

Does Employment During Adolescence Reduce Adult Welfare Participation?

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Abstract

This study is the first to use welfare participation to investigate the impact of working during adolescence on outcomes later in life. I use National Longitudinal Survey of Youth (NLSY) 1979 data to investigate the impact of early-life employment on both the welfare payment and probability of welfare participation in the respondents' 20s and 30s. I use a variety of model specifications, including random effect and Heckman selection models, to check the robustness of the results. The study shows that the impact is generated mainly from the hours worked during the ages of 17, 18 and 19. Working one extra full-time week per year between the ages of 17 and 19 reduces the probability of receiving welfare in the 20s by 8.2 per cent (2.5 percentage points) for females and 10.9 per cent (2 percentage points) for males.

Keywords: Adolescent employment, Welfare participation, Human capital

JEL: J01, J08, H53

1. Introduction

Previous research that has investigated the impact of working during adolescence on future outcomes has focused on the employment channel: after high school, adolescents start to work in the same companies where they held entry-level positions during their high-school years (Mortimer, 2003). Therefore, adolescent work experience matters for adult employment. However, with the decline in industry jobs, the character of adolescent employment has changed. Retail and service jobs are now most common for high-school students, and there is little expectation that these jobs will convert into an adult career. Increasingly, there is a lack of overlap between high-school employment and adult work. Consequently, the employment channel of youth employment declines in importance. In fact, the future wage premiums associated with working during the senior year of high school have declined dramatically over the past 20 years (Baum and Ruhm, 2014).

Studying two cohorts from the WWII and baby-boomer generation, Aronson *et al.* (1996) found that the differences between these two cohorts in the types of jobs held by adolescents matter less than the psychological growth obtained through adolescent work. This finding points toward a very different channel of adolescent work and adult labour market outcomes. What appears to matter for adolescents is not the experience gained in job-specific human capital, but exposure to an environment that is rather different from high school. Working allowed adolescents to gain self-confidence, self-sufficiency, discipline, motivation, accountability, interpersonal skills, and, most of all, responsibility (Aronson *et al.*, 1996); these psychological traits were found to be lower on average for people who are receiving welfare (Bruce and Waldman, 1991).

I argue that the development of these psychological traits, rather than any job-specific skills, is the key outcome of working during adolescence. I further suggest that participation in welfare programs later in life is driven by the same psychological dimensions. This study claims that welfare participation later in life is reduced by working during adolescence, as the various dimensions of psychological growth that Aronson *et al.* (1996) found are lower for welfare recipients (Bruce and Waldman, 1991).

This study is the first to use welfare participation to test the hypothesis that work in adolescence is beneficial in developing decision-making skills and discipline, which in turn lay the groundwork for accumulating human and social capital. The key hypothesis is that this capital will eventually work as a barrier to participation in welfare programs later in life.

Previous research used work during the years of high school as an outcome variable to estimate the impact of employment during adolescence. Therefore, the sample included only people who remained in high school through to graduation. This study measures the impact of employment during adolescence, using work between the ages of 17 and 19 as an outcome variable; this allows the sample to include subjects who did not graduate from high school. Including these subjects should increase the representativeness of the sample, as welfare recipients include a significant number of people who did not graduate from high school.

Using data from the National Longitudinal Survey of Youth (NLSY) 1979 and a variety of model specifications, including random effect and Heckman selection models, the study finds a negative impact of early-life work experience on the likelihood of participating in a welfare program later in life. In particular, working one extra full-time week per year between the ages of 17 and 19 reduces the probability of respondents receiving welfare in their 20s by 8.2 per cent (2.5 percentage points) for females and 10.9 per cent (2 percentage points) for males. There is no evidence of an impact on welfare receipts in the respondents' 30s.

This study has direct policy implications: it suggests that moderate employment during adolescence may be instrumental in accumulating social and human capital that can help to reduce welfare participation later in life.¹ Hence, implementing new policies that promote early work for youth to accumulate human capital and work experience, similar to the *Career Education Incentive Act (1977)* or *School-to-Work Opportunities Act (1994)*, would be beneficial, worth the investment and, to some extent, a partial remedy to the problem of welfare.

Section 2 of this paper provides a brief literature review, section 3 explains the data and discusses summary statistics, and section 4 presents the identification strategy and the problem of omitted variables. Section 5 interprets the regression estimates, section 6 checks for robustness of the baseline results, and section 7 provides conclusions.

2. Background

I assume that the take-up of welfare programs later in life indicates the impact of early-life employment on developing social and human capital. Central to this assumption is the fact that welfare enrolment is not automatic or by default. Applicants must fill out long application forms and go through lengthy procedures of income verification, interviews and, in some cases, third-party verification. For some programs, applicants are required to attend a series of meetings before they were permitted to sign their application forms (Andrews and Gabor, 2003).

Currie (2004) documented the take-up of a variety of programs. In 1994, only 69 per cent of eligible households participated in the Food Stamps Program, 75 per cent participated in the Women, Infants, and Children (WIC) Program, 87 per cent in the National School Lunch Program, between 8 and 14 per cent in the State Children's Health Insurance Program, and 15 per cent in the Child Care Subsidy Program. Blank (2001) estimated the take-up rates over time of Aid to Family with Dependent Children (AFDC) among families with female heads. The take-up rates ranged from 60 to 70 per cent when she used Current Population Survey (CPS) data, and 80 to 90 per cent when she used administrative data. Moffitt (2003) showed that Temporary Assistance for Needy Families (TANF) participation rates over time for poor single mothers was between 40 and 55 per cent.

1 The federal spending on welfare programs has reached \$370 billion in FY 2014. This includes \$60 billion on Earned Income Tax Credit (EITC), \$21 billion on Child Tax Credit, \$16 billion on Temporary Assistance for Needy Families (TANF), \$54 billion on Supplemental Security Income (SSI), \$70 billion on food stamps (currently known as SNAP), and \$47 billion on housing assistance.

Rational choice theory suggests that people will not take up welfare if the costs outweigh the benefits (Abell, 2003). The cost is increased by a person's sensitivity to stigma, and by a greater stock of responsibility, independence, self-esteem, and other positive psychological and personal aspects, characteristics which this paper suggests may be boosted by early-life employment. Blank and Ruggles (1996) and Daponte *et al.* (1999) showed that participation in AFDC and the Food Stamps Program increased with the size of the benefits people were eligible for, suggesting an existing influence of transaction costs and stigma. Furthermore, participation rates in WIC declined in response to the requirement for income documentation (Brien and Swann, 1997), more frequent visits to the WIC office (Bitler *et al.*, 2003), and the restriction of some types of food (Bonuck *et al.*, 2002). Self-selection also extends to housing assistance: Reeder (1985) found that the poorest households are less likely than their relatively better-off counterparts to live in public housing.

There is a lack of consensus among researchers about the impact of early-life employment on future outcomes, which is a piece of evidence that the employment trajectory does not fully capture the multidimensional impact of early-life work. While some research has concluded that early-life employment has a positive effect on future wages and job stability, other research has concluded that it promotes pseudo-maturity, lack of adequate investment in human capital, and usage of alcohol and drugs that leave individuals with negative effects for their future income.

Low wages are correlated with, but not endogenous to, welfare participation. Larner and Page (1997) argued that movement in and out of a welfare program is determined more by changes in family structure than by fluctuations in income. They found that, in 1983, 45 per cent of new welfare recipients had recently divorced or separated, and another 30 per cent were unmarried new mothers. Only 15 per cent of new AFDC recipients enrolled because the family's earnings had decreased. Conversely, families left AFDC when they married or when the youngest child turned 18. Of people who left AFDC, less than half did so because they became employed.

Low wages do not necessitate welfare participation. For example, an individual earning the minimum wage would be less likely to qualify for a welfare program if he/she works two jobs or has fewer children. Furthermore, mothers who show a sense of independence often work while raising their children. Aronson (1998) investigated young women's transitions from adolescence to adulthood, and argued that women who appreciate their independence, self-reliance, freedom, equality, and self-fulfillment are more likely to combine work with motherhood.

Therefore, this study suggests that welfare participation is influenced by many of the psychological traits that are outcomes of working during adolescence; furthermore, that these traits also affect welfare participation through take-up and family structure.

Investigations into the impact of work during adolescence on educational attainment and employment outcomes has mixed results. Surprisingly, some research found that the impact is negative on educational attainment yet positive on adult employment. Brody *et al.* (1996) found a positive impact of working during high school on employment a decade later, if the individual obtained a bachelor's degree after school; however, they found a negative impact on educational attainment for

people who worked during high school. Greenberg *et al.* (1982) considered the impacts of working during high school in 10th and 11th graders in southern California, and found a negative impact on educational achievement and increased delinquency, yet a positive impact on knowledge of business. Other research has found an improvement in academic achievement in response to working a moderate number of hours during high school (Turner, 1996), working less than 20 hours per week (Steel, 1991; D'Amico, 1984; McCartin *et al.*, 1985), and working between one and ten work hours per week for vocational high-schoolers (Lillydahl, 1990). Stephenson (1981), using NLSY data for interviews with young men between 1966 and 1971, found a positive impact of full-time employment during high school. Other research identified a positive impact of working during high school on academic performance and future employment in the form of lower unemployment rates and higher wages (Stern and Nakata, 1989). Baum and Ruhm (2014) found a positive impact among women of working during high school on subsequent employment for the five to 11 years after high-school graduation; after this, there was a dramatic decline.

Some research has also shown evidence of a negative impact of early employment on educational attainment. Singh (1998), using NLSY data, found a significant negative impact on standardised test scores for math, English, science, and social studies; he also found an increase in the likelihood of receiving lower grades, even if the high-schooler only worked part time. In his study on 2000 high-school students from upstate New York, Barone (1993) identified a small negative effect of employment during high school on Grade Point Average (GPA).

In addition to the impact of working in early life on educational attainment and future employment, there is also substantial literature on the impact of early-life work on the development of human and social capital. Early-life part-time employment is crucial in developing responsible adolescents (Greenberger, 1988). Early-life employment promotes autonomy and financial awareness and increases responsibility, maturity, and self-confidence (Mihalic and Elliott, 1997). Hareven (1982) observed independence and self-recognition in working adolescents as a result of gaining privileges like staying out late (for boys) or putting up hair (for girls). Moreover, even if the teenagers turn their earnings over to their parents, they are still able to buy a new suit or a new dress. Adolescents in the Great Depression era, who contributed to their families through paid work, gained confidence and feelings of efficacy from being able to help at a time of crisis (Elder, 1999). Mortimer and Finch (1986), Mortimer (2003), and Steel (1991) found that working during high school has a positive impact on self-reliance, self-image, time management skills, related control orientation, identity, perseverance, and confidence in being able to achieve economic goals. Holland and Andre (1987) find that early-life work is associated with the total development of students and promotes a transition from adolescence to adulthood. Early-life work also provides the opportunity to obtain social capital, which is important for building networks and relationships for social support (Coleman, 1990).

This study extends the literature by analysing the impacts of early-life work experience on future outcomes, using welfare participation as the outcome variable. The results suggest that such an impact is implemented through socialisation and psychological development, which promote self-esteem, responsibility, sensitivity to

stigma, and skills of judgment and decision making. I argue that moderate exposure to the work environment at a young age, specifically at ages 17, 18 and 19, is beneficial, in that it develops psychological traits, social capital and human capital. These skills promote discipline and improve decision making, resulting in a reduction in welfare participation.

3. Data

Data are from the National Longitudinal Survey of Youth (NLSY) 1979, a US nationally representative sample of 12,686 men and women who were between the ages of 14 and 22 when first surveyed in 1979. These individuals were surveyed annually until 1994 and biannually after 1994. The survey includes detailed questions on educational attainment, high-school test scores, Armed Forces Qualification Test (AFQT) scores, Armed Services Vocational Aptitude Battery (ASVAB) test scores, income and assets, number of children, alcohol and substance abuse, parental information, sexual activity, and marital and fertility histories. Additional labour force data includes hours worked, earnings, occupation, industry, benefits, and other specific job characteristics.

The key explanatory variable is the number of full-time (40 hour) weeks worked per year from age 17 to 19. This variable is calculated by collecting the hours worked for each individual in early life, calculating the average by dividing the work hours by the number of years worked, then dividing the quotient by 40 (the number of hours in a full-time working week). The average number of full-time working weeks per year in early life is 16.50 weeks; a typical female worked 14.75 full-time working weeks per year, compared with 18.00 for a male. The NLSY data also includes the number of weeks an individual worked since the last interview, regardless of the number of hours worked in the weeks. These data are used in the robustness check; the average number of weeks an individual worked in early life was 23 weeks per calendar year.

Welfare data were surveyed by asking the individual whether he/she or a spouse received income from food stamps, AFDC, Supplemental Security Income (SSI), TANF, rent subsidy, or any other public assistance. Data include the average amount of welfare received in the calendar year, and the months they were received, since the last interview. NLSY data on welfare participation are used to extract the key outcome variable, which is the total welfare received. Total welfare received consists of the amount of AFDC, food stamps, SSI, or any other public assistance/welfare the individual received during the calendar year, excluding unemployment compensation. For the sake of robustness, I use food stamps and AFDC instead of total welfare receipts to measure the effect on two of the main components that comprise total welfare receipts. To calculate the probability of welfare participation, I create a binary variable that equals one if the respondent receives any welfare assistance during the calendar year and zero otherwise. After adding all the covariates and considering missing values, the final sample consists of 1,527 respondents. Of those, 366 individuals received welfare in their 20s and 340 received welfare in their 30s.

Table 1 displays a wide set of variables which the analyses used to control for the variation across individuals; these variables represent demographic characteristics, cognitive ability, various aspects of individual characteristics, and family background.

The data show that more people in the sample received welfare in their 20s than in their 30s. That could be partially explained by the passage of the *Personal Responsibility and Work Opportunity Reconciliation Act (1996)* (PRWORA) at a time when respondents in the sample were nearing the age of 30, or by the economic boom in the late 1990s, or by a combination of both of these factors. Moreover, the probability of receiving welfare was higher in the second half of the respondents' 20s than in the first half. Respondents who worked more hours in their early life received fewer welfare payments in their 20s (Fig. 1); this negative correlation persisted, albeit weaker, in their 30s (Fig. 2).

On average, females received greater sums of welfare than males. In the sample, 30 per cent of the females and 18 per cent of the males received welfare payments in their 20s, with an average of \$4,157 per year for females and \$4,855 per year for males. Fewer respondents received welfare in their 30s: 18 per cent of females in their 30s received welfare, with an average receipt of \$4,011 per year, compared with 11 per cent of males with an average receipt of \$3,705 per year.

In every age group, the average male worked more hours and more weeks than the average female. A 19-year old male worked an average of 31 full-time working weeks, whereas a 19-year old female worked an average of 25 full-time working weeks. Most respondents who graduated from high school when they were 18 years old. In the sample, 61 per cent of high-school graduates graduated at the age of 19 or earlier; more than half of those graduated from high school at the age of 18.

Table 2 shows the percentage of welfare participants and welfare payments by age group, gender, and early-life full-time working weeks. In general, males tended to work more hours than females; for all age groups, a higher percentage of males worked more than 20 full-time working weeks, while a higher percentage of females did not work (i.e., zero working weeks). Females were more likely to receive welfare, and on average they received greater welfare payments than their male counterparts. Table 2 presents an insight into the positive role that early-life employment plays in reducing the likelihood of receiving welfare, and the sums of welfare payments received. In the age group 17–19, an increase in the number of full-time working weeks lowered the percentage of respondents who received welfare in their 20s. Furthermore, the level of payments declined significantly with the number of full-time working weeks.

Table 3 shows summary statistics for some of the covariates. Females comprise 48 per cent of the final sample. Ninety-four per cent of the individuals in the sample graduated from high school, 38 per cent postgraduate degrees, 24 per cent bachelor degrees, and only seven per cent obtained a graduate degree. Approximately the same percentage of females and males graduated from high school, yet more females than males attained postgraduate, bachelor, and graduate degrees. Nine per cent of the sample received welfare before the age of 18. This applies to more females than males.

4. Methodology

I use a variety of model specifications, including ordinary least square (OLS), probit, random effect, and Heckman selection models. The basic model controls for a wide set of covariates that represent demographics, personal characteristics, proxies for cognitive ability, and family background. The basic equation is:

$$y_{it} = \alpha h_i + \beta h_i^2 + \gamma x_{it} + \epsilon_{it}$$

where y_{it} is the outcome variable, which is welfare receipts for individual i at time t . Each t represents a calendar year from 1979 to 2012. The welfare payments are those received by respondents while in their 20s or 30s. The key explanatory variable h is the average number of full-time working weeks an individual worked in early life. Respondents who were 17 years old by 1979 were interviewed in 1980; the number of hours they reported in 1980 represents the number of hours they worked at the age of 17. Likewise, the number of hours that they reported in 1981 to have worked since the last interview represents the number of hours they worked at the age of 18, and so on. A variable of squared hours is added to the regression to allow for a nonlinear impact of the early-life work on welfare participation. A set of controls for demographics, personal characteristics, cognitive ability, and family background for individual i at time t is represented by x_{it} . The error term is ϵ_{it} . The coefficients of interest are α and β ; the standard error for each parameter is reported separately. The probability (P value) for the hypothesis that both parameters α and β are equal to zero is reported using an F-test or a likelihood ratio test.

Family and individual characteristics that we are unable to observe in the data could affect both early-life employment and future welfare participation. A family that fosters responsibility and self-dependence would positively affect their children's early-life employment and welfare participation in the future, causing upward bias, leading to a greater effect for early-life employment. An individual with a family background of poverty is expected to work more hours in his/her early life and is more likely to receive welfare in the future; that would cause a downwardly biased result. An individual's distaste for school or preference to work could also bias the results. I use a wide set of covariates to control for the variation across the respondents. These variables represent demographic characteristics, cognitive ability, various aspects of individual characteristics, and family background (Table 1). I also use random effect and Heckman selection models to minimise the bias and to check the robustness of the results.

5. Estimation Results

The results in Table 4 show a negative effect of working during adolescence on welfare receipts when respondents are in their 20s. This result is robust across a variety of specifications. The effect becomes smaller as one moves from model (a), with no controls, to the full model (e), in which covariates for demographic, personal characteristics, cognitive ability, and family background are included. For the average male who worked 18 full-time working weeks per year during adolescence, working

one extra full-time working week per year results in a reduction in welfare receipts in his 20s of \$23 ($-46.77+2*0.66*18$); this is a reduction of 11 per cent from the average welfare receipts for a male in his 20s of \$209. The impact on the welfare receipt for females in their 20s was statistically insignificant. The reduction in the average welfare received per year by a female in her 30s is \$19 ($-56.03+2*1.25*14.8$); this is a reduction of 6.6 per cent from the average welfare receipts for a female in her 30s of \$288. The impact is statistically insignificant for males in their 30s. A dwindling effect in the respondents' 30s could be partially explained by the passage of the PRWORA in 1996 (when the respondents in the sample were nearing 30 years of age), or by the economic boom in the late 1990s, or by a combination of both. However, investigating these issues is beyond the scope of this paper.

The diminishing marginal impact for early-life employment is evident in the literature, e.g., D'Amico (1984), Turner (1996), Lillydahl (1990), McCartin *et al.* (1985), and Steel (1991). This study makes a comparable finding, as welfare receipts declined in response to an increase in the hours worked during adolescence, until the number of full-time working weeks per year reaches the threshold of 35 ($46.77/(2*0.66)$) for males and 22 for females.

There were no significant effects from working at the ages of 14, 15, and 16; therefore, I only present the results from working during the ages of 17, 18, and 19 (Table 5) and from working during sophomore, junior, and senior years of high school. Working at the ages of 18 and 19 has a significant impact on the welfare receipts for male respondents in their 20s, causing an average reduction of \$10.60 and \$17.00 per year, respectively. Working one extra full-time week at the age of 18 reduces the welfare payments for females in their 20s by \$9.00. Breaking down the impact of hours worked by age or high-school year shows no evidence of an effect of these on the welfare received by either males or females in their 30s (Table 5). Fifty-two per cent of the respondents in the final sample graduated from high school at or before the age of 19; another 39 per cent graduated from high school after the age of 19, while they were already working. This reduces the variation and contributes to the lack of a significant impact of hours worked as a function of high-school year on welfare participation.

Table 6 shows the results from probit regressions. The dependent variable is dichotomous: it equals one when the respondent receives a welfare payment in a specific year and zero otherwise. The results of the probability model in Table 6 are comparable to those of the OLS results in Tables 4 and 5. Working in early life reduces the likelihood of males receiving welfare in their 20s. The impact is statistically significant across all specifications. For an average male, working an extra full-time working week per year in early life reduces the likelihood of receiving welfare by 4.2 and 4.0 percentage points when they are in their 20s and 30s, respectively. The likelihood of receiving welfare for men is highly affected by working at the age of 19. For males, working an extra working week at the age of 17, 18, and 19 reduces the probability of welfare participation in their 20s by 2.1, 1.9, and 2.2 percentage points, respectively. The impact is statistically significant for females in their 30s: working an extra full-time working week per year in early life reduces the probability of receiving welfare by 5.6 percentage points, a finding that is comparable to the OLS results in Table 4.

The results of this study are consistent with the hypothesis that working during adolescence develops discipline and psychological barriers that limit people from participating in public assistance programs later in life. However, the data do not allow the analysis to investigate the characteristics in which the development occurred; furthermore, investigating these psychological aspects is beyond the scope of this study. Another limitation of this study is the use of US data, which represent only the US population; this shortcoming restricts the scope to generalise from the findings. Future research will consider using data from a variety of countries.

6. Robustness Check

In order to check the robustness of the results, I use a variety of model specifications, including random effect and Heckman selection models. Furthermore, I estimate the impact of working during adolescence on two of the most important components of welfare in the US: food stamps and AFDC. The study also employs the number of working weeks during adolescence, instead of the number of full-time working weeks. An instrumental variables approach was attempted, but finding strong instruments in the data set was a challenge; nevertheless, the results that were obtained by using the available instruments supported the conclusion of the other models.

Selection Bias

Not everyone who is eligible for welfare chooses to receive it; therefore, welfare participation is not observed for all who are eligible. Individuals vary in their perception of the costs and benefits of participating in a welfare program. Factors like sensitivity to stigma, responsibility, self-esteem, self-recognition, and other psychological and personality characteristics affect peoples' decision of whether to participate. Therefore, they may choose not to take up benefits even if they are eligible. I use the Heckman selection model to treat the selection bias caused by welfare take-up and to account for the unobserved eligible participants who opt not to participate. The selection is the choice of whether to receive welfare in their 20s. A probit regression that includes three covariates that predict welfare participation was first conducted. These three predictors are excluded from the second regression.

The three covariates predicting the probability of receiving welfare are: (a) Expected work in which individuals were asked in the first survey whether they want to work, marry, raise a family, or other before age 35. (b) Rosenberg score: individuals were to respond to specific types of questions about self-esteem in the 1980 survey, such as 'I am a person of worth.' Responses were scored from 0 to 34 and grouped into seven categories based on their scores. (c) The reason the person left school (see Table 1 section 2 - Individual Characteristics).

The inverse Mills ratio is calculated from the first probit regression and incorporated as a covariate to the second OLS regression.² The outcome variable in the first regression is a binary variable indicating whether the respondent did or did not receive welfare payments in a particular year. The inverse Mills ratio coefficient indicates the selection effect on welfare participation. A statistically significant positive coefficient implies that the parameter estimates from the reduced-form models, which do not control for the endogenous selection, are upward biased.

Table 7 shows results of various regressions using OLS and the Heckman selection model. For robustness, food stamp payments and AFDC are used in addition to the total welfare payment. The AFDC program was replaced by TANF in the act of 1996; however, available data on AFDC made it possible to take a further look at the impact on various welfare components. The insignificant effect on AFDC is explained by attempts by the states of the US to substitute the AFDC, which is only 50 per cent funded by the federal government, with the food stamp program, which is fully funded by the federal government. Because it was fully funded by the federal government, the food stamp system was a disincentive for states to increase their AFDC contributions. Consequently, states imposed a higher income threshold to qualify for AFDC than for food stamps.

The results of the Heckman selection model in Table 7 show a larger effect of early-life work on welfare participation in the future, because the model accounts for those who choose not to participate due to stigma or other cost elements that outweigh the benefits. This finding conforms to the take-up argument in the literature. Working one extra full-time working week per year in early life reduces the total annual welfare payment and food stamps received by the respondents in their 20s by \$22.30 and \$5.00, respectively. The Heckman selection model shows a larger effect than the OLS model: working an extra full-time working week is associated with a reduction of \$34.50 and \$12.80 for welfare and food stamps payments per year, respectively. While the effect on AFDC payment is statistically insignificant using the OLS model, accounting for the selection bias shows a yearly reduction of \$14.00.

Working at the age of 18 leads to the largest reduction in both welfare receipt and food stamps. The impact on welfare receipt is a reduction of \$12.50 using OLS, and \$19.70 using the Heckman selection model; for food stamps receipts, the reduction is \$2.30 using OLS, and \$6.30 using the Heckman selection model. Working at the ages of 17 and 19 also has a statistically significant effect on welfare receipts, with reductions of \$11.00 and \$10.00 respectively using OLS, and a reduction of \$15.50 for both ages using the Heckman model. Food stamp receipts are also affected by working between the ages of 17 and 19. For people working at the ages of 17 and 19, the Heckman selection model indicates that one extra full-time working week caused a reduction in receipt of food stamps by \$5.10 and \$5.80, respectively. The effect on

² The inverse Mills ratio (IMR) is $\varphi(p) / \Phi(p)$ where $\varphi(p)$ is the standard normal density function, and $\Phi(p)$ is the cumulative density function of the fitted values of the first probit regression. The IMR from the first regression was used as a covariate in the second regression. The IMR in the second probit regression produced statistically significant coefficients (Tables 7 and 9), which indicates the presence of selection bias. The three variables that are used to predict the probabilities in the first model are excluded from the second model. For further information, see Heckman & Vytlacil (2003) and Genton & Marchenko (2012).

AFDC is only statistically significant for work at the age of 18, with the Heckman model showing a reduction of \$8.00 in the AFDC receipts per year.

Using the Heckman selection model, the study accounts for subjects who were eligible yet chose not to participate in a welfare program. As expected, accounting for these people produced a higher effect. The model successfully predicts welfare participation through early-life psychological characteristics, providing evidence that sensitivity to stigma and other psychological traits influence the take-up rate of welfare programs.

Random Effect

To minimise the possible endogeneity between working in early life and welfare participation later in life, I use a large number of controls for individual characteristics and family background. However, to guard against spurious results, this study employs a random effect model. An individual-specific random variable that is uncorrelated with the explanatory variables is incorporated in the model.

The analysis in Table 8 uses a narrower age window in a random effect structure. The random effect models in Table 8 include only the full-time working weeks between the ages of 17 and 19. The results in Table 8 are comparable to the OLS results in Table 4; nevertheless, using a random effect approach that restricts the working age to between 17 and 19 produces a smaller yet statistically significant impact. Working one extra full-time working week per year in early life reduces the welfare payments received by the respondents in their 20s by \$19.10 for females and \$6.00 for males. The impact on welfare payments in their 30s was statistically insignificant for both males and females. Working one extra full-time working week per year in early life reduces the likelihood of respondents receiving welfare payments in their 20s by 2.5 and 2 percentage points for females and males, respectively.

Table 9 summarises the results of OLS, Heckman, and random effect models and presents them in dollar terms. The results for OLS have been previously discussed (Table 4): working one extra full-time working week per year in early life reduces welfare payments received by the respondents in their 20s by \$20.00 for females and \$22.80 for males. The Heckman selection model yields larger coefficients, as it accounts for subjects who were eligible yet did not participate in a welfare program. Using the Heckman selection model yields an insignificant impact for respondents in their 30s; however, working an extra full-time working week in early life reduces welfare payments in their 20s by \$22.00 and \$39.00 per year for females and males, respectively.

Using the random effect model to eliminate a possible remaining endogeneity yields smaller impacts on welfare received by respondents in their 20s and a statistically insignificant impact for respondents in their 30s; however, the results confirm the negative association between working during adolescence and the welfare received in later life.

For robustness, I use the average number of working weeks per year in early life, instead of the average worked hours, as a key dependent variable. Table 10 shows the impact of the number of working weeks on the welfare payments received by respondents in their 20s and 30s regardless of the number of hours worked per week. The results are consistent with the findings in Table 4, in which full-time working weeks are used as the outcome variable. The effect is highly significant for males in their 20s and insignificant for females in their 20s: for males, working an extra week per year in early life reduces the likelihood of receiving welfare payments in their 20s by 4.3 percentage points. Table 11 summarises the results in terms of dollars, percentage points, and percentage change.

7. Conclusion

Previous research has used educational and employment channels to estimate the impact of adolescents' employment on later life. However, this study highlights the shortcoming of using these channels and instead uses welfare participation as a future outcome to estimate the impact of early employment.

Using data from the National Longitudinal Survey of Youth (NLSY) 1979, and a variety of model specifications, including random effect and Heckman selection models, this study finds a significant impact of early-life work on welfare participation later in life. This impact is generated mainly from working at the ages of 17, 18 and 19, with the greatest effect arising from working at the age of 17. Working one extra full-time working week per year between the ages of 17 and 19 reduces the probability of receiving welfare by 2.5 percentage points for females and 2 percentage points for males in their 20s. There is also a reduction in the welfare received in the respondents' 20s of 7.5 and 2.2 per cent for females and males, respectively. The impact is economically and statistically insignificant in the 30s for both females and males.

This study provides evidence that work in adolescence is constructive in that it reduces the likelihood of future participation in a welfare program and the amount of welfare received. The study also suggests that this effect occurs through increasing the stock of human and social capital, which develops psychological barriers that promote discipline from participating in public assistance programs. Using the Heckman selection model, the study accounts for subjects who were eligible yet did not participate in a welfare program. The model successfully predicts welfare participation through early-life psychological characteristics, and provides evidence that sensitivity to stigma and other psychological traits influence the take-up rate of welfare programs.

By looking at the full-time working weeks reported based on the age of the respondent instead of high-school completion, this study is able to include both high-school graduates and subjects who did not graduate from high school. This increases the representativeness of the sample and addresses a problem not taken into consideration in previous research. Therefore, the analysis suggests that programs should be implemented that encourage students to work moderately during high school and college to develop human capital, social capital, and constructive personal characteristics.

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Table 1: Summary of the Covariates

<i>Variables</i>	<i>Description</i>
1-Demographics	
Gender	Male/Female
Ethnicity	Black/Hispanic/White
Region	West/South/Northeast/Northeast
Age	The age of the respondent, 14 years old in 1979
U.S Born	Whether or not the respondent is born in the United States
U.S Citizen	Whether or not the respondent is a U.S citizen
Urban	Whether or not the respondent lives in an urban area
2-Individual Characteristics	
Rotter Scale	The respondents were asked questions during the first survey in 1979 to show their outlook towards life, their attitude towards work, and their determination towards achieving their goals. Respondents were asked questions such as what they think of the role of luck in their life or if they were able to make their plans work. Respondents are divided into four groups based on their score on the Rotter scale, 1 to 4, 5 to 9, 10 to 14, and 15 to 19.
Drug Usage	This variable represents the number of times the respondent used cocaine; it ranges from 0 to 7 times.
Reason Left School	Respondents were divided into 8 groups. The base group is respondents who left school for graduation. Other groups include those who left school for reasons of pregnancy or marriage, distaste for school or poor grades, home responsibility, choosing to work, financial difficulty, military service, being expelled or suspended, the respondent considering school to be too dangerous, and other reasons.
Number of Spouses	This variable is the number of spouses/partners the respondent has ever had.
Married	This variable looks at whether or not the respondent is currently married.
Number of Children	This variable identifies the number of biological and adopted children in the household if any.
High School Club	This variable looks at whether or not the respondent participated in high school clubs.
Occupation Aspiration	In the first survey given in 1979, respondents were to choose what kind of work they would like to do at the age of 35. This variable includes 13 categories which represent different types of occupations which in turn control for a variety of personal characteristics. Categories include (I) professional, technical and kindred, (II) managers, officials and proprietors, (III) sales workers, (IV) clerical and kindred, (V) craftsmen, foremen and kindred, (VI) armed forces, (VII) operatives and kindred, (VIII) laborers except farm, (IX) farmers and farm managers, (X) farm laborers and foreman, (XI) service workers except private household, (XII) private household, and (XIII) none or don't want to work.

Table 1: Summary of the Covariates (continued)

Rosenberg Score	Individuals were to respond to specific types of questions about self-esteem in the 1980 survey such as 'I am a person of worth'. Responses were scored from 0 to 34 and grouped into 7 categories.
Number of Children Expected	Respondents were asked about the number of children they would like to have in the future.
Highest Grade Expected	Respondents were asked about the highest grade they expect to attain in the future.
Short Run Work Expectation	Respondents were asked whether or not they would like to work in the next five years.
Age at the First Illegal Activity Conviction	*In the initial Analysis, the previous individual characteristics data was collected in the first and second interviews when the respondents were 14 and 15 years old, creating an opportunity to control for early life characteristics. The minimum age at the first conviction was 9 years old while the maximum was 23. I divided the variable into 3 categories: whether or not the respondent was first convicted at or under the age of 18, above the age of 18, and the base category where the respondent was never convicted.
3-Cognitive Ability	
Test Scores	Test scores for 20 various courses were collected from high school transcripts. I calculated the standardized scores for each course to reduce variation across schools and regions.
Education Attainment	Dummy variables equal 1 when the respondent obtained a degree, such as high school, postgraduate degree, bachelor degree, and a master degree and up.
Age of High School Graduation	The age a respondent graduated from high school is represented by five binary variables: a binary for each group of age 15, 16, 17, 18, and 19.
4-Family Background	
Welfare Background	This variable investigates whether or not the respondent received welfare payment when he/she was at or less than 18 years old. Using welfare background as a covariate controls for the parents' financial status as data on the parents' income was unavailable. Also welfare background is expected to impact welfare participation in the future.
Language Spoken at Home	This variable looks at if another language other than English was spoken at home. The data includes four categories Spanish, French, German, and others.
Library Card	A dummy variable equals one if any of the household members have had a library card at the age of 14.
Mother's Highest Grade	This variable looks at the mother's highest grade completed.
Number of Siblings	This variable is the number of siblings the respondent has.

Table 2: Welfare Outcome by Age, Gender, and Early Life Full-Time Working Weeks

Age	Full-Time Working Weeks	Percentage of Respondents		Percentage of Respondents Received Welfare in their Twenties		Percentage of Respondents Received Welfare in their Thirties		Welfare receipts in their twenties (Dollars per year)		Welfare receipts in their thirties (Dollars per year)	
		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
17 years old	0	21	28	37	54	23	31	617	1369	359	844
	1-10	22	21	21	39	12	20	207	799	190	448
	11-20	20	20	17	22	13	11	145	330	231	207
	>20	35	30	18	22	11	11	103	386	205	271
18 years old	0	14	21	33	61	23	39	519	1741	621	1153
	1-10	17	21	34	37	17	18	368	835	226	407
	11-20	16	18	18	28	8	9	127	366	115	243
	>20	51	40	17	23	12	12	166	309	174	215
19 years old	0	14	16	31	66	21	38	550	2104	433	1077
	1-10	11	13	24	37	15	22	156	723	338	678
	11-20	13	16	25	32	13	13	489	712	330	527
	>20	63	53	20	26	13	14	149	338	163	217

Note: Welfare receipts are the average amount of welfare payments a respondent received per year in his/her twenties/ thirties.

Table 3: Summary Statistics

<i>Variable</i>	<i>Sample</i>	<i>Female</i>	<i>Male</i>
Welfare When Under 18	.098 (.297)	.172 (.378)	.028 (.165)
High School	.942 (.234)	.943 (.231)	.941 (.236)
Postgraduate degree	.377 (.485)	.418 (.493)	.339 (.473)
Bachelor Degree	.239 (.427)	.257 (.438)	.221 (.415)
Graduate Degree	.068 (.251)	.079 (.271)	.056 (.231)
Female	.483 (.499)	-----	-----
Black	.234 (.424)	.267 (.443)	.204 (.402)
Hispanic	.149 (.356)	.135 (.342)	.161 (.368)
West	.212 (.409)	.191 (.394)	.231 (.421)
South	.349 (.477)	.373 (.484)	.326 (.469)
Northcentral	.305 (.460)	.306 (.461)	.303 (.459)
Northeast	.135 (.342)	.129 (.335)	.140 (.347)
Urban	.767 (.423)	.748 (.434)	.785 (.411)
U.S Born	.963 (.189)	.981 (.137)	.946 (.227)
U.S Citizen	.967 (.179)	.985 (.120)	.949 (.219)
Number of Children	.586 (.915)	.762 (.984)	.422 (.812)
Number of Siblings	3.335 (2.440)	3.529 (2.787)	3.153 (2.049)
Mother Highest Grade	11.278 (2.899)	11.102 (3.017)	11.442 (2.776)

Note: The numbers in parentheses are the standard errors.

Table 4: Regression Estimates of Full-Time Working Weeks (40hours) on Average Welfare Payments per Year Received by Respondents in their 20s/30s

<i>Welfare Payment In The Twenties/ Thirties Per Year</i>		(a)	(b)	(c)	(d)	(e)
Twenties						
Female	Hours	-100.121*** (21.570)	-81.596*** (21.289)	-49.023* (19.556)	-38.364 (22.819)	-45.492 (22.645)
	Hours ²	1.676 (-0.555)	1.424 (0.539)	0.941 (0.495)	0.692 (0.555)	0.859 (0.548)
Male	Hours	-36.365*** (11.453)	-36.834*** (11.287)	-43.135*** (12.467)	-55.074*** (17.624)	-46.777*** (18.482)
	Hours ²	0.555 (0.223)	0.563 (0.218)	0.581 (0.244)	0.795 (0.355)	0.664 (0.371)
Thirties						
Female	Hours	-82.134*** (17.931)	-63.039*** (16.681)	-53.984* (19.978)	-43.592 (20.526)	-56.025* (21.532)
	Hours ²	1.581 (0.461)	1.303 (0.422)	1.173 (0.507)	0.992 (0.502)	1.253 (0.525)
Male	Hours	-26.126*** (8.413)	-24.402* (8.548)	-29.469*** (9.388)	-14.036 (10.404)	-7.631 (9.129)
	Hours ²	0.476 (0.164)	0.453 (0.165)	0.566 (0.183)	0.165 (0.207)	0.024 (0.181)

Note: * p < .05, ** p < .01, *** p < .001. Model (a) only includes the average full-time work weeks that respondent worked per week. Model (b) includes demographics. Model (c) includes individual characteristics variables. Model (d) includes cognitive ability variables. Model (e) includes all the previous variables plus variables representing family background. P-value is obtained by testing the hypothesis that hours and hours² are jointly equal zero using F-test. The numbers in parentheses are the standard errors. The analysis used robust standard errors.

Table 5: Regression Estimates of Full-Time Working Weeks by Age/High School Grade on Average Welfare Payments per Year Received by Respondents in their 20s/30s

<i>Welfare Payment in the Twenties / Year</i>		<i>17 Years Old</i>	<i>18 Years Old</i>	<i>19 Years Old</i>	<i>Sophomore</i>	<i>Junior</i>	<i>Senior</i>	<i>Senior^c</i>
Twenties								
Female	Hours	-16.136 (15.336)	-24.974* (11.888)	-12.319 (8.688)	-25.991 (14.8026)	-18.135 (18.3794)	-11.932 (6.4890)	-9.951 (8.3960)
	Hours ²	0.185 (0.321)	0.307 (0.202)	0.103 (0.099)	0.3085 (0.2410)	0.4110 (0.4180)	0.0281 (0.0302)	0.0235 (0.0349)
Male	Hours	-20.808 (10.339)	-20.823* (11.326)	-25.478** (8.240)	-1.072 (5.205)	-0.659 (6.368)	-4.010 (4.260)	-6.305 (6.338)
	Hours ²	0.203 (0.153)	0.201 (0.175)	0.229 (0.103)	-0.012 (0.062)	0.012 (0.121)	0.037 (0.059)	0.060 (0.108)
Thirties								
Female	Hours	3.272 (14.357)	-11.677 (11.359)	-5.771 (8.168)	-25.868 (14.006)	-12.164 (17.660)	-5.086 (6.135)	-6.444 (7.853)
	Hours ²	-0.098 (0.302)	0.091 (0.194)	0.036 (0.094)	0.355 (0.238)	0.237 (0.405)	0.010 (0.028)	0.019 (0.033)
Male	Hours	1.592 (5.077)	-2.302 (5.651)	-4.933 (4.049)	4.813 (4.892)	-2.581 (6.071)	-1.233 (4.114)	-1.162 (5.993)
	Hours ²	-0.089 (0.075)	-0.016 (0.086)	0.021 (0.050)	-0.088 (0.058)	0.065 (0.115)	-0.004 (0.055)	-0.021 (0.101)

Note: * $p < .05$, ** $p < .01$, *** $p < .001$. Worked hours are restricted by age. OLS is a full model where demographic, individual characteristics, cognitive ability, and family background are included. Senior c displays senior year's coefficient in a full model after controlling for hours worked in the sophomore and junior years. The numbers in parentheses are the standard errors. The analysis used robust standard errors.

Table 6: Probit Estimates of the Probability of Receiving Welfare by Respondents in their 20s/30s in Response to the Number of Full-Time Working Weeks Worked in Early Life

<i>Probability Of Receiving Welfare In The Twenties / Thirties</i>		<i>Full-Time Working Weeks In Early Life</i>	<i>Full-Time Working Weeks 17 Years Old</i>	<i>Full-Time Working Weeks 18 Years Old</i>	<i>Full-Time Working Weeks 19 Years Old</i>
Twenties					
Female	Hours	-0.015 (0.039)	-0.022 (0.025)	0.002 (0.022)	-0.010 (0.016)
	Hours ²	0.000 (0.001)	0.000 (0.001)	-0.000 (0.000)	0.000 (0.000)
Male	dy/dx	-0.013	-0.016	-0.007	-0.010
	Hours	-0.044 (0.028)	-0.025 (0.015)	-0.028 (0.019)	-0.025 (0.016)
	Hours ²	0.000 (0.001)	0.000 (0.000)	0.001 (0.000)	0.000 (0.000)
	dy/dx	-0.042***	-0.021*	-0.019**	-0.022***
Thirties					
Female	Hours	-0.175 (0.057)	-0.028 (0.039)	-0.015 (0.036)	-0.008 (0.035)
	Hours ²	0.004 (0.001)	0.003 (0.008)	-0.001 (0.007)	0.000 (0.006)
	dy/dx	-0.056***	-0.020	-0.021	-0.009
Male	Hours	-0.015 (0.051)	0.011 (0.001)	0.021 (0.031)	0.021 (0.024)
	Hours ²	-0.001 (0.001)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.004)
	dy/dx	-0.041*	-0.004	0.003	-0.015

Note: * $p < .05$, ** $p < .01$, *** $p < .001$. The dependent variable is dichotomous. In the case of estimating the impact on the twenties, this variable equals 1 for each year the respondent received welfare and zero otherwise. In the case of estimating the impact on the thirties, this variable equals 1 for each year the respondent received welfare and zero otherwise. dy/dx is the marginal effect at the mean. Models are fully specified as in model (e) in Table 4. The numbers in parentheses are the standard errors. The analysis used robust standard errors.

Table 7: Regression Estimates of Full-Time Working Weeks (40hours) by Age/ High School Grade on Welfare/Food Stamps/AFDC Payments per Year Received by Respondents in Their 20s

<i>Welfare Payment in the Respondents' 20s / Year</i>		<i>Welfare</i>		<i>Food Stamps</i>		<i>AFDC</i>	
		<i>OLS</i>	<i>Heckman Selection</i>	<i>OLS</i>	<i>Heckman selection</i>	<i>OLS</i>	<i>Heckman selection</i>
Hours worked (40hours) Early Life	Hours	-42.9*** (13.1590)	-62.4*** (14.5890)	-9.63* (3.8746)	-21.8*** (4.5836)	-3.3845 (8.4030)	-9.51* (8.3854)
	Hours ²	0.6272 (0.2801)	0.8475 (0.2820)	0.1425 (0.0825)	0.2737 (0.0840)	-0.0170 (0.1784)	-0.1452 (0.2000)
	IMR		432.41* (177.3520)		240.4*** (63.7261)		290.69* (141.6901)
19 Years Old	Hours	-17.500*** (5.575)	-24.000*** (6.089)	-4.930* (2.120)	-9.300*** (1.909)	-1.767 (4.595)	-6.460 (4.490)
	Hours ²	0.132 (0.067)	0.151 (0.066)	0.048 (0.031)	0.061 (0.019)	-0.002 (0.068)	-0.000 (0.042)
	IMR		393.920** (178.281)		230.900*** (63.830)		184.892 (135.509)
18 Years Old	Hours	-21.200*** (7.784)	-28.400*** (7.978)	-4.681 (2.974)	-7.500*** (2.395)	-9.373 (6.427)	-11.210* (5.308)
	Hours ²	0.198 (0.123)	0.196 (0.123)	0.053 (0.051)	0.026 (0.036)	0.112 (0.112)	0.072 (0.077)
	IMR		500.800*** (186.923)		246.100*** (65.228)		223.878 (135.049)
17 Years Old	Hours	-17.090* (7.541)	-22.890* (8.651)	-3.100 (2.621)	-7.260* (2.846)	-4.455 (5.664)	-10.702 (6.188)
	Hours ²	0.180 (0.123)	0.236 (0.128)	0.032 (0.046)	0.067 (0.039)	0.045 (0.099)	0.090 (0.084)
	IMR		303.852 (173.354)		147.360* (60.451)		206.264 (137.418)

Note: * $p < .05$, ** $p < .01$, *** $p < .001$. Inverse Mill Ratio (IMR) from the first regression was used as a covariate in the second regression in the Heckman selection model. IMR is the inverse Mills ratio coefficient resulted from the second regression. Models are fully specified, as in model (e) in Table 4, excluding the three predictor variables and including the IMR in the case of the Heckman selection model. The numbers in parentheses are the standard errors. The analysis used robust standard errors.

Table 8: Random Effect Model Estimates of Full-Time Working Weeks (40hours) on Welfare Payments per Year Received by Respondents in their 20s/30s

<i>Welfare Payment and Probability of Receiving Welfare in the Respondents' 20s/30s</i>		<i>Welfare Payment</i>	<i>Probability of Receiving Welfare</i>
Twenties			
Female	Hours	-30.933*** (6.762)	-0.041 (0.011)
	Hours ²	0.402 (0.105)	0.000 (0.000)
	<i>dy/dx</i>		-0.025***
Male	Hours	-6.885*** (2.716)	-0.021 (0.012)
	Hours ²	0.024 (0.037)	0.000 (0.000)
	<i>dy/dx</i>		-0.019***
Thirties			
Female	Hours	-11.193 (5.997)	-0.014 (0.015)
	Hours ²	0.194 (0.107)	0.000 (0.000)
	<i>dy/dx</i>		-0.006
Male	Hours	-3.929 (2.754)	-0.003 (0.016)
	Hours ²	0.039 (0.037)	-0.000 (0.000)
	<i>dy/dx</i>		-0.007

Note: Models are fully specified as in model (e) in Table 4. The numbers in parentheses are the standard errors. The analysis used robust standard errors.

Table 9: Estimates in Dollars of Full-Time Working Weeks on Welfare Payments per Year Received by Respondents in Their 20s/30s

<i>Welfare Payment in the Twenties / Thirties per Year</i>	<i>OLS</i>	<i>Treatment Effect</i>	<i>Random Effect</i>
Twenties			
Female	-\$20.05	-\$22.19	-\$19.10***
Male	-\$22.87***	-\$39.12***	-\$6.02***
Thirties			
Female	-\$18.93***	-\$12.14	-\$5.57
Male	-\$6.77	-\$1.65	-\$2.53

Note: * p < .05, ** p < .01, *** p < .001.

Table 10: Regression Estimates of Working Weeks on Average Welfare Payments per Year Received by Respondents in their 20s/30s

<i>Welfare Payment In The Twenties / Year</i>		<i>Weeks Worked in Early Life</i>	<i>17 Years Old</i>	<i>18 Years Old</i>	<i>19 Years Old</i>	<i>Probability Estimates</i>
Twenties						
Female	weeks	-3.427 (28.269)	-14.065 (15.649)	-39.891* (16.231)	-14.338 (9.896)	0.028 (0.049)
	weeks ²	-0.206 (0.819)	0.185 (0.299)	0.621 (0.286)	0.121 (0.130)	-0.001 (0.002)
	<i>dy/dx</i>					-0.011
Male	weeks	-61.630* (26.874)	-22.460* (12.451)	-20.950* (13.883)	-51.400*** (16.585)	-0.010 (0.038)
	weeks ²	1.289 (0.766)	0.229 (0.206)	0.199 (0.241)	0.705 (0.287)	-0.001 (0.001)
	<i>dy/dx</i>					-0.043***
Thirties						
Female	weeks	-48.761 26.752	-7.311 14.662	-23.727 15.741	-4.183 9.391	-0.009 (0.048)
	weeks ²	1.151 (0.778)	0.166 (0.282)	0.327 (0.277)	0.039 (0.123)	0.020 (0.014)
	<i>dy/dx</i>					-0.031
Male	weeks	-13.905 (13.603)	5.950* (6.120)	-2.934 (6.979)	-15.530* (8.281)	-0.021 (0.002)
	weeks ²	0.183 (0.384)	-0.177 (0.101)	-0.019 (0.120)	0.206 (0.144)	0.001 (0.007)
	<i>dy/dx</i>					-0.017

Note: * p < .05, ** p < .01, *** p < .001. dy/dx is the marginal effect at the mean. Models are fully specified as in model (e) in Table 4. The numbers in parentheses are the standard errors. The analysis used robust standard errors.

Table 11: Random Effect/Probit Estimates of Full-Time Working weeks (17-19 years old) on Welfare Payments per Year Received by Respondents in their 20s/30s

<i>Welfare Payment/probability In The Twenties / Thirties per Year</i>	<i>Welfare payment</i>		<i>Probability of receiving welfare</i>	
	<i>Payment</i>	<i>Percentage</i>	<i>Percentage points</i>	<i>Percentage</i>
Twenties				
Female	-\$19.10***	-7.53%	-2.50***	-8.20%
Male	-\$6.02***	-2.16%	-2.00***	-10.90%
Thirties				
Female	-\$5.57	-1.94%	-0.59	-4.52%
Male	-\$2.53	-2.13%	-0.71	-6.16%

Note: * p < .05, ** p < .01, *** p < .001.

FIG. 1: Welfare Received in the Twenties Against the Average Full-Time Working Weeks in Early Life (Age 17-19).

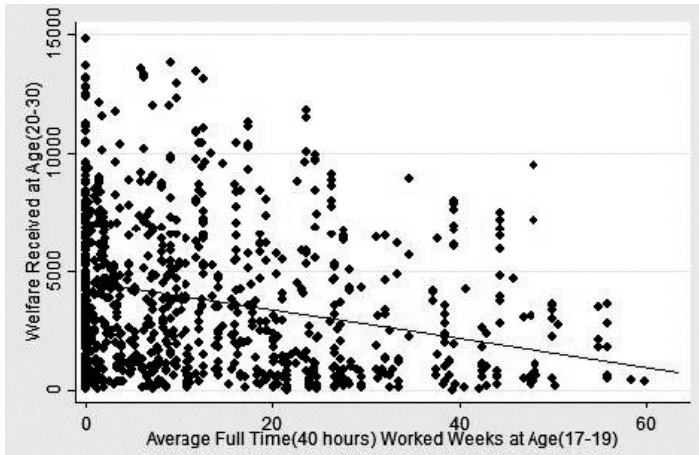


Figure 1 shows respondents who worked more hours in their early life received less welfare payment in their twenties.

FIG. 2: Welfare Received in the Thirties Against the Average Full-Time Working Weeks in Early Life (Age 17-19).

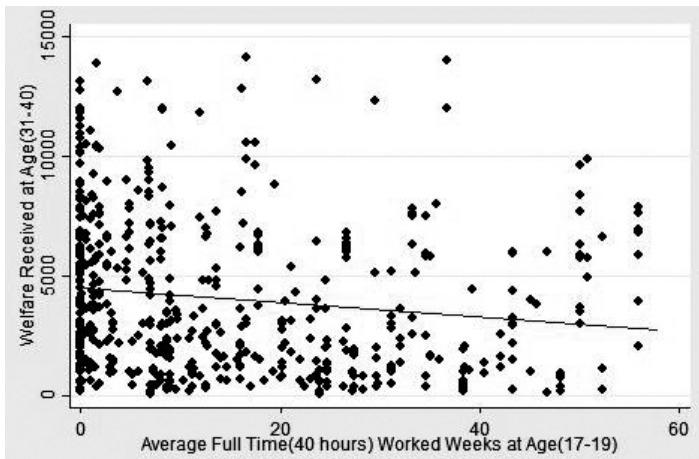


Figure 2 shows respondents who worked more hours in their early life received less welfare payment in their thirties.