[24] Economic hardship may also limit parents' capacity to assist young people in completing their education and finding work by providing them with co-residential or financial support (Cobb-Clark & Gørgens 2014).

Previous research analyzing the YIF data concludes that although young people in welfare-reliant families are less likely to co-reside with or receive financial support from their parents, a lack of parental support is not the source of the socioeconomic gradient in either studying or employment (Cobb-Clark & Gørgens 2014). The extent to which parents monitor their young-adult children decreases with welfare reliance (Cobb-Clark et al. 2019). Yet, parental welfare is unlikely to cause young people to engage in more risk-taking behavior; instead the association between welfare and risk taking seems to stem from the effects of family structure, mothers' own risk-taking decisions and the investments made in children (Cobb-Clark et al. 2012). These results raise questions about the potential for parental welfare participation to be transferred across generations through risk-taking and parenting.

Our research adds depth to this literature by investigating whether risky behavior mediates the intergenerational correlation in welfare receipt. We find that the four behaviors we consider (smoking tobacco, illicit drug use, delinquency and pregnancy) are a key mechanism underpinning intergenerational welfare reliance. Overall, 18.6 (25.6) percent of the intergenerational correlation in welfare participation (total welfare benefits received) is due to the disparity in risk-taking associated with family welfare history. This overarching result reflects the aggregate effect of the eleven separate risk-taking behaviors captured in our data. While there is little evidence of a causal link between different risk behaviors, there clearly is a strong correlation between them (see Rees et al. 2001; Rashad & Kaestner 2004; Carpenter 2007; Acworth et al. 2012; Carpenter & Dobkin 2015). Thus, it is interesting to study risky behavior in its entirety. At the same time, some behaviors may be especially consequential.

In particular, young people growing up in welfare-reliant households are 5.8 pp. more likely than their peers to smoke tobacco (Appendix Table B1). Importantly, this increased prevalence of smoking accounts for more than a third of the total mediating effect of risk-taking

[23] Experimental evidence indicates, for example, that youths' risk-taking behavior can respond to the intensity of parental monitoring. Stanton et al. (2004) find that an intervention designed to increase parental monitoring was effective in reducing suspensions, cigarette smoking, illicit drug use, etc., while U.S. policy changes in the 1990s that moved parents from welfare to work led to an increase in adolescents' self-reported tobacco and alcohol consumption, perhaps due to a reduction in parental monitoring (Morris et al. 2001).

[24] This disruption in effective parenting appears to be the mechanism that translates financial stress into adverse consequences for children and adolescents (e.g., McLoyd 1998; Bradley & Corwyn 2002; Conger et al. 2002; Mistry et al. 2009; and the references therein).

on both the extensive (7.1 pp.) and intensive (9.8 pp.) margins of welfare receipt. Slightly less than a third of the overall mediating effect of risky behavior operates through teenage pregnancy, while the remaining third operates through delinquency (i.e., contact with police (juvenile justice); running away from home; hanging out with a bad crowd; problem drinking).[25] In contrast, the use of marijuana and other illicit drugs are not a mediating factor in intergenerational welfare receipt.

We can only speculate about the reasons that smoking tobacco mediates the intergenerational correlation in welfare. It is well documented that smoking is more prevalent among disadvantaged youth; this is in part due to more parental smoking, greater accessibility, peer pressure and targeted advertising (Hiscock et al. 2012). While we do not believe smoking plays a casual role in predicting welfare receipt, it is likely that the mediation effect we find reflects "unobserved circumstances and traits associated with smoking" (Pollack et al. 2001 p.262). For example, smoking is associated with risk preferences (see Anderson & Mellor 2008 and references within), depression and anxiety (Morrell & Cohen 2006; Lawrence et al. 2009) and experiencing more negative life events (Wills et al. 2002). We find that the use of marijuana and other illicit drugs is not associated with youth welfare receipt (see Appendix Table B1). However, in separate analysis, we do find limited support for monthly marijuana use as a pathway; it accounts for 1.9 percent of the intergenerational correlation in welfare participation.[26] Similarly, Jayakody et al. (2000) find that the association between marijuana use and welfare receipt is smaller than that between smoking and welfare receipt.

Parents make many decisions regarding their children's family structure, social networks, neighborhoods, education, etc. which are instrumental in shaping their children's life chances. Some have postulated that disadvantage may be perpetuated from one generation to the next through the choices that parents make (see Ermisch 2008; Yi et al. 2015). One of the key strengths of our analysis is our ability to directly address this issue by empirically examining the role of parenting style (parental warmth and monitoring) and parental support (co-residence, financial support) in mediating the intergenerational welfare correlation.

We find that overall 9.9 (16.1) percent of the relationship between young adults' welfare participation (total dollars of welfare benefits) and their parents' welfare participation operates through the parenting they receive. The mediating effects of parenting style (i.e.,

[25] We find parental welfare participation is associated with a 0.19 standard deviation (s.d.) increase in delinquent behaviours, while a one s.d. increase in delinquent behaviors increases the likelihood that young people receive welfare by 3.8 pp. Parental welfare participation increases the chances of teenage pregnancy by 2.7 pp.; not surprisingly pregnancy is associated with a substantial increase in youth welfare participation of 25.7 pp. (see Appendix Table B1).

[26] See Appendix Table A8, where we include each individual risky behaviour in the mediating model, rather than using the standardised factors for drug use and delinquency.

warmth and monitoring) are modest; there is no evidence that respectful parenting mediates the intergenerational correlation in welfare receipt, while parental monitoring accounts for at most 2.4 percent of the correlation. This is reassuring given the evidence that socioeconomic disadvantage is often associated with less effective parenting styles (Guo & Harris 2000; Cheng 2008). The evidence on the relationship between socioeconomic status and specific parenting styles is mixed (e.g., Guo & Harris 2000; Davis et al. 2001; Yeung et al. 2002; Davis-Kean 2005). Like Cobb-Clark et al. (2019), we find monitoring is lower among parents receiving welfare, while parental warmth is unaffected (see Appendix Table B1). Additionally, reduced parental monitoring is associated with a greater propensity to receive welfare. The modest mediating effect of parental monitoring is likely explained by the relationship between parental monitoring and better educational outcomes (Pong et al. 2005; Spera 2005) and less risk-taking behavior (e.g., Chilcoat & Anthony 1996; Ethier et al. 2001; Cobb-Clark et al. 2019).

The relative lack of parental support – particularly financial support – is, however, an important pathway linking parents' and young adult children's welfare reliance. Young people (age 18) in welfare-reliant families are less likely than their more advantaged peers to be co-residing with (3.0 pp.) and receiving financial support (11.2 pp.) from their families (see Appendix Table B1). This may constrain their ability to complete their education and transition successfully into the labor market. Living with one's parents allows young people to consume, save and invest despite credit constraints (e.g., Cox 1990; Ermisch 2003) and to insure themselves against bad labor market outcomes (e.g., Card & Lemieux 1997; Kaplan 2012; Matsudaira 2016) or relationship breakdowns (e.g., Hamon 1995; Smits et al. 2010). Similarly, parents' financial help in financing education and training costs can result in their adult children enjoying higher living standards primarily as a result of improved labor market opportunities (e.g., Semyonov & Lewin-Epstein 2001; Cobb-Clark & Gørgens 2014; Rauscher 2016). Overall, we find that between 7.4 (welfare participation) and 12.6 (total dollars of welfare benefits) percent of the intergenerational correlation in welfare receipt operates through a reduction in parents' co-residential and financial support.

5.1.3 Work-Welfare Attitudes, Health, Employment, and Locus of Control

We turn now to consider a broad set of other potential mediators of the intergenerational relationship in welfare receipt. These include young people's attitudes towards work vs. welfare as well as their mental and physical health, early employment experiences and locus of control. While not an exhaustive list of potential mediators, these factors do encapsulate many of the cultural, structural and policy-related phenomenon thought to underpin intergenerational disadvantage (see Stenberg 2000).

Cultural explanations of intergenerational welfare have their roots in theories of poverty from the 1960s and largely attribute welfare dependency to the values and social norms that children acquire from their parents and neighbors (see Duncan et al., 1988; Patterson, 1986; Bartholomae et al., 2004). The concern is that growing up in welfare-reliant families (or neighborhoods) may weaken children's work ethic and self-reliance by reducing the stigma or information costs associated with welfare receipt (Stenberg 2000; Page 2004; Dahl et al. 2014; Barón et al. 2015; see Boschman et al. 2019 for a review). Despite being integral to the policy debate on welfare dependency, there is little empirical evidence linking welfare-work attitudes to exposure to the welfare system. Santiago (1995) and Edwards et al. (2001), for example, find no support for the notion that in the United States attitudes towards welfare, low paid work and traditional gender roles are associated with an increase in the likelihood of welfare dependence.[27] In the Australian context, young people are more likely to oppose generous social benefits and to believe that social inequality stems from individual characteristics (rather than institutional factors) if: i) their mothers share these views; ii) their mothers were employed while they were growing up; and iii) their families never received welfare (Barón et al. 2015). The question is whether these disparities in work-welfare attitudes lead to different patterns of welfare use and, consequently, help us to understand the intergenerational welfare correlation.

Structural theories of intergenerational welfare instead attribute dependency to the effects of limited financial resources and constrained opportunities. Disadvantaged families may struggle, for example, to invest in their children's human development, perpetuating disadvantage across generations. There is extensive evidence that poverty has wide-ranging consequences for children's physical and mental health; cognitive development and readiness to learn; and behavioral (emotional) outcomes (see Brooks-Gunn & Duncan 1997; Gupta et al. 2007; Reiss 2013). Given this, it is not surprising that children and adolescents in welfare-reliant families often have worse health outcomes. Spady et al. (2001), for example, evaluate more than 40,500 administrative health care records in Alberta Canada and conclude that, at every age, children in welfare families are nearly twice as likely as their peers to have a mental disorder. Welfare receipt is also associated with obesity among young women (Lee et al. 2013).

We make an important contribution by providing the first empirical evidence that quantifies the extent to which work-welfare attitudes and health are the pathways through which welfare receipt is transferred across generations. Our results indicate that 6.4 percent of the intergenerational relationship in welfare participation operates though young people's work-welfare attitudes; the mediating effect of health status (6.1 percent) is similar in

[27] At the same time, Moore et al. (1995) argue that people's attitudes and personalities influence the behaviors leading to early and premarital childbearing and hence are likely to drive welfare eligibility at least in part.

magnitude (see Table 3). Young people's health status accounts for an even larger share of the relationship between parental welfare participation and the total dollars of welfare benefits that young people receive. Overall, 9.2 percent of the intensity of welfare support is accounted for by young people's health status – in particular whether they have ever been diagnosed with depression and have a health condition that limits their ability to work (see Table 4). Work-welfare attitudes are somewhat less important, accounting for 5.8 percent of the intergenerational link in the total welfare benefits that youths receive. This disparity in the relative importance of health status versus work-welfare attitudes in accounting for the intensity of welfare receipt is likely explained by the nature of the benefits young people are accessing; disability benefits often have a long duration in comparison to unemployment benefits. Interestingly, work-welfare attitudes are more important than actual early employment experiences in understanding intergenerational welfare receipt. Disparity in employment at age 18 accounts for only 3.3 (extensive margin) to 5.0 (intensive margin) percent the relationship between parents' welfare participation and the welfare receipt of their young-adult children. Finally, while the degree to which people believe that they have control over the outcome of life events has been linked to educational and labor market success (Cobb-Clark 2015), youths' locus of control is not an important mediator of intergenerational welfare.

5.1.4 Overview Summary

Socioeconomic disadvantage is perpetuated across multiple generations through several key mechanisms. Taken together, the mediators we consider jointly explain nearly a third (32.2 percent) of the correlation in welfare participation across generations and more than half (52.6 percent) of the total welfare support (in dollars) that young people receive.[28] While the primary mechanism linking welfare receipt across generations is the failure to complete high school, intergenerational welfare also operates through young people's choices about risk-taking behavior and the co-residential and financial support that they receive from their parents. Physical and mental health, work-welfare attitudes and academic achievement, in contrast, have a more modest role in transmitting welfare receipt across generations.

5.2 In Depth: The Failure to Complete High School

We now turn our focus to an in-depth analysis of the primary mechanisms linking welfare receipt across generations – the failure to complete high school.

[28] Estimates were obtained by re-estimating the mediation model and including all mediators other than those related to the ATAR score.

5.2.1 Empirical Approach

We analyze the mediating role of high school dropout in more detail by estimating a multi-level mediation model which can account for the possibility of sequential mechanisms operating to produce intergenerational welfare receipt. This approach allows us to model dropping out of high school as being determined not only by parental welfare participation but also by early-life experiences (e.g., risky behaviors, parenting styles, school changes and residential mobility, ADHD etc.) that (arguably) occur before the decision to drop out and are themselves driven in part by parental welfare participation.[29] In effect, this approach sheds light on how much of the mediating effect of dropping out operates through prior educational experiences. Specifically, we estimate the following model:

$$W_i^Y = \alpha_0 + \alpha_1 W_i^P + \alpha_2 X_i + \alpha_3 M_{ij} + \alpha_4 Dropout + \varepsilon_i, \quad (4)$$

and

$$M_{ij} = \gamma_0 + \gamma_1 W_i^P + \gamma_2 X_i + e_i, \quad (5a)$$

$$Dropout_i = \delta_0 + \delta_1 W_i^P + \delta_2 X_i + \delta_3 M_{ij} + v_i. \quad (5b)$$

where M_{ij} is a set of early educational and other experiences (indexed by *j*) that are likely to drive the decision to drop out of high school.

The composition of the overall mediating role of the failure to complete high school can be constructed by substituting Equations (5a) and (5b) into Equation (4) and rearranging:

$$W_i^Y = (\alpha_0 + \alpha_3\gamma_0 + \alpha_4\delta_0) + (\alpha_1 + \alpha_3\gamma_1 + \alpha_4\delta_1 + \alpha_4\delta_3\gamma_1)W_i^P + (\alpha_2 + \alpha_3\gamma_2 + \alpha_4\delta_2 + \alpha_4\delta_3\gamma_2)X_i + (\varepsilon_i + \alpha_3 e_i + \alpha_4 v_i + \alpha_4\delta_3 e_i). \quad (6)$$

The mediating effect of high school dropout on welfare receipt is $\alpha_4\delta_1$, while the mediating effect of early life experiences (M_{ij}) on welfare receipt is $\alpha_3\gamma_1$. The mediating effect of early life experiences (M_{ij}) that operates through dropping out of high school is $\alpha_4\delta_3\gamma_1$. Finally, the overall effect of parental welfare participation on young people's welfare receipt is the sum of the direct effect and these mediating effects: $\alpha_1 + \alpha_3\gamma_1 + \alpha_4(\delta_1 + \delta_3\gamma_1)$.

This framework allows the total mediating effect of dropping out of high school (given in the third term) to be decomposed into two components: i) the direct mediating effect of high school dropout on the relationship between parental welfare participation and youth welfare receipt ($\alpha_4\delta_1$); and ii) the mediating effect of early life experiences on intergenerational welfare that operates through the failure to complete high school ($\alpha_4\delta_3\gamma_1$). The latter sheds light on the extent to which early life experiences are the channels through which parental welfare

[29] This model has been used previously to study the relationship between early life conditions and health (Tubeuf et al. 2012) and the relationship between childhood homelessness and adult employment (Cobb-Clark & Zhu 2017). We do not consider employment as an early-life experience because the relative timing of dropout and employment is less clear.

participation is linked to young people's welfare receipt through the influence they have on the propensity to complete high school.[30]

The early life experiences (M_{ij}) we consider include: i) risky behaviors; and ii) parenting practices (parenting style, parental support) as well as iii) the number of schools youths attended; iv) the number of houses youths lived in; v) an indicator for whether the youth was ever suspended or expelled from school; and vi) an indicator for whether the youth has been diagnosed with ADHD. Young people growing up in welfare-reliant families on average engage in more risky behavior, attend more schools, experience more residential moves, are more likely to have been suspended or expelled (13.3 pp.) and are more likely to have ADHD (2.2 pp.) (see Table 5). All of these have the potential to affect the chances of dropping out.

Table 5 here

Complete mediation results from estimating the model in Equations (4)-(6) are presented in Appendix Tables B2 and B3, while our primary results are depicted in Figures 1–3. Specifically, we present our results as a series of bar graphs (one for each early life experience) which show the extent to which the intergenerational relationship in welfare receipt flows through: i) the direct mediating effect of early life experiences ($\alpha_3\gamma_1$) (green); ii) the indirect mediating effect of early life experiences that operate through the failure to complete high school ($\alpha_4\delta_3\gamma_1$) (red); and iii) the direct mediating effect of high school dropout ($\alpha_4\delta_1$) (blue). Together these three components capture the mediating effects of early life experiences and dropping out of high school on the intergenerational relationship in welfare receipt; the sum of the latter two represents the overall mediating effect of the failure to complete high school.[31] The top panel in each figure presents the results for the extensive margin (participation) of intergenerational welfare, while the bottom panel presents the results for the intensive (total benefits received in dollars).

5.2.2 Early Educational Experiences

We find that early educational experiences have important direct effects in mediating intergenerational welfare receipt; that is, they represent channels through which parental welfare receipt is being passed on to their adult children. Instability is one key channel. Children in welfare-reliant families attend more schools and live in more houses (see Table 5)

[30] Notice that Equation (6) can also be rewritten as: $\alpha_1 + (\alpha_3 + \alpha_4\delta_3)\gamma_1 + \alpha_4\delta_1$. This allows us to decompose the overall mediating effect of early life experiences into i) a component that operates directly ($\alpha_3\gamma_1$) and ii) a component that operates indirectly through dropping out of high school ($\alpha_4\delta_3\gamma_1$).

[31] Similarly, the overall mediating effect of early life experiences is given by the sum of the first two components. The direct effect of parental welfare participation on young people's welfare receipt (α_1) is constructed by subtracting the sum of all three mediating components from 100 percent.

and this increased instability matters. The number of schools attended (houses lived in) accounts for 4.7 (8.9) percent of the intergenerational relationship in welfare participation and 6.5 (10.0) percent of the effect of parental welfare participation on the total welfare benefits (in dollars) that young people receive (shown in green Figure 1). School disciplinary actions constitute another key channel. Children in welfare-reliant families are twice as likely to ever have been suspended or expelled from school; fully, 9.5 (12.0) percent of the extensive (intensive) margin of intergenerational welfare receipt operates through this channel. Together, these results provide clear evidence that disruptions in young people's schooling are one mechanism linking welfare receipt across generations. Interestingly, adolescents in welfare-reliant families are also nearly twice as likely to have been diagnosed with ADHD, yet only 1.8 percent of the intergenerational correlation in welfare receipt is due to the disparity in ADHD.

Figure 1 here

The above are the direct mediating effects of early educational experiences; that is, they influence intergenerational welfare through some mechanism other than the failure to complete high school. Each also indirectly affects intergenerational welfare receipt through their effect on the decision to drop out from high school. We find, however, that these indirect mediating effects (shown in red in Figure 1) are more modest in the case of welfare participation – ranging from 0.7 percent (ADHD) to 4.1 percent (suspension/expulsion) – and are somewhat larger when we focus on the total dollars of welfare benefits that young people receive. Most notably, 6.4 percent of the overall relationship between parents' welfare participation and the total welfare support their young-adult children receive is due to the consequences of school suspension and expulsion in raising the chances that young people do not complete high school.

Early school experiences are important in helping us to understand the total mediating effect of the failure to complete high school on intergenerational welfare. This is particularly true in in the case of school discipline; more than a fifth of the overall effect of dropping out from high school stems from the indirect mediating role of school suspension and expulsion.[32] In short, children in welfare-reliant families are more likely than their peers to be suspended or expelled from school; this in turn is linked to a higher risk of dropping out of high school and, consequently, receiving welfare benefits themselves. These results are consistent with emerging evidence that strict school discipline policies have a negative effect in lowering student achievement (Craig & Martin 2019) and reducing educational attainment, while raising

[32] This can see seen in Figure 1 by calculating the ratio of the indirect mediating effect of early school experiences operating through dropping out (shown in red) to the overall mediating effect of dropout (the sum of the red and blue bars).

adult criminal activity (Backer-Hicks et al. 2019). In contrast, only a negligible share (3.3 percent) of the overall effect of dropping out of high school is due to the indirect role of ADHD.

5.2.3 Risky Behaviors and Parenting

Risk-taking behavior and dropping out of high school are the two most important pathways linking parents' welfare experiences with those of their adult children (see Tables 3 and 4). For many young people these choices go hand in hand (e.g., Rumberger & Lim 2008; Wang & Fredricks 2014), raising questions about the extent to which the mediating role of dropping out of high school is, in fact, underpinned by adolescents' decisions to consume illicit substances and engage in deviant or risky sexual behavior. Given the nature of the questions in the YIF survey and respondents' ages, we believe that most of the risk-taking behaviors we analyze occurs before the decision to drop out of high school, leading us to analyze the mediating role of risky choices on the failure to complete high school. We cannot completely rule out, however, that the relationship operates the other way around. Given the descriptive nature of our analysis, this is not particularly troubling since we are not interested in isolating the causal effect of the two. Nonetheless, it is important to be circumspect when interpreting our results.

The mediating effects of risk-taking behavior on intergenerational welfare are presented in Figure 2. Like early educational experiences, young people's risk-related choices represent key pathways through which welfare is being transferred across generations. We first consider the intergenerational correlation in welfare participation (Panel A). Fully 20 percent of the overall mediating effect of dropping out of high school (16.1 percent) is due to the indirect effect of smoking on the chances of completing high school (3.4 percent), for example. In other words, parental welfare is associated with more smoking, which in turn is associated with a greater chance of dropping out of high school. Smoking also has a large (8.0 percent) direct mediating effect on intergenerational welfare participation that operates through channels other than high school completion. Delinquency has a similarly large effect, accounting for 24.1 percent of the overall mediating effect of the failure to complete high school. In contrast, while illicit drug use and teenage pregnancy have measurable direct mediating effects on intergenerational welfare participation (3.9 and 5.6 percent respectively), neither contributes much to the overall mediating effect of dropping out of high school.

Figure 2 here

Choices regarding risk-taking behavior and dropping out of high school are even more consequential for the intensive margin of intergenerational welfare receipt. Together they account for between 29.8 (illicit drug use) and 35.4 percent (delinquency) of the relationship between parents' welfare participation and young people's total welfare benefits. This is

perhaps not surprising given that total welfare benefits increase with the amount of time young people receive benefits capturing the extent of their socio-economic disadvantage. The relative importance of the various channels underpinning intergenerational welfare are similar, however, irrespective of whether we consider the extensive or intensive margin of welfare receipt. Smoking and delinquent behavior have both sizable direct mediating effects and comprise a large share of the overall mediating effects of dropping out of high school. Illicit drug use and teenage pregnancy, in contrast, have largely direct mediating effects.

Overall, between 9.9 (participation) and 16.1 percent (total welfare dollars) percent of the intergenerational relationship in welfare receipt stems from the parenting that young people receive – most importantly, the extent to which they receive financial support from their parents when they are aged 18 (see Tables 3 and 4). The results of our detailed mediating analysis confirm the relative importance of parents' financial transfers and loans to their young adult children as a pathway in intergenerational welfare (see Figure 3). Overall, 14.4 percent of the overall mediating effect of the failure to complete high school on the intensive as well as the extensive margin of intergenerational welfare is due to disparities in the financial support provided to young people growing up in welfare- vs. non-welfare-reliant families. In contrast, there is virtually no mediating effect of differences in co-residence on intergenerational welfare. Similarly, despite the extensive evidence that socio-economic disadvantage is associated with less effective parenting styles (see Guo & Harris 2000; Cheng 2008), we do not find support for the hypothesis that parenting style – at least when measured by parental monitoring and respectful parent-child interactions – is the pathway through which intergenerational welfare receipt occurs.

Figure 3 here

5.2.4 Summary: The Direct Mediating Effect of the Failure to Complete High School

Although many of the early life experiences we consider go some way towards explaining the mediating role of high school dropout in intergenerational welfare receipt, the direct effect of dropping out of high school remains large. Across all of the early life experiences, risky behaviors and parenting practices we consider, the direct effect of high school dropout ranges from 12.6 (delinquency) to 20.4 (ADHD) percent for the extensive margin of welfare receipt and from 18.6 (delinquency) to 30.7 (lives independently) percent for the intensive margin.[33] This substantial direct effect of failing to complete high school on intergenerational welfare

[33] Accounting for all mediating factors simultaneously results in a direct mediating effect of high school dropout on welfare participation (total welfare benefits) of 6.7 (11.5) percent, suggesting that even if we account for all possible mediators that the direct effect of high school remains.

receipt is not surprising given the strong relationship between high school graduation and labor market outcomes. At the same time, welfare may influence high school completion through other pathways (e.g., academic ability, grade retention, aspirations, language background, peers, school resources and policies, etc.) that we are unable to consider (see Rumberger & Lim 2008; De Witte et al. 2013).[34]

5.2.5 High School Dropouts: The Motivation for Leaving School

The circumstances leading adolescents to leave high school before graduating may have long-term consequences. Table 6 presents an overview of the motivations – scaled from least [1] to most [5] important – that young people cite for dropping out of high school. Dropouts in welfare-reliant families are significantly more likely than dropouts from more advantaged families to say that leaving school was due to financial reasons, their poor behavior (getting into trouble or being expelled) or their school experiences (poor grades or unsatisfactory subject options). They are also less likely than dropouts from more advantaged backgrounds to report leaving school because they have a job/apprenticeship or because they do not need to complete grade 12 for their future career. On balance, disadvantaged dropouts appear to be leaving school under more adverse circumstances.

Table 6 here

We consider the consequences of this for the correlation in intergenerational welfare by conditioning our estimation on high school dropouts (n = 934) and estimating our baseline model of welfare participation. Like our analysis of risk-taking behavior, parenting and health, we jointly consider all 12 reasons for dropping out using a single mediating vector. Results are presented in Table 7. There is clear evidence that, taken together, the reasons that young people have for dropping out of high school are both statistically significant and economically important; overall 40.5 percent of the intergenerational correlation in the intensive margin of intergenerational welfare receipt operates through the motivation for dropping out. More than a quarter (26.8 percent) of the correlation in intergenerational welfare participation among young people who fail to complete high school is attributable to poor academic performance (10.0 percent), being frequently in trouble in school (8.3 percent) or choosing a career path that does not require a 12th grade education (8. 5 percent). Interestingly, dropping out of high school to pursue a job or apprenticeship reduces the strength of the intergenerational welfare

[34] We provide results for attitudes and locus of control (Panel D) and health (Panel E) in Tables B3 and B4, respectively. We find that none these factors indirectly mediate intergenerational welfare receipt via their influence on dropping out of high school. In contrast, support for a generous welfare system does have a direct mediating effect on intergenerational welfare receipt.

correlation; though the effect is modest in size. Finally, there is no evidence that dropping out of high school as a result of parental advice, limited curriculum choice or friends dropping out mediates the intergenerational correlation in welfare participation.

Table 7 here

5.2.6 High School Graduates: University Entrance Scores

One of the key strengths of our data is that we can isolate the effects of educational attainment from academic achievement. We conclude our analysis by investigating the role of academic achievement – as measured by university entrance scores – in the transmission of welfare across generations. Specifically, we consider whether – conditional on obtaining a high school degree and receiving a university entrance score – early school experiences, risk-taking behavior and parenting practices contribute to the mediating the role of university entrance scores themselves in intergenerational welfare receipt. To this end, we re-estimate the model in Equations (4)-(6) replacing our indicator of high school dropout with a continuous measure of students' university entrance scores and conditioning the sample on high school completion and the receipt of an ATAR score.[35]

Selected results for the extensive welfare margin (participation) are presented in Figure 5; complete mediation results can be found in Appendix Table B5.[36] Parallel to Figures 1-3, each bar in Figure 5 shows the extent to which the intergenerational relationship in welfare participation flows through: i) the direct mediating effect of early life experiences (green); ii) the indirect mediating effect of early life experiences that operates through educational achievement (ATAR score) (red); and iii) the direct mediating effect of ATAR score (blue).

Figure 5 here

With a few exceptions, most early life experiences do not have a direct mediating effect on intergenerational welfare participation once we condition on high school completion and the receipt of an ATAR score. In particular, for high-school graduates on the academic track, the direct mediating effects of suspensions, risky behaviors and financial support on intergenerational welfare are minimal (ranging from 0 to 1.9 percent) (shown in green, Figure 5). This is in sharp contrast to their substantial mediating effect on the population of young

[35] The 23.4 percent of high school graduates who do not earn an ATAR score are also dropped from the sample. These students are typically on a vocational rather than academic track; thus, they do not earn an ATAR score. In results available on request we estimate the model in Equations (4)-(6) replacing dropout with whether or not the youth received an ATAR score and conditioning the sample on high school completion. Results largely mirror those for the ATAR score – very few mediators operate through obtaining an ATAR score.

[36] For brevity, we discuss the results for the extensive margin of welfare receipt only. Appendix Figure A1 presents results for the intensive margin and we note differences in results where necessary. Appendix Tables B5 and A8 present the complete mediation results for all early life experiences (including attitudes, locus of control and health), and for both the extensive and intensive margins of welfare receipt, respectively.

people as a whole (see Figures 1-3). This indicates that – conditional on pursuing an academic curriculum and completing high school – these experiences are not the primary channels through which welfare participation is passed from parents to children. If young people successfully complete high school with a university entrance score, previous school suspensions, risky behavior and a lack of financial support from parents are no longer drivers of subsequent welfare participation. In contrast, school changes, residential mobility and co-residency all have direct mediating effects on intergenerational welfare even among this selected sample of young people. Fully, 8.3 percent of the intergenerational correlation in welfare participation is explained by residential mobility; 4.9 percent operates through school changes, while 4.3 percent is explained by co-residence.

Unlike the case for educational attainment (high school completion), early life experiences do not have an indirect mediating effect on educational achievement. That is, early educational experiences, risk-taking behavior and parenting practices do not mediate intergenerational welfare participation through their effect on ATAR scores (conditional on receiving one).[37] While school changes, residential mobility, smoking, delinquency and financial support, for example, have sizable indirect mediating effects on young people as a whole that operate through dropping out of high school, there is no such mediating effect operating through ATAR scores themselves for those high school graduates who receive one.

Given we find no support for indirect mediating effects, it is not surprising that the direct mediating effect of the ATAR score on intergenerational welfare is similar in our detailed analysis to the results of our overview analysis. Specifically, the direct mediating effect of the ATAR score ranges from 4.8 to 6.4 percent in Figure 4 (shown in blue); compared to 5.7 percent in Table 3. Educational achievement has a relatively modest effect in mediating intergenerational welfare participation, especially when compared to the mediating effect of high school dropout. It is likely that ATAR scores are capturing the effects of university attendance on welfare receipt, given that ATAR scores above 70 generally grant access to university courses, while those with lower scores may struggle to find placement. Moreover, in Australia, high-performing students from low socio-economic backgrounds are not deterred from enrolling in university due to credit constraints as a result of the government's higher education loan schemes (Cardak & Ryan 2006).

[37] The results in Appendix Table B4 confirm that this is also true for work-welfare attitudes, locus of control and health outcomes. There are also no indirect mediating effects when considering the intensive margin (see Appendix Figure A1 and Table B5).

6. Conclusions

Any reduction in intergenerational welfare must ultimately come from reducing the persistence in socioeconomic position and increasing the opportunities for social mobility. This requires that we understand the pathways that result in intergenerational disadvantage and design effective policy solutions so that poor children do not become poor adults. Unfortunately, empirical studies of intergenerational welfare are scarce (Stenberg 2000), making it challenging to develop practical solutions that might lead to real progress.

Our research makes an important contribution by using unique survey-administrative data to study the welfare receipt of young people and their families over two decades. Using mediation analysis, we not only calculate the overall intergenerational correlation in welfare receipt, but also quantify the share of that correlation that operates through a broad range of diverse mechanisms. While some like educational attainment and risk-taking behavior have been the focus of previous studies, others including work-welfare attitudes, parenting and early school experiences are being empirically studied for the first time. Our analysis is descriptive; we do not identify causal results. Still, our results shed light on the drivers of economic opportunity, the likely channels through which intergenerational welfare receipt occurs and the best options for targeting resources towards supporting children in welfare-reliant families.

Our results lead us to several key conclusions. First, intergenerational persistence in economic disadvantage can largely be understood through an education lens. The single most important mechanism linking welfare across generations is the failure to complete high school. Welfare receipt is also transmitted from parents to their young-adult children through the curriculum choices and educational achievements of those who do complete high school. The critical role of education in intergenerational welfare receipt is perhaps not surprising given the theoretical importance of the complementarities between wealth and human capital production in intergenerational mobility (Becker et al. 2018) and previous evidence that the long-term effects of financial poverty operate through educational failure (Backman & Nilsson 2011) and the constraints that families experience in investing in their children's acquisition of human capital (Rank & Cheng 1995).

Second, early school experiences can have long-term consequences. Young people in welfare-reliant households are more likely to drop out of high school – and thus end up on the welfare rolls – in part because of disciplinary actions that disproportionately result in their suspension and expulsion from school. They also experience more residential mobility and school changes, both of which are directly linked to subsequent welfare receipt. In short, disruptions in adolescents' schooling are clearly one mechanism linking welfare receipt across generations. It is also the case that welfare-reliant young people who fail to complete high

school appear to be leaving school under more adverse circumstances (e.g., being in trouble in school, poor academic performance, financial problems, etc.) than their more advantaged classmates who also leave school early. Crucially, young people's motivation for leaving school matters; nearly half of the intergenerational correlation in intergenerational welfare receipt operates through the motivation for dropping out.

Third, educational outcomes for young people in welfare-reliant households are likely influenced by many things beyond their school experiences. Young people's own risk-taking behavior (smoking, illicit drug use, delinquency and pregnancy), for example, is also a key mechanism underpinning intergenerational welfare reliance. Disadvantaged young people take more risks. This has both direct effects on the transmission of disadvantage across generations as well as an indirect effect which operates by increasing the likelihood of dropping out of high school. Disadvantage is also being perpetuated from one generation to the next through the parenting that young people receive. The issue is not the style that parents adopt (i.e., warmth and monitoring), but rather the relative lack of support – particularly financial support – that welfare-reliant parents provide. Without adequate parental support, young people's ability to successfully transition from education to employment may be constrained.

Fourth, if our goal is to reduce intergenerational welfare, supporting educational attainment may be more important than supporting educational achievement. Unlike the case for educational attainment (high school completion), early educational experiences, risk-taking behavior and parenting practices do not have an indirect mediating effect on educational achievement (university entrance scores). Residential mobility, school changes, smoking, delinquency and parental financial support, for example, all have sizable indirect mediating effects on intergenerational welfare that operate through the failure to complete high school; but there is no such mediating effect operating through the university entrance scores of high school graduates who receive one. This is consistent with Danish evidence that parental welfare dependence negatively affects attainment (completing upper secondary school) but not achievement (grade point average) (Fallesen & Bernardi 2018).

Finally, there is a great deal to be learned from the pathways that have either no or only a modest role in transmitting welfare receipt across generations. Specifically, parental welfare is not by and large transmitted to young people (age 23 – 26) through their physical and mental health, work experience, locus of control and work-welfare attitudes at age 18. Given the international evidence that welfare reliance and poverty more generally have consequences for children's physical and mental health (see Brooks-Gunn & Duncan 1997; Spady et al. 2001), we cannot completely rule out the possibility that any health consequences for young people's welfare receipt may only become evident as they mature into middle- and old-age.

Additionally, although the effect of attitudes in driving intergenerational welfare is not zero; it is best described as modest. This is at odds with cultural explanations of intergenerational welfare which attribute welfare dependency to the values that children acquire from their parents and neighbors (see Duncan et al., 1988; Patterson, 1986; Bartholomae et al., 2004).

Taken together, our results present a clear focus for policy action; schools, communities and governments must find better ways to support the education of children in welfare-reliant families. Along with education reform, there may also be benefits from tackling the issue through reforms of the welfare system itself. U.S. welfare reform, for example, narrowed the income gap in high school dropout rate by 20 percent (Miller & Zhang 2012), while Dutch policy reforms that tightened disability insurance eligibility criteria for some claimants, increased the education of children whose parents were subject to the reform (Dahl & Gielen 2018). Similarly, the importance of parental financial support in transmitting disadvantage across generations calls into question the wisdom of Australian policies that increasingly shift the financial burden of supporting young people from the public purse to their families.[38] Such policies are likely to increase the salience of parents' co-residential and financial support as a mechanism underpinning intergenerational welfare receipt.

The value of our mediation model lies in its ability to identify the drivers of economic opportunity by quantifying the likely channels through which intergenerational welfare receipt is occurring and identifying the options for better targeting resources. It is a descriptive analysis. Future research will be needed to determine whether any – and if so which ones – of the various mechanisms we have identified are likely to be causal. Identifying causal mediating factors is empirically demanding (see Imai et al. 2010; Hicks & Tingley 2011; Mendolia & Siminski 2017) and each potential factor will need to be examined separately. There is no guarantee that if one particular mechanism is found to be causal (or not) others will be as well. Identifying causal mechanisms would expand the set of policy leavers available to address intergenerational disadvantage.

[38] Maas (1990) argues that changes to the social safety net in the late 1980s which set lower unemployment benefit levels for those under the age of 21 contributed to the financial dependency of young people. The introduction of Youth Allowance in 1998 and the expansion of the parental income test mean that parental income increasingly determines whether young adults receive social assistance (Smyth 2000). See Cobb-Clark (2008) and Buckmaster (2011) for reviews.

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Tables and Figures

Table 1: Australian welfare eligibility conditions

Benefit	Eligibility	Age eligibility	Activity tested
Disability Support Pension (DSP)	Permanent diagnosed disability Attended program support and cannot work for >15h/week for 2 years	16 to pension age	No
Carer Payment (CP)	In constant daily care for a person with severe disability/illness OR who is frail aged	none	No
	Care in private home for ≥6 months and spend no more than 25h/week away from caring		No
Parenting Payment Single (PPS)	Principal carer of ≥1 child who is ≤8years old	none	Yes
Parenting Payment Partnered (PPP)	Principal carer of ≥1 child who is <6years old	none	Yes
Newstart Allowance (NA)	Unemployed, looking for work, and willing to work	22 to pension age	Yes
Youth Allowance Jobseeker (YAJ)	Looking for full time work or doing approved activities	16 to 22	Yes

Source: Income Support Payment Description, Australian Department of Human Services, presenting a snapshot of eligibility conditions in 2019. For the observation window of parental payments from 1996 to 2006, two differences are worth pointing out: Until 2006, the condition for DSP eligibility was inability to work for >30h/week (rather than 15), and the child's age threshold was 16 (rather than 6 or 8) years for both PPP and PPS eligibility.

Table 2. Youth welfare receipt and mediating variables conditional on parental welfare participation.

	Parental welfare participation		
	None	Any	Difference
Youth welfare receipt (age 23-26)			
Any participation	0.201	0.379	0.178***
Total dollars	2920.852	8511.899	5591.047***
Sample (N)	1530	2386	
Mediators[a]			
Dropout	0.208	0.391	0.183***
Obtaining an ATAR[b]	0.840	0.716	-0.124***
ATAR score[c]	74.427	70.531	-3.896***
Smoker	0.110	0.212	0.101***
Drug use (std)	-0.139	0.095	0.234***
Delinquency (std)	-0.190	0.126	0.316***
Pregnancy	0.025	0.076	0.051***
Respectful parenting (std)	0.063	-0.052	-0.115***
Monitoring parenting (std)	0.149	-0.117	-0.266***
Lives independently	0.139	0.219	0.080***
Financial support	0.778	0.618	-0.160***
Benefits too low	0.384	0.504	0.120***
Govt's responsibility	0.426	0.485	0.058***
Ambition important	0.761	0.740	-0.021
Depression	0.141	0.182	0.042***
Health limits work	0.059	0.083	0.024***
Obesity	0.055	0.074	0.019**
Physical exercise	3.933	3.822	-0.110**
Employed	0.929	0.896	-0.033***
Locus of control (std)	0.062	-0.013	-0.074**

Notes: We present the results of *t*-test for significant differences in the weighted means. *, **, *** represents statistical significance at the 10, 5, and 1 percent levels respectively.

[a] The sample size is not consistent across the different mediators.

[b] The sample for obtaining an ATAR (university entrance rank) is conditional on high school completion.

[c] The sample for ATAR score is conditional on receiving a score.

Table 3. Overview of the factors mediating the intergenerational correlation between parental and youth welfare participation – Extensive margin.

	Overall (coeff)	Direct (coeff)	Mediating (coeff)	Mediating / Overall (%)	Sample
Conditional intergenerational correlation	0.120*** (0.0164)				3826
Education					
Dropout	0.121*** (0.017)	0.094*** (0.016)	0.027*** (0.004)	22.00	3698
Obtaining an ATAR[a]	0.087*** (0.018)	0.076*** (0.018)	0.011*** (0.003)	12.89	2531
ATAR score[b]	0.083*** (0.021)	0.078*** (0.021)	0.005** (0.002)	5.69	1785
Risky behaviors‡	0.130*** (0.019)	0.106*** (0.018)	0.024*** (0.005)	18.64	2813
Smoker			0.009*** (0.003)	7.07	
Drug use (std)			0.001 (0.001)	0.74	
Delinquency (std)			0.007*** (0.003)	5.54	
Pregnancy			0.007*** (0.002)	5.29	
Parenting‡	0.139*** (0.019)	0.125*** (0.019)	0.014*** (0.003)	9.86	2761
Respectful parenting (std)			0.001 (0.001)	0.46	
Monitoring parenting (std)			0.003* (0.002)	2.02	
Lives independently			0.003* (0.002)	2.26	
Financial support			0.007*** (0.003)	5.12	
Attitudes‡	0.127*** (0.017)	0.118*** (0.017)	0.008*** (0.002)	6.37	3378
Benefits too low			0.006*** (0.002)	4.73	
Govt's responsibility			0.001 (0.001)	1.08	
Ambition important			0.001 (0.001)	0.56	
Health‡	0.122*** (0.019)	0.114*** (0.019)	0.007** (0.004)	6.07	2661
Depression			0.002 (0.002)	1.85	
Health limits work			0.003 (0.002)	2.74	
Obesity			0.001 (0.001)	0.50	
Physical exercise			0.001 (0.001)	0.98	
Employed	0.120*** (0.016)	0.116*** (0.016)	0.004** (0.002)	3.29	3823
Locus of control (std)	0.130*** (0.019)	0.128*** (0.019)	0.002 (0.002)	1.16	2825

Notes: Regression estimates of the baseline model outlined in Equations (1)-(3) underly these results. Youth welfare receipt is captured by welfare participation over the ages 23-26. Each regression includes the following control variables: sex, state of residence, whether they lived with both parents at age 14, and whether their mother was employed at age 14. Selected coefficient estimates from Equation (2) relating to this table are presented in Appendix Table B1. The direct plus mediating effect equals the overall effect coefficient (subject to rounding). Standard errors presented in parentheses, for the mediating effect standard errors are bootstrapped (400 replications and sampled with replacement within sampling strata). *, **, *** represents statistical significance at the 10, 5, and 1 percent levels respectively.

‡ For these channels, we include a vector of mediators in Equation (1), rather than a single mediator variable.

[a] The sample for obtaining an ATAR (university entrance rank) is conditional on high school completion.

[b] The sample for ATAR score is conditional on receiving a score.

Table 4. Overview of the factors mediating the intergenerational correlation between parental welfare participation and youth total dollars of welfare – Intensive margin.

	Overall (coeff)	Direct (coeff)	Mediating (coeff)	Mediating / Overall (%)	Sample
Conditional intergenerational correlation	3.874*** (0.510)				3826
Education					
Dropout	3.271*** (0.522)	2.187*** (0.502)	1.085*** (0.168)	33.16	3698
Obtaining an ATAR[a]	2.258*** (0.439)	1.758*** (0.434)	0.500*** (0.110)	22.15	2531
ATAR score[b]	1.279*** (0.369)	1.136*** (0.368)	0.143*** (0.059)	11.16	1785
Risky behaviors‡	3.558*** (0.582)	2.647*** (0.557)	0.911*** (0.183)	25.60	2813
Smoker			0.350*** (0.102)	9.84	
Drug use (std)			-0.023 (0.042)	-0.65	
Delinquency (std)			0.325*** (0.109)	9.13	
Pregnancy			0.259*** (0.094)	7.27	
Parenting‡	3.667*** (0.583)	3.077*** (0.578)	0.589*** (0.134)	16.07	2761
Respectful parenting (std)			0.039 (0.036)	1.06	
Monitoring parenting (std)			0.087* (0.051)	2.37	
Lives independently			0.128** (0.065)	3.48	
Financial support			0.336*** (0.093)	9.16	
Attitudes‡	3.324*** (0.533)	3.130*** (0.532)	0.194*** (0.071)	5.83	3378
Benefits too low			0.141*** (0.054)	4.23	
Govt's responsibility			0.024 (0.023)	0.71	
Ambition important			0.029 (0.037)	0.89	
Health‡	3.186*** (0.569)	2.893*** (0.554)	0.293** (0.149)	9.20	2661
Depression			0.093 (0.077)	2.91	
Health limits work			0.132 (0.093)	4.16	
Obesity			0.051 (0.040)	1.59	
Physical exercise			0.017 (0.026)	0.54	
Employed	3.281*** (0.515)	3.119*** (0.509)	0.162** (0.083)	4.95	3823
Locus of control (std)	3.550*** (0.581)	3.486*** (0.572)	0.065 (0.103)	1.82	2825

Notes: Regression estimates of the baseline model outlined in Equations (1)-(3) underly these results. Youth welfare receipt is captured by the amount ($'000) of welfare the youth received over the ages 23-26. Each regression includes the following control variables: sex, state of residence, whether they lived with both parents at age 14, and whether their mother was employed at age 14. Selected coefficient estimates from Equation (2) relating to this table are presented in Appendix Table B1. The direct plus mediating effect equals the overall effect coefficient (subject to rounding). Standard errors presented in parentheses, for the mediating effect standard errors are bootstrapped (400 replications and sampled with replacement within sampling strata). *, **, *** represents statistical significance at the 10, 5, and 1 percent levels respectively.

‡ For these channels, we include a vector of mediators in Equation (1), rather than a single mediator variable.

[a] The sample for obtaining an ATAR (university entrance rank) is conditional on high school completion.

[b] The sample for ATAR score is conditional on receiving a score.

Table 5. Youth welfare receipt and additional mediating variables conditional on parental welfare participation.

	Parental welfare participation		
	None	Any	Difference
Early-life experiences			
Number of schools	2.795	3.433	0.638***
Number of houses	3.296	5.163	1.866***
Suspended/expelled	0.138	0.271	0.133***
ADHD	0.028	0.050	0.022***

Notes: We present the results of *t*-test for significant differences in the weighted means. *, **, *** represents statistical significance at the 10, 5, and 1 percent levels respectively.

Table 6. Self-reported reasons for high school dropout by parental welfare participation.

	Parental welfare		
Reasons for high school dropout	None	Yes	Difference
Job/apprenticeship	3.998	3.790	-0.208*
Not doing well in school	2.361	2.737	0.376***
Financial reasons	1.601	1.913	0.313***
Teachers thought you should leave	1.803	1.898	0.094
Parents thought you should leave	1.812	1.563	-0.249***
Wanted to earn own money	3.584	3.676	0.092
No subjects/courses you wanted offered	2.303	2.533	0.230**
Friends did not do 12th Grade	1.635	1.697	0.062
Health	1.606	1.628	0.023
Expelled	1.219	1.393	0.174**
High school degree not needed for career	3.064	2.642	-0.422***
Often in trouble at school	2.020	2.377	0.356***

Notes: Sample of respondents who dropped out of high school, N = 969. Each respondent who dropped out of high school is asked to rate how important each reason was in their decision to leave school before completing high school. Each reason is scaled from [1] not important to [5] very important. Sampling weights provided in the YIF data are applied. t-test of significant difference. *, **, *** represents statistical significance at the 10, 5, and 1 percent levels.

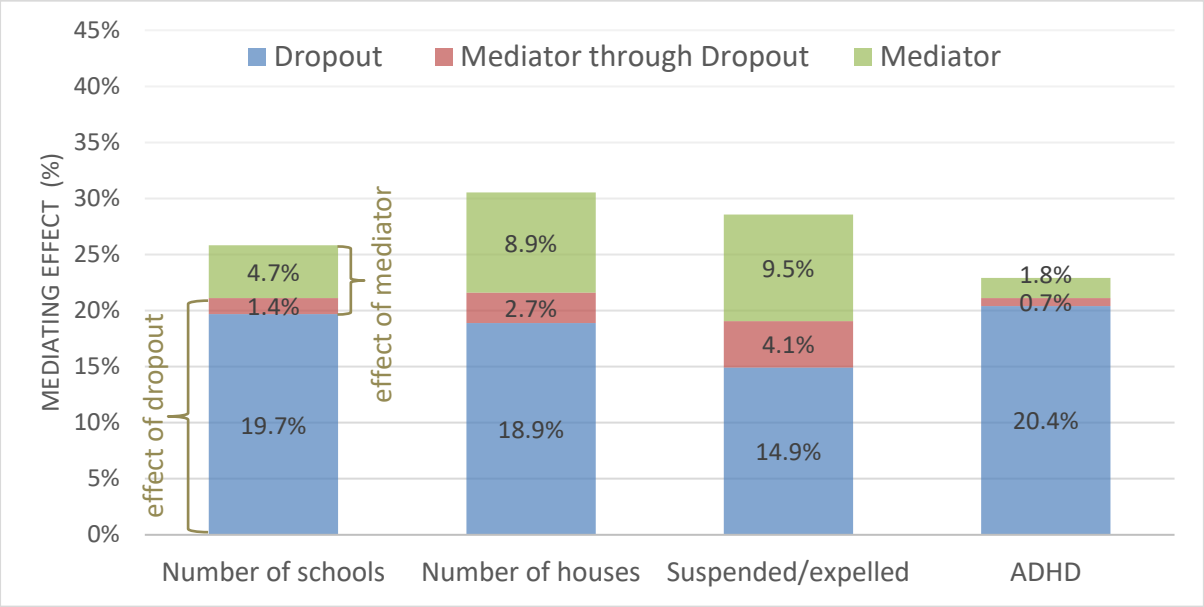
Table 7. The reasons for high school dropout mediating the intergenerational correlation between parental and youth welfare participation.

	Overall (coeff)	Direct (coeff)	Mediating (coeff)	Mediating / Overall (%)
Reasons for Dropout	0.094***	0.056	0.038***	40.52
	(0.040)	(0.039)	(0.014)	
Job/apprenticeship			-0.004	-3.99
			(0.004)	
Not doing well in school			0.009*	9.99
			(0.005)	
Financial reasons			0.006	6.82
			(0.004)	
Teachers thought you should leave			0.002	2.11
			(0.003)	
Parents thought you should leave			-0.000	-0.08
			(0.001)	
Wanted to earn own money			0.004	3.91
			(0.004)	
No subjects/courses you wanted offered			0.000	0.34
			(0.003)	
Friends did not do 12th Grade			0.000	0.28
			(0.001)	
Health			0.000	0.39
			(0.003)	
Expelled			0.004	3.98
			(0.004)	
High school degree not needed for career			0.008	8.52
			(0.005)	
Often in trouble at school			0.008	8.25
			(0.005)	

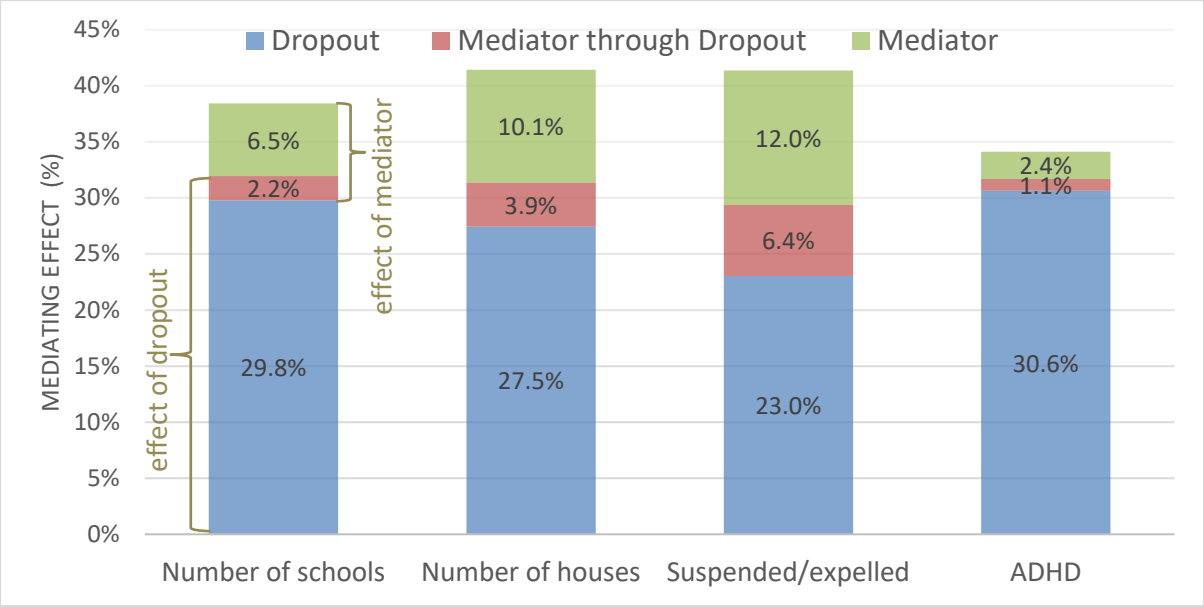
Notes: Sample of respondents who dropped out of high school, N = 934. Regression estimates of the baseline model outlined in Equations (1)-(3) underly these results. Each regression includes the following control variables: sex, state of residence, whether they lived with both parents at age 14, and whether their mother was employed at age 14. The direct plus mediating effect equals the overall effect coefficient (subject to rounding). Standard errors presented in parentheses, for the mediating effect standard errors are bootstrapped (400 replications and sampled with replacement within sampling strata). *, **, *** represents statistical significance at the 10, 5, and 1 percent levels respectively.

Figure 1. Mediating the intergenerational correlation between parental welfare participation and youth welfare receipt – Early educational experiences operating through high school dropout.

Panel A. Youth welfare participation (extensive margin)



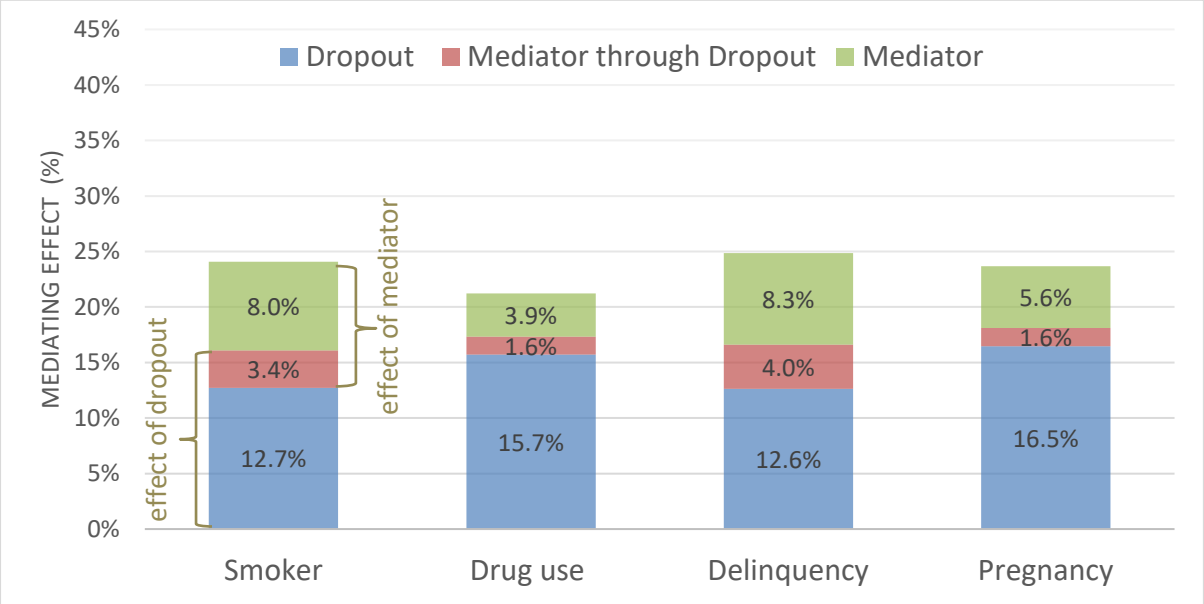
Panel B. Youth total dollars of welfare (intensive margin)



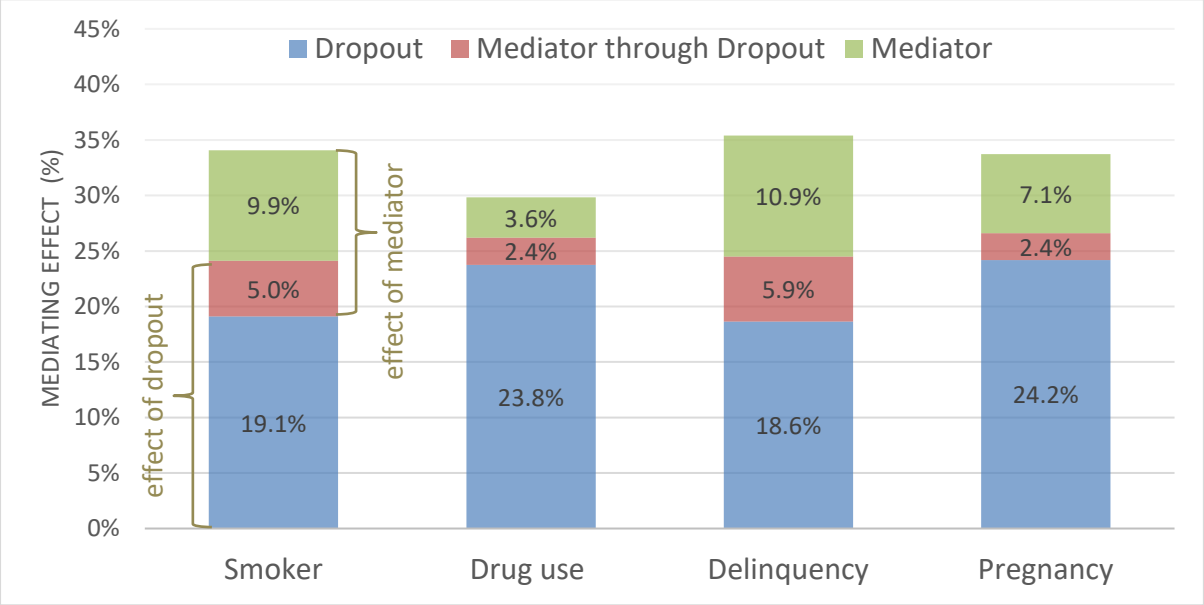
Notes: Mediation results are based on regression estimates of Equations (4)-(6). The direct mediating effect of early life experiences ($\alpha_3\gamma_1$) is in green; the indirect mediating effect of early life experiences that operates through dropout ($\alpha_4\delta_3\gamma_1$) is in red; and the direct mediating effect of dropout ($\alpha_4\delta_1$) is in blue. The direct effect of parental welfare participation on youth welfare receipt is 100 minus the total mediating effect. Underlying results and statistical significance of the mediating effects are presented in Appendix Table B2 and B3, Panel A.

Figure 2. Mediating the intergenerational correlation between parental welfare participation and youth welfare receipt – Risky behavior mediators operating through high school dropout.

Panel A. Youth welfare participation (extensive margin)



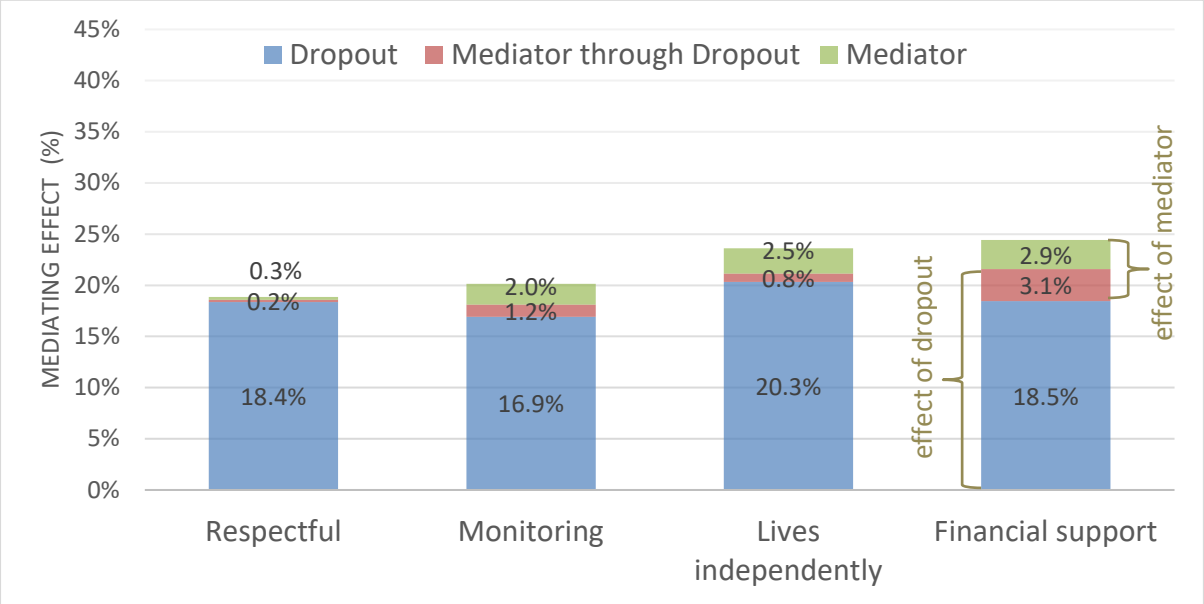
Panel B. Youth total dollars of welfare (intensive margin)



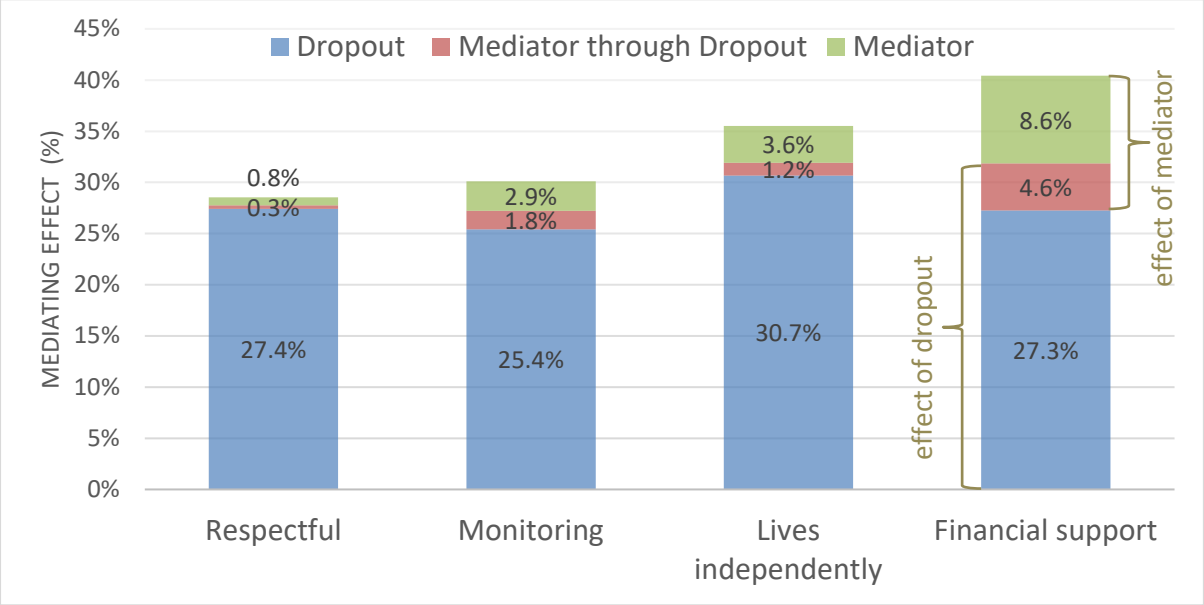
Notes: Mediation results are based on regression estimates of Equations (4)-(6). The direct mediating effect of early life experiences ($\alpha_3\gamma_1$) is in green; the indirect mediating effect of early life experiences that operates through dropout ($\alpha_4\delta_3\gamma_1$) is in red; and the direct mediating effect of dropout ($\alpha_4\delta_1$) is in blue. The direct effect of parental welfare participation on youth welfare receipt is 100 minus the total mediating effect. Underlying results and statistical significance of the mediating effects are presented in Appendix Table B2 and B3, Panel B.

Figure 3. Mediating the intergenerational correlation between parental welfare participation and youth welfare receipt – Parenting mediators operating through high school dropout.

Panel A. Youth welfare participation (extensive margin)



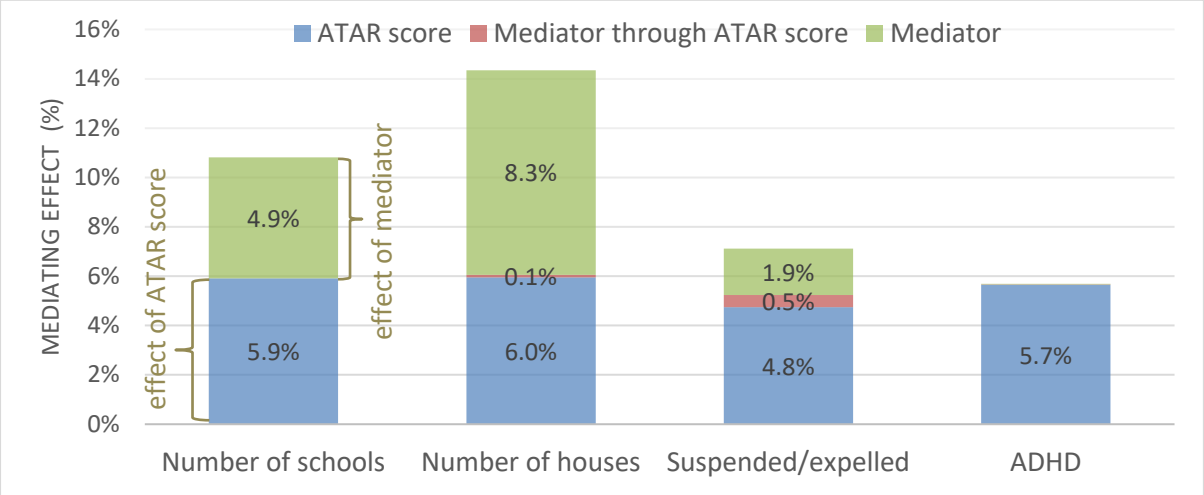
Panel B. Youth total dollars of welfare (intensive margin)



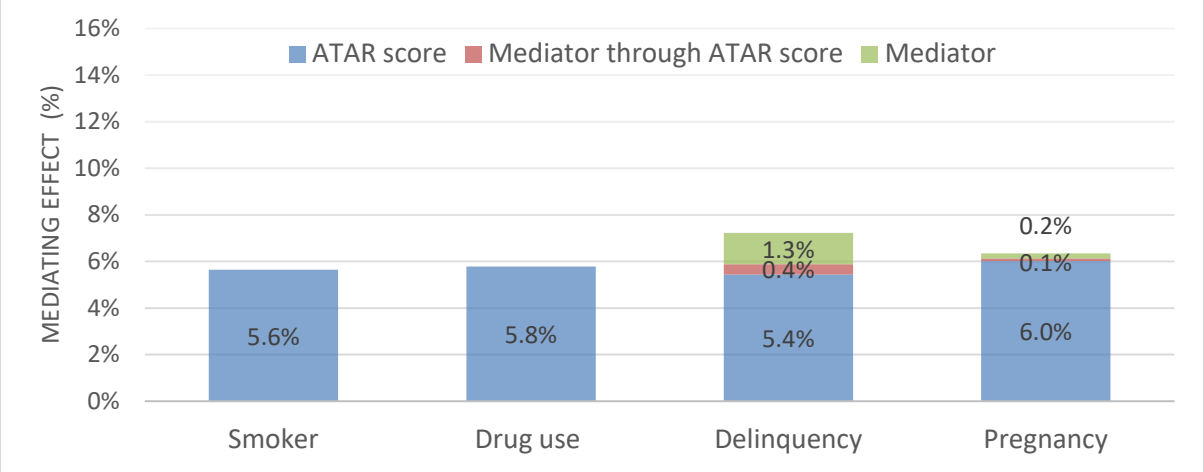
Notes: Mediation results are based on regression estimates of Equations (4)-(6). The direct mediating effect of early life experiences ($\alpha_3\gamma_1$) is in green; the indirect mediating effect of early life experiences that operates through dropout ($\alpha_4\delta_3\gamma_1$) is in red; and the direct mediating effect of dropout ($\alpha_4\delta_1$) is in blue. The direct effect of parental welfare participation on youth welfare receipt is 100 minus the total mediating effect. Underlying results and statistical significance of the mediating effects are presented in Appendix Table B2 and B3, Panel C.

Figure 4. Mediating the intergenerational correlation between parental welfare participation and youth welfare participation – Early-life experiences operating through ATAR score.

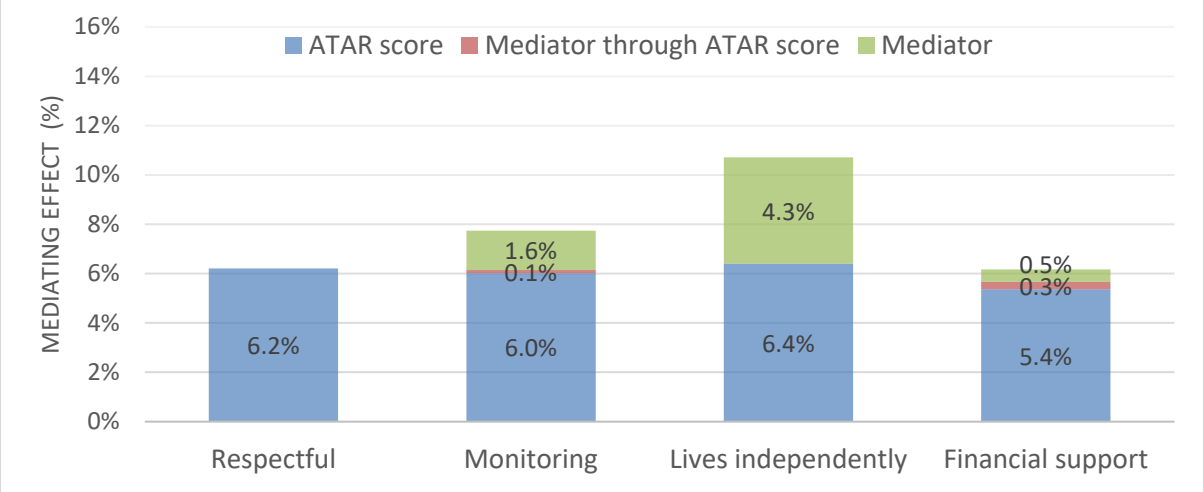
Panel A. Early educational experiences



Panel B. Risky behaviors



Panel C. Parenting



Notes: Note the scale change from Figures 1-3. Mediation results are based on regression estimates of Equations (4)-(6), replacing dropout with the ATAR score. The direct mediating effect of early life experiences ($\alpha_3\gamma_1$) is in green; the indirect mediating effect of early life experiences that operates through ATAR score ($\alpha_4\delta_3\gamma_1$) is in red; and the direct mediating effect of ATAR score ($\alpha_4\delta_1$) is in blue. The direct effect of parental welfare participation on youth welfare receipt is 100 minus the total mediating effect. Underlying results and statistical significance of the mediating effects are presented in Appendix Table B5.

Online Appendix

A. Data Appendix

Process of selecting mediating variables and constructs:

- First, based on our theoretical framework and the data available in the YIF, we created variables that could be thought of as mediators and that could be grouped into underlying latent factors. The underlying factors we had in mind were: health; attitudes; locus of control; parenting; independence; financial support; risky behaviors; education; and employment. Locus of control and parenting are constructed based on previous research.
- Second, we ran predictive models (OLS) of all (40) mediating variables only on youth welfare participation between ages 23-26 to see if each mediating variable was actually predictive of our key outcome. Majority of our mediating variables were predictive of youths' welfare use with the following exceptions: asthma, importance of education, importance of own job, and risky alcohol consumption levels (based on 2009 NHRMC guidelines). These eventually are excluded from the analysis and are not considered a potential pathway since there is no explanatory power in them predicting youth welfare participation anyway.
- Third, we investigated the underlying correlation among these mediating variables using exploratory and confirmatory principal component analyses (PCA). Only components with an eigenvalue greater than one were considered and components were rotated (oblimax) to facilitate interpretation. We find:
    - Majority of the mediating variables loaded onto components that were easily interpretable: mental health, attitudes to welfare, education, instability (moving houses/schools), independence, and parental financial support.
    - For some of the underlying constructs that we had in mind, the mediating variables loaded onto separate components (risky behaviors, remaining health constructs), suggesting that these variables were detecting underlying constructs that were more complex than we originally thought.
    - Some mediating variables loaded in an inconsistent way across components: health limiting work, physical exercise, ever employed, suspended or expelled from school.
- Fourth, given we confirmed most of our mediating variables were loading on components that seemed to make sense, we went forth in creating variables that identify the broad pathways (from either further confirmatory PCAs or examining variable distributions):
    - Health:
        - Mental health is a single construct (diagnosed and/or treated).
        - Health limiting work is also a separate construct (could be either physical or mental).
        - ADHD is a learning disability (likely to flow through to educational attainment).
        - Physical exercise and obesity are included as separate variables.
        - Asthma is related to SES but in a non-linear way (low SES more likely to have asthma but higher SES more likely to have been diagnosed) and not related to youths' welfare use, and thus excluded.
    - Attitudes:
        - Two measures not predictive of youths' welfare use (importance of own educ / own job), and thus excluded.

        - Three remaining attitude measures load on 2 separate components, so we keep these attitude measures separate: attitudes towards welfare and importance of own ambition.
    - Independence:
        - High correlation between our 2 measures, therefore retain whether they live independently or not.
    - Financial support:
        - When controlling for: i) any support, ii) amount of support, and iii) whether support was a gift, we find only whether support was had or not is predictive of youths' welfare use. Thus, we retain only that measure.
    - Risky behaviors:
        - Conducted a PCA, and find support for 3 components: Smoking, drugs, and delinquent behaviors. For smoking variables, we find smoking often is the strongest predictor of youth's welfare use and decide to retain that one indicator variable (rather than construct a factor score). We construct PCA factor scores for the other two components; drugs and delinquent behaviors (we have decided that pregnancy does not fit well with the concept of delinquent behaviors, so we examine this variable separately).
        - We also forced the PCA to produce loadings for 1 component, only to be used in the broad overview analysis.
    - Education
        - Both dropout and university entrance scores load on a single component, we retain them as separate education measures for the analysis.

Table A1. Variable definitions.

Variable name	Definition
Youth welfare receipt (TDS data)	
Youth welfare participation	=1 if youth received any income support payments between the ages of 23-26. Here, and throughout, we classify the following payments as Income Support: Carer Payment, Disability Pension Support, Newstart, Parenting Payment (Partnered), Parenting Payment (Single), and Youth Allowance (Jobseeker).
Total dollars	The total amount of support received over the ages 23-26.
Parental welfare participation (TDS data)	
	=1 if parent (primary caregiver with longest duration of care) received any income support payments while the youth was aged between 8–15.
Mediators (YIF data)	
Note: YIF variables are measured at age 18 years old (or before age 18), unless otherwise stated.	
Dropout	=1 if youth did not complete high school with a Year 12 (high school) certificate.
Obtaining an ATAR	=1 if youth obtained a university entrance rank (Australian Tertiary Admission Rank, ATAR), conditional on completing high school. Those who do not complete high school are coded as missing.
ATAR score	The youth's university entrance rank (ATAR), ranges from 30–99.99 for those who obtained a university entrance rank. Those who did not receive an ATAR are coded as missing. Unlike other states and territories, Queensland ranks students on a scale from 1 (highest) to 25 (lowest). Following Cardak and Ryan (2006), we transform scores for students in Queensland to be equivalent to those in other jurisdictions so that our university entrance rankings are calibrated to a common, Australia-wide scale that ranges from 30 to 99.99.
Smoker	=1 if youth currently smokes often (i.e., at least weekly).
Drug use	For our measures of risky behaviors, we perform a PCA using the following binary indicators that equal 1 if youth: i) ever tried marijuana (*drug*); ii) tried marijuana before age 15 (*drug*); iii) used marijuana monthly in the past year (*drug*); iv) ever started using illicit drugs (*drug*); v) ever had problems with alcohol (*delinquent*); vi) ever got into trouble with the police (*delinquent*); vii) ever attended child/juvenile court due to juvenile offending (*delinquent*); viii) ever ran away from home (*delinquent*); ix) ever started hanging around with a bad crowd (*delinquent*); We find support for two components: 'Drug use' and 'Delinquency'. From this we produce two component scores, which we standardize to be mean 0, standard deviation 1.
Delinquency	See 'Drug user'.
Pregnancy	=1 if youth has ever been pregnant or got someone pregnant.
Respectful parenting	We follow Cobb-Clark et al. (2019) to construct similar measures parenting styles. Youth's responses to the following constructs are used in a PCA (unlike Cobb-Clark et al. we exclude one mother-reported item to retain sample size): i) Mother respects my views and opinions (*respect*); ii) Mother's behavior towards me is friendly (*respect*); iii) Mother wants to know whereabouts (*monitoring*); iv) Mother really knows whereabouts (*monitoring*). Responses range from 1 (always true) to 6 (never true) for constructs i) and ii). Constructs iii) and iv) are constructed from responses to 6 items regarding how much the youth's mother knows/wants to know about their whereabouts (see Cobb-Clark et al. for details). We form a continuous scale from 1 to 9, increasing in how much the mother knows/wants to know. We then perform a PCA on these four constructs to produce two components: 'Respectful parenting' and 'Monitoring parenting'. Each component is increasing in the degree of respect/monitoring and is standardized to have a mean 0 and standard deviation 1.

Monitoring parenting	See Respectful parenting.
Lives independent	=1 if youth lives independently (i.e., with no parental guardian).
Financial support	=1 if parents or anyone else assisted the youth financially in the last 12 months.
Benefits too low	=1 if youth believes that 'benefits for unemployed people are too low and cause hardship'.
Govt's respons.	=1 if youth believes that it is 'mainly the governments' responsibility for ensuring that people have enough to live on if they become unemployed.
Ambition important	=1 if youth believes their own ambition is extremely important for getting ahead in life.
Depression	=1 if youth has ever been told by a health professional that they suffer from depression or anxiety OR if they have been treated for a mental or emotional issue.
Health limits work	=1 if health limits (or would limit) the amount of work youth could do.
Obesity	=1 if youth is obese (any class) or morbid obese. (BMI≥30)
Physical exercise	Frequency of moderate or intensive physical activity for at least 30 minutes, scaled from 1 to 6 ('Not at all' to 'Every day').
Employed	=1 if youth has ever been employed.
Locus of control	Based on the Pearlin and Schooler (1978) Mastery Scale, we measure youth's sense of control over life's events and what happens to them using responses to the following items: i) There is really no way I can solve some of the problems I have; ii) Sometimes I feel that I'm being pushed around in life; iii) I have little control over the things that happen to me; iv) I can do just about anything I really set my mind to; v) I often feel helpless in dealing with the problems of life; vi) What happens to me in the future mostly depends on me; vii) There is little I can do to change many of the important things in my life. Responses range from 1 (strongly disagree) to 4 (strongly agree). All items (except iv. and vi.) are reverse coded such that items are increasing in the degree of control (i.e., increasing in internality). PCA confirms all items load on a single component, a component score is predicted and standardized to be mean 0 and standard deviation 1.
Early-life Experience Mediators:	
ADHD	=1 if youth has ever been told by a health professional that they have attention deficit hyperactivity disorder.
Suspend/expelled	=1 if youth has ever been suspended or expelled from school.
Number of schools	The number of schools the youth has attended.
Number of houses	The number of houses the youth has lived in.
Controls	
Sex	=1 if the youth is a male.
State	Indicators for the youth's state of residence. There are 8 states [NSW; VIC; QLD; SA; WA; TAS; NT; ACT].
Live w/ parents (age 14)	=1 if youth lived with both parents (or guardians) at age 14.
Mother emp. (age 14)	=1 if mother worked in a job, in her business or on a farm when youth was 14 years old.

Table A2. Summary statistics.

Variable	Mean	SD	Sample
Youth welfare receipt (age 23-26)			
Any participation	0.286	0.452	3916
Total dollars	5598.834	13571.1	3916
Parental welfare participation (youth aged 8-15)			
Any participation	0.479	0.5	3916
Mediators			
Dropout	0.295	0.456	3788
Obtaining an ATAR[a]	0.789	0.408	2578
ATAR score[b]	73.026	17.736	1810
Smoker	0.155	0.362	2876
Drug use (std)	-0.035	0.966	2868
Delinquency (std)	-0.05	0.948	2868
Pregnancy	0.048	0.214	2892
Respectful parenting (std)	0.012	0.979	2791
Monitoring parenting (std)	0.031	0.974	2791
Lives independently	0.177	0.382	3916
Financial support	0.701	0.458	3916
Benefits too low	0.441	0.497	3587
Govt's responsibility	0.454	0.498	3723
Ambition important	0.751	0.433	3916
Depression	0.161	0.367	3916
Health limits work	0.071	0.256	3894
Obesity	0.064	0.245	3688
Physical exercise	3.884	1.412	2874
Employed	0.913	0.282	3913
Locus of control (std)	0.029	0.992	2876
Additional mediators			
ADHD	0.039	0.193	3906
Suspended or expelled	0.202	0.401	3911
Number of schools	3.1	1.953	3916
Number of houses	4.184	3.722	3864
Controls			
Male	0.51	0.5	3916
Youth's state of residence	2.6	1.601	3916
[1] NSW (%)	30.26		1185
[2] VIC (%)	26.277		1029
[3] QLD (%)	20.608		807
[4] SA (%)	7.865		308
[5] WA (%)	9.908		388
[6] TAS (%)	3.32		130
[7] NT (%)	0.306		12
[8] ACT (%)	1.456		57
Lived w/ both parents (age 14)	0.723	0.448	3905
Mother employed (at age 14)	0.686	0.464	3833

Notes: All welfare variables are derived from the TDS data. Mediating and control variables are derived from the YIF data and are measured at or before age 18. Sampling weights provided in the YIF data are applied.
[a] The sample for obtaining an ATAR (university entrance rank) is conditional on high school completion.
[b] The sample for ATAR score is conditional on receiving a score.

B. Additional Results

Table B1. The effect of parental welfare participation on each mediator, separately: Estimates of Equation (2).

	Dropout	Obtaining an ATAR[a]	ATAR score[b]	Employed
Parental welfare participation	0.115***	-0.106***	-2.969***	-0.022**
	(0.016)	(0.017)	(0.881)	(0.011)
R-squared	0.081	0.078	0.067	0.025
Sample	3698	2531	1785	3823
	Smoker	Drug use (std)	Delinquency (std)	Pregnancy
Parental welfare participation	0.058***	0.092**	0.190***	0.027***
	(0.016)	(0.041)	(0.041)	(0.010)
R-squared	0.025	0.013	0.045	0.031
Sample	3823	2825	2813	2813
	Respectful parenting (std)	Monitoring parenting (std)	Lives independently	Financial support
Parental welfare participation	-0.050	-0.119***	0.030*	-0.112***
	(0.042)	(0.041)	(0.016)	(0.019)
R-squared	0.017	0.057	0.040	0.043
Sample	2761	2761	2761	2761
	Benefits too low	Govt's responsibility	Ambition important	Locus of control (std)
Parental welfare participation	0.072***	0.033*	-0.014	-0.027
	(0.019)	(0.019)	(0.017)	(0.041)
R-squared	0.020	0.030	0.004	0.013
Sample	3378	3378	3378	2825
	Depression	Health limits work	Obesity	Physical exercise
Parental welfare participation	0.020	0.017	0.019*	-0.078
	(0.016)	(0.011)	(0.010)	(0.059)
R-squared	0.038	0.014	0.006	0.035
Sample	2661	2661	2661	2661

Notes: These regressions underlie part of the mediation results in Tables 3 and 4, specifically each cell represents the effect of parental welfare participation on each mediator from estimates of Equation (2). Each regression includes the following control variables: sex, state of residence, whether they lived with both parents at age 14, and whether their mother was employed at age 14 and a constant. *, **, *** represents statistical significance at the 10, 5, and 1 percent levels respectively.

[a] The sample for obtaining an ATAR (university entrance rank) is conditional on high school completion.

[b] The sample for ATAR score is conditional on receiving a score.

Table B2. Multi-level mediation model results of the intergenerational correlation in welfare receipt – Extensive margin, Dropout.

	coeff	%	coeff	%	coeff	%	coeff	%
Panel A. Early educational experiences:	Num of schools		Num of houses		Suspended/Expelled		ADHD	
Intergenerational correlation	0.121***		0.117***		0.121***		0.121***	
	(0.017)		(0.017)		(0.017)		(0.017)	
Effect of parental welfare operating thorough:								
Mediator ($\alpha_3\gamma_1$)	0.006***	4.72	0.010***	8.93	0.011***	9.52	0.002	1.81
	(0.002)		(0.002)		(0.003)		(0.001)	
Mediator through dropout ($\alpha_4\delta_3\gamma_1$)	0.002***	1.43	0.003***	2.7	0.005***	4.12	0.001*	0.7
	(0.001)		(0.001)		(0.001)		(0.000)	
Dropout ($\alpha_4\delta_1$)	0.024***	19.68	0.022***	18.9	0.018***	14.93	0.025***	20.41
	(0.004)		(0.004)		(0.004)		(0.004)	
Direct effect of parental welfare (α_1)	0.090***	74.17	0.081***	69.47	0.086***	71.42	0.094***	77.08
	(0.016)		(0.016)		(0.016)		(0.016)	
Sample	3698		3650		3693		3690	
Panel B. Risky behavior mediators:	Smoker		Drug use		Delinquency		Pregnancy	
Intergenerational correlation	0.132***		0.131***		0.131***		0.130***	
	(0.019)		(0.019)		(0.019)		(0.019)	
Effect of parental welfare operating thorough:								
Mediator ($\alpha_3\gamma_1$)	0.011***	7.99	0.005***	3.89	0.011***	8.26	0.007***	5.57
	(0.003)		(0.002)		(0.003)		(0.003)	
Mediator through dropout ($\alpha_4\delta_3\gamma_1$)	0.004***	3.36	0.002***	1.61	0.005***	3.97	0.002***	1.64
	(0.001)		(0.001)		(0.001)		(0.001)	
Dropout ($\alpha_4\delta_1$)	0.017***	12.72	0.021***	15.73	0.017***	12.64	0.021***	16.46
	(0.004)		(0.005)		(0.004)		(0.005)	
Direct effect of parental welfare (α_1)	0.100***	75.93	0.103***	78.77	0.099***	75.13	0.100***	76.33
	(0.018)		(0.018)		(0.018)		(0.018)	
Sample	2749		2741		2741		2764	
Panel C. Parenting mediators:	Respectful		Monitoring		Lives independent		Financial support	
Intergenerational correlation	0.141***		0.141***		0.121***		0.121***	
	(0.019)		(0.019)		(0.017)		(0.017)	
Effect of parental welfare operating thorough:								
Mediator ($\alpha_3\gamma_1$)	0.000	0.29	0.003*	2.04	0.003**	2.46	0.003*	2.85
	(0.001)		(0.002)		(0.001)		(0.002)	
Mediator through dropout ($\alpha_4\delta_3\gamma_1$)	0.000	0.23	0.002***	1.21	0.001**	0.82	0.004***	3.11
	(0.000)		(0.001)		(0.000)		(0.001)	

	coeff	%	coeff	%	coeff	%	coeff	%
Dropout ($\alpha_4\delta_1$)	0.026***	18.35	0.024***	16.91	0.025***	20.34	0.022***	18.46
	(0.005)		(0.005)		(0.004)		(0.004)	
Direct effect of parental welfare (α_1)	0.114***	81.13	0.112***	79.84	0.093***	76.39	0.092***	75.58
	(0.019)		(0.019)		(0.016)		(0.016)	
Sample	2686		2686		3698		3698	
Panel D. Attitudes & LOC mediators:	Benefits too low		Govt's respons.		Ambition important		Locus of Control	
Intergenerational correlation	0.127***		0.123***		0.121***		0.132***	
	(0.017)		(0.017)		(0.017)		(0.019)	
Effect of parental welfare operating thorough:								
Mediator ($\alpha_3\gamma_1$)	0.007***	5.64	0.002	1.30	0.000	0.17	0.001	0.81
	(0.002)		(0.001)		(0.001)		(0.002)	
Mediator through dropout ($\alpha_4\delta_3\gamma_1$)	-0.000	-0.06	-0.000	-0.08	0.000	0.05	0.000	0.16
	(0.000)		(0.000)		(0.000)		(0.000)	
Dropout ($\alpha_4\delta_1$)	0.026***	20.59	0.029***	23.22	0.026***	21.78	0.025***	18.90
	(0.004)		(0.004)		(0.004)		(0.005)	
Direct effect of parental welfare (α_1)	0.094***	73.83	0.093***	75.57	0.094***	78.00	0.105***	80.14
	(0.017)		(0.017)		(0.016)		(0.018)	
Sample	3384		3522		3698		2749	
Panel E. Health mediators:	Depression		Health limits work		Obesity		Physical exercise	
Intergenerational correlation	0.121***		0.118***		0.117***		0.132***	
	(0.017)		(0.017)		(0.017)		(0.019)	
Effect of parental welfare operating thorough:								
Mediator ($\alpha_3\gamma_1$)	0.001	1.19	0.002	1.76	0.001	1.00	0.001	1.02
	(0.002)		(0.002)		(0.001)		(0.001)	
Mediator through dropout ($\alpha_4\delta_3\gamma_1$)	0.000	0.31	0.000	0.33	0.000	0.17	0.000	0.12
	(0.000)		(0.000)		(0.000)		(0.000)	
Dropout ($\alpha_4\delta_1$)	0.025***	20.38	0.024***	20.39	0.026***	22.06	0.026***	19.38
	(0.004)		(0.004)		(0.004)		(0.005)	
Direct effect of parental welfare (α_1)	0.095***	78.13	0.091***	77.51	0.090***	76.77	0.105***	79.47
	(0.016)		(0.016)		(0.017)		(0.018)	
Sample	3698		3676		3496		2747	

Notes: Results here underly Panel A of Figures 1-3. Results from multi-level mediation models, estimating Equations (4)-(6). Each regression controls for the youth's sex, state of residence, whether (at age 14) they lived with both parents at age 14 and whether (at age 14) their mother was employed. The direct effect plus the mediating effects equals 100 percent (subject to rounding). Standard errors presented in parentheses, for the mediating effects standard errors are bootstrapped (400 replications and sampled with replacement within sampling strata). *, **, *** represents statistical significance at the 10, 5, and 1 percent levels respectively.

Table B3. Multi-level mediation model results of the intergenerational correlation in welfare receipt – Intensive margin, Dropout.

	coeff	%	coeff	%	coeff	%	coeff	%
Panel A. Early educational experiences:	Num of schools		Num of houses		Suspended/Expelled		ADHD	
Intergenerational correlation	3.271***		3.255***		3.258***		3.309***	
	(0.522)		(0.520)		(0.522)		(0.521)	
Effect of parental welfare operating thorough:								
Mediator ($\alpha_3\gamma_1$)	0.212***	6.49	0.327***	10.05	0.391***	11.99	0.080*	2.43
	(0.070)		(0.083)		(0.086)		(0.048)	
Mediator through Dropout ($\alpha_4\delta_3\gamma_1$)	0.071***	2.17	0.127***	3.92	0.207***	6.35	0.035*	1.05
	(0.021)		(0.023)		(0.039)		(0.020)	
Dropout ($\alpha_4\delta_1$)	0.974***	29.77	0.893***	27.45	0.751***	23.04	1.014***	30.64
	(0.159)		(0.162)		(0.148)		(0.165)	
Direct effect of parental welfare (α_1)	2.014***	61.58	1.907***	58.58	1.910***	58.61	2.180***	65.88
	(0.500)		(0.500)		(0.499)		(0.499)	
Sample	3698		3650		3693		3690	
Panel B. Risky behavior mediators:	Smoker		Drug use		Delinquency		Pregnancy	
Intergenerational correlation	3.559***		3.549***		3.549***		3.546***	
	(0.589)		(0.591)		(0.591)		(0.589)	
Effect of parental welfare operating thorough:								
Mediator ($\alpha_3\gamma_1$)	0.354***	9.94	0.129**	3.64	0.387***	10.91	0.253***	7.14
	(0.099)		(0.057)		(0.104)		(0.094)	
Mediator through Dropout ($\alpha_4\delta_3\gamma_1$)	0.179***	5.04	0.086***	2.43	0.208***	5.85	0.085***	2.41
	(0.047)		(0.036)		(0.048)		(0.031)	
Dropout ($\alpha_4\delta_1$)	0.680***	19.09	0.843***	23.76	0.662***	18.64	0.857***	24.18
	(0.161)		(0.187)		(0.163)		(0.181)	
Direct effect of parental welfare (α_1)	2.346***	65.93	2.490***	70.17	2.292***	64.6	2.351***	66.28
	(0.557)		(0.563)		(0.561)		(0.556)	
Sample	2749		2741		2741		2764	
Panel C. Parenting mediators:	Respectful		Monitoring		Lives independent		Financial support	
Intergenerational correlation	3.650***		3.650***		3.271***		3.271***	
	(0.590)		(0.590)		(0.522)		(0.522)	
Effect of parental welfare operating thorough:								
Mediator ($\alpha_3\gamma_1$)	0.028	0.78	0.105**	2.88	0.118**	3.62	0.280***	8.56
	(0.030)		(0.053)		(0.055)		(0.077)	
Mediator through Dropout ($\alpha_4\delta_3\gamma_1$)	0.012	0.34	0.066***	1.82	0.040**	1.23	0.150***	4.59
	(0.012)		(0.026)		(0.018)		(0.030)	

	coeff	%	coeff	%	coeff	%	coeff	%
Dropout ($\alpha_4\delta_1$)	1.000***	27.41	0.927***	25.41	1.004***	30.68	0.892***	27.27
	(0.198)		(0.192)		(0.162)		(0.157)	
Direct effect of parental welfare (α_1)	2.609***	71.48	2.551***	69.9	2.109***	64.47	1.949***	59.58
	(0.565)		(0.565)		(0.499)		(0.502)	
Sample	2686		2686		3698		3698	
Panel D. Attitudes & LOC mediators:	Benefits too low		Govt's respons.		Ambition important		Locus of Control	
Intergenerational correlation	3.308***		3.234***		3.271***		3.539***	
	(0.537)		(0.525)		(0.522)		(0.588)	
Effect of parental welfare operating thorough:								
Mediator ($\alpha_3\gamma_1$)	0.172***	5.21	0.029	0.9	0.010	0.31	0.047	1.34
	(0.059)		(0.024)		(0.035)		(0.084)	
Mediator through Dropout ($\alpha_4\delta_3\gamma_1$)	-0.003	-0.09	-0.004	-0.13	0.002	0.07	0.008	0.23
	(0.011)		(0.006)		(0.008)		(0.015)	
Dropout ($\alpha_4\delta_1$)	1.059***	32.02	1.158***	35.8	1.072***	32.77	0.966***	27.3
	(0.178)		(0.170)		(0.166)		(0.177)	
Direct effect of parental welfare (α_1)	2.079***	62.86	2.051***	63.43	2.187***	66.85	2.518***	71.14
	(0.516)		(0.503)		(0.501)		(0.557)	
Sample	3384		3522		3698		2749	
Panel E. Health mediators:	Depression		Health limits work		Obesity		Physical exercise	
Intergenerational correlation	3.271***		3.156***		3.098***		3.510***	
	(0.522)		(0.519)		(0.516)		(0.587)	
Effect of parental welfare operating thorough:								
Mediator ($\alpha_3\gamma_1$)	0.051	1.55	0.092	2.92	0.049	1.58	0.033	0.95
	(0.063)		(0.085)		(0.039)		(0.033)	
Mediator through Dropout ($\alpha_4\delta_3\gamma_1$)	0.015	0.46	0.016	0.5	0.008	0.27	0.006	0.18
	(0.018)		(0.015)		(0.008)		(0.008)	
Dropout ($\alpha_4\delta_1$)	1.013***	30.98	0.961***	30.47	1.082***	34.93	0.994***	28.32
	(0.161)		(0.155)		(0.178)		(0.185)	
Direct effect of parental welfare (α_1)	2.192***	67	2.087***	66.12	1.959***	63.21	2.476***	70.55
	(0.498)		(0.493)		(0.497)		(0.562)	
Sample	3698		3676		3496		2747	

Notes: Youth outcome is total dollars of welfare ($'000). Results here underly Panel B of Figures 1-3. Results from multi-level mediation models, estimating Equations (4)-(6). Each regression controls for the youth's sex, state of residence, whether (at age 14) they lived with both parents at age 14 and whether (at age 14) their mother was employed. The direct effect plus the mediating effects equals 100 percent (subject to rounding). Standard errors presented in parentheses, for the mediating effects standard errors are bootstrapped (400 replications and sampled with replacement within sampling strata). *, **, *** represents statistical significance at the 10, 5, and 1 percent levels respectively.

Table B4. Multi-level mediation model results of the intergenerational correlation in welfare receipt – Extensive margin, ATAR score.

	coeff	%	coeff	%	coeff	%	coeff	%
Panel A. Early educational experiences:	Num of schools		Num of houses		Suspended/Expelled		ADHD	
Intergenerational correlation	0.083***		0.079***		0.083***		0.084***	
	(0.021)		(0.021)		(0.021)		(0.021)	
Effect of parental welfare operating thorough:								
Mediator ($\alpha_3\gamma_1$)	0.004	4.9	0.007**	8.29	0.002	1.88	0.000	.03
	(0.003)		(0.003)		(0.001)		(0.001)	
Mediator through ATAR score ($\alpha_4\delta_3\gamma_1$)	-0.000	-0.15	0.000	0.11	0.000	0.49	0.000	0.01
	(0.000)		(0.000)		(0.000)		(0.000)	
ATAR score ($\alpha_4\delta_1$)	0.005**	5.91	0.005**	5.95	0.004*	4.75	0.005**	5.65
	(0.002)		(0.002)		(0.002)		(0.002)	
Direct effect of parental welfare (α_1)	0.074***	89.34	0.067***	85.65	0.077***	92.88	0.079***	94.32
	(0.021)		(0.021)		(0.021)		(0.021)	
Sample	1785		1775		1784		1782	
Panel B. Risky behavior mediators:	Smoker		Drug use		Delinquency		Pregnancy	
Intergenerational correlation	0.078***		0.078***		0.078***		0.075***	
	(0.022)		(0.022)		(0.022)		(0.022)	
Effect of parental welfare operating thorough:								
Mediator ($\alpha_3\gamma_1$)	-0.000	-0.54	-0.001	-0.94	0.001	1.34	0.000	0.22
	(0.001)		(0.001)		(0.001)		(0.001)	
Mediator through ATAR score ($\alpha_4\delta_3\gamma_1$)	-0.000	-0.14	-0.000	-0.14	0.000	0.44	0.000	0.12
	(0.000)		(0.000)		(0.000)		(0.000)	
ATAR score ($\alpha_4\delta_1$)	0.004*	5.64	0.005*	5.78	0.004*	5.44	0.005*	6.01
	(0.002)		(0.002)		(0.002)		(0.002)	
Direct effect of parental welfare (α_1)	0.074***	95.04	0.075***	95.3	0.073***	92.78	0.070***	93.65
	(0.022)		(0.022)		(0.022)		(0.022)	
Sample	1476		1474		1474		1482	
Panel C. Parenting mediators:	Respectful		Monitoring		Lives independent		Financial support	
Intergenerational correlation	0.077***		0.077***		0.083***		0.083***	
	(0.022)		(0.022)		(0.021)		(0.021)	
Effect of parental welfare operating thorough:								
Mediator ($\alpha_3\gamma_1$)	0	0	0.001	1.59	0.004*	4.31	0.000	0.5
	(0.001)		(0.001)		(0.002)		(0.002)	
Mediator through ATAR score ($\alpha_4\delta_3\gamma_1$)	0	-0.01	0.000	0.13	-0.000	-0.3	0.000	0.31
	(0.000)		(0.000)		(0.000)		(0.000)	

	coeff	%	coeff	%	coeff	%	coeff	%
ATAR score ($\alpha_4\delta_1$)	0.005*	6.21	0.005*	6.02	0.005**	6.4	0.004**	5.36
	(0.003)		(0.002)		(0.002)		(0.002)	
Direct effect of parental welfare (α_1)	0.072***	93.79	0.071***	92.26	0.074***	89.59	0.078***	93.83
	(0.022)		(0.022)		(0.021)		(0.021)	
Sample	1455		1455		1785		1785	
Panel D. Attitudes & LOC mediators:	Benefits too low		Govt's respons.		Ambition important		Locus of Control	
Intergenerational correlation	0.092***		0.081***		0.083***		0.077***	
	(0.021)		(0.021)		(0.021)		(0.022)	
Effect of parental welfare operating thorough:								
Mediator ($\alpha_3\gamma_1$)	0.005**	5.75	0.003	3.12	-0.000	-0.21	0.000	0.23
	(0.003)		(0.002)		(0.001)		(0.001)	
Mediator through ATAR score ($\alpha_4\delta_3\gamma_1$)	-0.000	-0.27	-0.000	-0.32	-0.000	-0.05	0.000	0.02
	(0.000)		(0.000)		(0.000)		(0.000)	
ATAR score ($\alpha_4\delta_1$)	0.006**	6.57	0.004*	5.51	0.005**	5.7	0.005*	5.88
	(0.003)		(0.003)		(0.002)		(0.002)	
Direct effect of parental welfare (α_1)	0.081***	87.94	0.074***	91.7	0.079***	94.56	0.073***	93.87
	(0.021)		(0.021)		(0.021)		(0.022)	
Sample	1653		1730		1785		1477	
Panel E. Health mediators:	Depression		Health limits work		Obesity		Physical exercise	
Intergenerational correlation	0.083***		0.082***		0.082***		0.077***	
	(0.021)		(0.021)		(0.021)		(0.022)	
Effect of parental welfare operating thorough:								
Mediator ($\alpha_3\gamma_1$)	0.000	0.25	0.001	1.74	0.001	0.78	0.001	1.88
	(0.001)		(0.002)		(0.001)		(0.002)	
Mediator through ATAR score ($\alpha_4\delta_3\gamma_1$)	-0.000	0	0.000	0.02	0.000	0.2	-0.000	-0.14
	(0.000)		(0.000)		(0.000)		(0.000)	
ATAR score ($\alpha_4\delta_1$)	0.005**	5.7	0.005**	5.86	0.004**	4.95	0.005*	6.42
	(0.002)		(0.002)		(0.002)		(0.003)	
Direct effect of parental welfare (α_1)	0.078***	94.05	0.076***	92.37	0.077***	94.08	0.071***	91.83
	(0.021)		(0.021)		(0.021)		(0.022)	
Sample	1785		1781		1736		1477	

Notes: Results here underly Figure 5. Results from multi-level mediation models, estimating Equations (4)-(6), replacing dropout with ATAR score and conditioning on getting an ATAR score. Each regression controls for the youth's sex, state of residence, whether (at age 14) they lived with both parents at age 14 and whether (at age 14) their mother was employed. The direct effect plus the mediating effects equals 100 percent (subject to rounding). Standard errors presented in parentheses, for the mediating effects standard errors are bootstrapped (400 replications and sampled with replacement within sampling strata). *, **, *** represents statistical significance at the 10, 5, and 1 percent levels respectively.

Table B5. Multi-level mediation model results of the intergenerational correlation in welfare receipt – Intensive margin, ATAR score.

	coeff	%	coeff	%	coeff	%	coeff	%
Panel A. Early educational experiences:	Num of schools		Num of houses		Suspended/Expelled		ADHD	
Intergenerational correlation	1.279***		1.257***		1.281***		1.289***	
	(0.369)		(0.370)		(0.369)		(0.369)	
Effect of parental welfare operating thorough:								
Mediator ($\alpha_3\gamma_1$)	-0.007	-0.55	0.018	1.41	0.025	1.99	0.006	0.49
	(0.036)		(0.047)		(0.026)		(0.007)	
Mediator through ATAR score ($\alpha_4\delta_3\gamma_1$)	-0.004	-0.29	0.003	0.21	0.013	1.00	0.000	0.01
	(0.005)		(0.005)		(0.008)		(0.001)	
ATAR score ($\alpha_4\delta_1$)	0.146***	11.45	0.142***	11.30	0.124***	9.66	0.144***	11.17
	(0.060)		(0.057)		(0.052)		(0.059)	
Direct effect of parental welfare (α_1)	1.143***	89.40	1.094***	87.09	1.119***	87.35	1.138***	88.33
	(0.370)		(0.372)		(0.368)		(0.368)	
Sample	1785		1775		1784		1782	
Panel B. Risky behavior mediators:	Smoker		Drug use		Delinquency		Pregnancy	
Intergenerational correlation	1.231***		1.233***		1.233***		1.213***	
	(0.400)		(0.400)		(0.400)		(0.399)	
Effect of parental welfare operating thorough:								
Mediator ($\alpha_3\gamma_1$)	-0.004	-0.31	-0.005	-0.41	0.016	1.26	-0.011	-0.88
	(0.013)		(0.017)		(0.031)		(0.016)	
Mediator through ATAR score ($\alpha_4\delta_3\gamma_1$)	-0.003	-0.26	-0.003	-0.25	0.009	0.75	0.003	0.21
	(0.007)		(0.006)		(0.007)		(0.003)	
ATAR score ($\alpha_4\delta_1$)	0.127**	10.32	0.127*	10.27	0.114*	9.29	0.125**	10.30
	(0.063)		(0.066)		(0.064)		(0.061)	
Direct effect of parental welfare (α_1)	1.111***	90.25	1.114***	90.38	1.093***	88.70	1.096***	90.38
	(0.398)		(0.398)		(0.398)		(0.398)	
Sample	1476		1474		1474		1482	
Panel C. Parenting mediators:	Respectful		Monitoring		Lives independent		Financial support	
Intergenerational correlation	1.196***		1.196***		1.279***		1.279***	
	(0.398)		(0.398)		(0.369)		(0.369)	
Effect of parental welfare operating thorough:								
Mediator ($\alpha_3\gamma_1$)	0.004	0.31	0.002	0.19	0.068	5.34	0.033	2.56
	(0.014)		(0.025)		(0.044)		(0.042)	
Mediator through ATAR score ($\alpha_4\delta_3\gamma_1$)	-0.000	-0.01	0.003	0.23	-0.007*	-0.58	0.008	0.61
	(0.001)		(0.004)		(0.004)		(0.005)	

	coeff	%	coeff	%	coeff	%	coeff	%
ATAR score ($\alpha_4\delta_1$)	0.129**	10.79	0.126*	10.53	0.157***	12.25	0.134**	10.45
	(0.066)		(0.066)		(0.062)		(0.058)	
Direct effect of parental welfare (α_1)	1.063***	88.91	1.065***	89.05	1.061***	82.99	1.105***	86.39
	(0.396)		(0.396)		(0.367)		(0.369)	
Sample	1455		1455		1785		1785	
Panel D. Attitudes & LOC mediators:	Benefits too low		Govt's respons.		Ambition important		Locus of Control	
Intergenerational correlation	1.381***		1.257***		1.279***		1.227***	
	(0.392)		(0.373)		(0.369)		(0.400)	
Effect of parental welfare operating thorough:								
Mediator ($\alpha_3\gamma_1$)	0.069*	4.98	0.034	2.74	-0.015	-1.18	0.004	0.32
	(0.039)		(0.026)		(0.023)		(0.020)	
Mediator through ATAR score ($\alpha_4\delta_3\gamma_1$)	-0.007	-0.54	-0.008*	-0.66	-0.001	-0.10	0.001	0.04
	(0.005)		(0.005)		(0.002)		(0.002)	
ATAR score ($\alpha_4\delta_1$)	0.183***	13.23	0.144***	11.45	0.141***	11.05	0.126**	10.25
	(0.065)		(0.056)		(0.058)		(0.058)	
Direct effect of parental welfare (α_1)	1.137***	82.33	1.087***	86.48	1.154***	90.23	1.097***	89.39
	(0.392)		(0.373)		(0.367)		(0.397)	
Sample	1653		1730		1785		1477	
Panel E. Health mediators:	Depression		Health limits work		Obesity		Physical exercise	
Intergenerational correlation	1.279***		1.276***		1.209***		1.227***	
	(0.369)		(0.370)		(0.362)		(0.400)	
Effect of parental welfare operating thorough:								
Mediator ($\alpha_3\gamma_1$)	0.004	0.29	0.030	2.37	0.017	1.44	0.025	2.01
	(0.021)		(0.043)		(0.023)		(0.034)	
Mediator through ATAR score ($\alpha_4\delta_3\gamma_1$)	-0.000	0.00	0.001	0.05	0.004	0.35	-0.003	-0.23
	(0.001)		(0.001)		(0.004)		(0.004)	
ATAR score ($\alpha_4\delta_1$)	0.143***	11.18	0.143***	11.20	0.104**	8.64	0.135**	10.97
	(0.059)		(0.056)		(0.045)		(0.059)	
Direct effect of parental welfare (α_1)	1.132***	88.53	1.103***	86.38	1.083***	89.57	1.071***	87.25
	(0.367)		(0.367)		(0.361)		(0.397)	
Sample	1785		1781		1736		1477	

Notes: Youth outcome is total dollars of welfare ($'000). Results here underly Figure A1. Results from multi-level mediation models, estimating Equations (4)-(6), replacing dropout with ATAR score and conditioning on getting an ATAR score. Each regression controls for the youth's sex, state of residence, whether (at age 14) they lived with both parents at age 14 and whether (at age 14) their mother was employed. The direct effect plus the mediating effects equals 100 percent (subject to rounding). Standard errors presented in parentheses, for the mediating effects standard errors are bootstrapped (400 replications and sampled with replacement within sampling strata). *, **, *** represents statistical significance at the 10, 5, and 1 percent levels respectively.

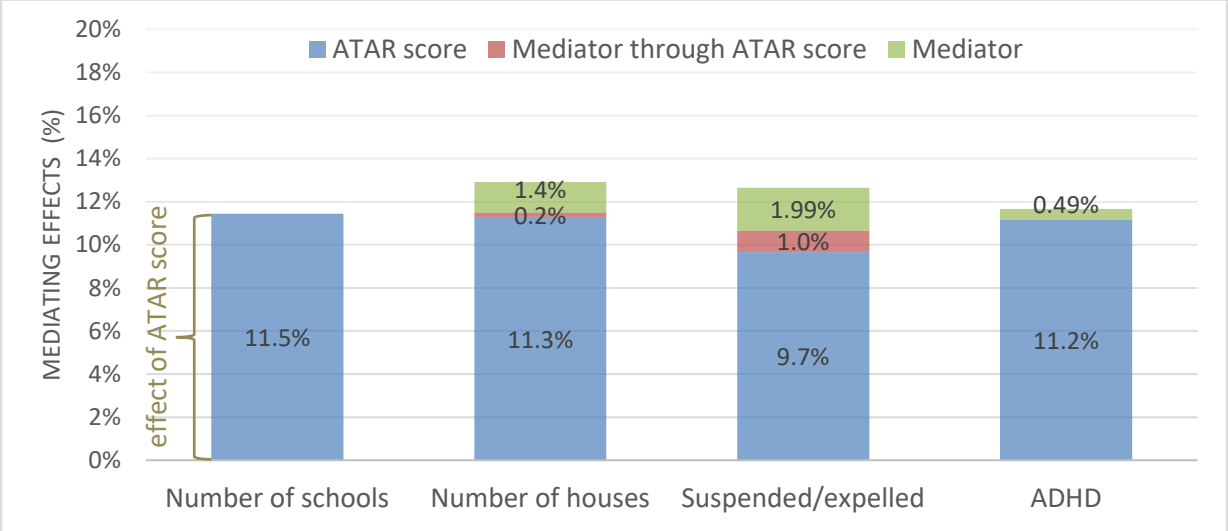
Table B6. Overview of the mediating role of specific risky behaviors on the intergenerational correlation between parental and youth welfare participation – Extensive margin.

	Overall (coeff)	Direct (coeff)	Mediating (coeff)	Mediating / Overall (%)	Sample
Conditional intergenerational correlation	0.120*** (0.0164)				3826
Risky behaviors‡	0.130*** (0.019)	0.104*** (0.018)	0.026*** (0.005)	19.7	2813
Smoker			0.009*** (0.003)	6.95	
Ever tried marijuana			-0.001 (0.001)	-0.48	
Tried marijuana before age 15			0.000 (0.000)	0	
Monthly marijuana use			0.003* (0.001)	1.92	
Used illicit drugs			-0.001 (0.001)	-0.58	
Alcohol problems			0.001 (0.001)	0.53	
Trouble with police			0.003 (0.002)	1.98	
Attended juvenile court			0.001 (0.001)	0.86	
Ran away from home			0.003* (0.002)	2.26	
Hangs with a bad crowd			0.001 (0.002)	0.81	
Pregnancy			0.007*** (0.002)	5.43	

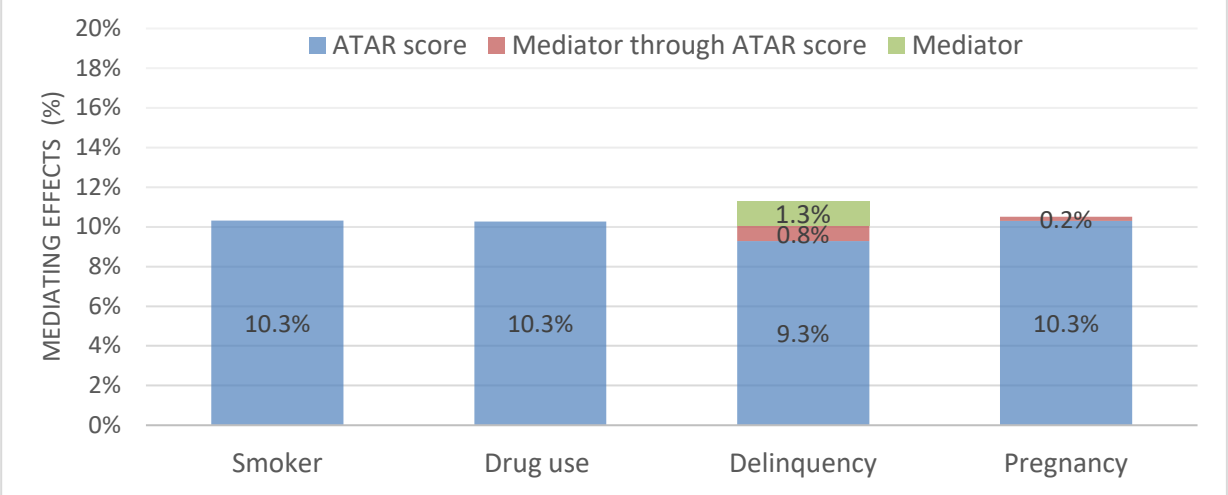
Notes: Regression estimates of the baseline model outlined in Equations (1)-(3) underly these results. Youth welfare receipt is captured by welfare participation over the ages 23-26. Each regression includes the following control variables: sex, state of residence, whether they lived with both parents at age 14, and whether their mother was employed at age 14. The direct plus mediating effect equals the overall effect coefficient (subject to rounding). Standard errors presented in parentheses, for the mediating effect standard errors are bootstrapped (400 replications and sampled with replacement within sampling strata). *, **, *** represents statistical significance at the 10, 5, and 1 percent levels respectively.

Figure B1. Mediating the intergenerational correlation between parental welfare participation and youth total dollars of welfare – Early-life experiences operating through ATAR score.

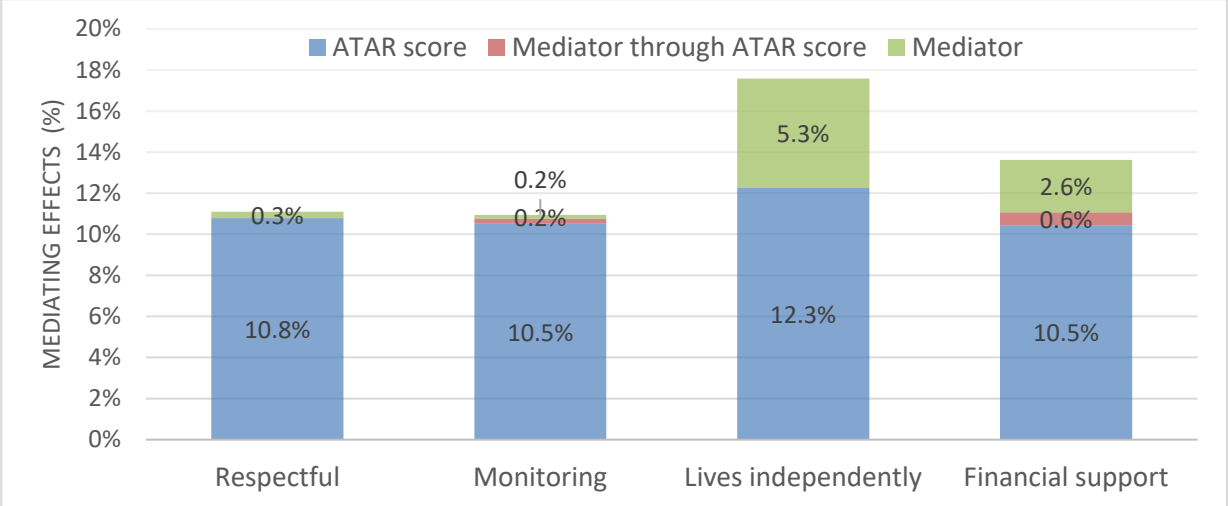
Panel A. Early educational experiences



Panel B. Risky behaviors



Panel C. Parenting practices



Notes: Mediation results are based on regression estimates of Equations (4)-(6), replacing dropout with the ATAR score. The direct effect of parental welfare participation on youth welfare participation is 100 minus the total indirect effect. Underlying results and statistical significance of the mediating effects are presented in Appendix Table B5.