Intergenerational Persistence in Welfare Program Participation

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Abstract

Participation in social insurance (welfare) programs exhibits a significant persistence across generations, even after controlling for their income. To understand the implications of this persistence on households and their children, we build an overlapping generations model with heterogeneous agents and incomplete markets. The model features endogenous child skill formation, (intergenerationally) persistent welfare participation costs and paternalistic preferences, and it is calibrated to US data. We find that the persistence in welfare participation cost accounts for around 50% of intergenerational persistence in welfare participation. Eliminating this persistence increases parental investments in children in time by 29% and in money by 14%, and it raises economic mobility decreasing intergenerational persistence in income by 4.3%.

JEL Codes: E2, H2, I38.

Key words: Welfare programs, intergenerational persistence, cultural transmission

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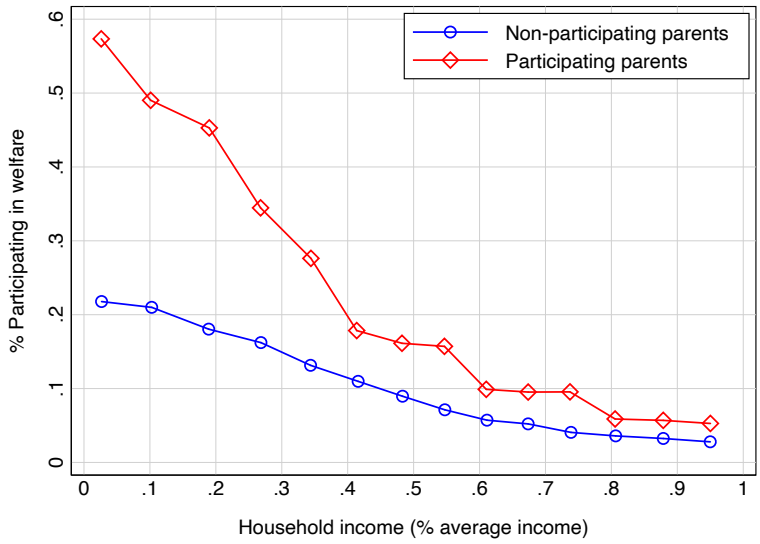
Figure 1. Fraction participating in welfare programs by income



Note: Fraction of households participating in welfare programs as a function of household income for those whose parents never participated in welfare (blue line) and those whose parents participated at some point (red line). Source: PSID: 2000-2010.

1 Introduction

In the US and other high-income countries, individuals whose parents participated in social transfer programs are significantly more likely to participate in these programs when they become adults. At first glance this may be not surprising since children of high-income parents tend to be high-income themselves, and thus, less likely to be in need of social assistance. However, the intergenerational persistence in welfare program participation remains important even after controlling for parental income and other sociodemographic characteristics. This suggests that some latent factors—beyond income—making some eligible households not to participate are passed from one generation to the next. This feature, known as "welfare culture" and typically associated to the transmission of knowledge and values towards welfare programs from parents to children, has been documented in the US (Hartley et al. 2021) as well as in other developed countries such as Norway (Dahl et al. 2014) and the Netherlands (Dahl and Gielen 2021).

This paper builds a model economy that can rationalize this intergenerational dependence on welfare programs participation. In particular, we combine endogenous child skill formation, (integenerationally) persistent welfare participation cost and paternalistic preferences into an an otherwise standard life-cycle, overlapping generations model with a welfare program participation choice. One important feature of welfare programs in the US

is the relatively low take-up rates as documented by Ribar (2014).[1] Several explanations have been suggested in the literature to rationalize this fact: social stigma (Moffitt 1983), lack of information (Finkelstein and Notowidigdo 2019), and transaction costs (Kleven and Kopczuk 2011). We model low take-up rates by including a utility cost associated with program participation which is consistent with the different mechanism discussed in the literature. Moreover, we assume that this cost depends on household's parents participation cost. As a result, the persistence in program participation is driven both by persistence in income—through parental investments in child's skills—and persistence in the participation cost. In addition, following the literature on cultural transmission, we assume that parents have paternalistic preferences towards welfare participation of their children, which affect investment decisions on children's skills.[2] After calibrating the model to US data from the 2000's, we use it as a laboratory economy to disentangle the relative role of these two sources of persistence and how they affect each other.

In particular, we use the model to quatify the role of "welfare culture" in accounting for the observed intergenerational persistence in welfare program participation. Moreover, since parental cost of participation affects the participation cost of children, the way this cost is transmitted across generations may change the incentives to invest in children's skills by affecting the likelihood that children may participate in welfare programs when they face negative income shocks. For instance, welfare culture makes that children of parents with a low participation cost are more likely to have a low cost and, other things being equal, they are more prone to participate in welfare. Conversely, children of parents with a high participation cost are less likely to participate in welfare. We use our model to quantitatively assess how welfare culture affects parental investments in children's skills.

The intergenerational incentives involved in household's participation choice make it challenging to address these questions in a reduced-form setup. Still, a simple inspection of the data provides interesting information about the role of income and parental participation choices in household's participation rates. Using data from the PSID, we compute the average participation rates by household income, and whether household's parents participated before the household moves out. The results, presented in Figure 1, show that a large fraction of very poor households decides not to participate in welfare programs. For instance, less than 60% of households with income below 10% the average income participate in welfare programs. This result points towards the existence of some underlying factors different from income that affects households' participation choice, which we capture in our

1. Ribar (2014) finds that take-up rates in the US that range from 30% to 83% depending on the program.
2. See Doepke and Zilibotti (2008), Fernández-Villaverde, Greenwood, and Guner (2014) or Doepke, Sorrenti, and Zilibotti (2019) as examples on the literature on paternalistic preferences.

model with a utility cost from welfare program participation. Moreover, these underlying factors seem to be correlated across generations. For instance, the participation rate of a household whose income is around 20% of the mean household income (around $20,000 in 2020), more than doubles if the household's parents participated in the past. The difference in participation between those with and without participating parents provides evidence on the existence of a "welfare culture".

The transmission of welfare culture from generation to generation can reinforce existing differences between poor and rich households, generating welfare and poverty traps that reinforce each other. The reason, as discussed earlier, is that parents with a low cost of participation in welfare expect lower welfare losses of their children from negative income shocks (since they are very likely to have a low participation cost), reducing parental incentives to invest in their children's skills. However, incomplete take-up rates at the very bottom of the income distribution limit the resources that these parents have to invest in their children's skills. In fact, Hoynes and Schanzenbach (2018) document that, over the past 20 years, an increasing share of welfare transfers is going to children near and above the poverty threshold, at the expense of the poorest children living below the poverty threshold. This may have important intergenerational mobility implications, as providing resources to the poorest households in the economy has substantial benefits through early childhood development (see Heckman and Mosso 2014 for a review). We use our model to shed light on this trade-off.

Our model features overlapping generations and incomplete markets. Households differ in their age and skills, which are fixed throughout household life-cycle. Households also face idiosyncratic labor productivity shocks throughout their working lives. Households decide every period how much to consume and work, and whether to participate in welfare programs. In case of participating, households suffer a utility loss that is heterogeneous across individuals and correlated across generations. At a certain moment, a child is born to the household, and paternalistic parents decide how much money and time to invest in their children's skills. Investment in children determines the skill level of children when they become adults. Following Doepke et al. (2019), paternalism reflects the idea that parents derive utility from their children's choices but reflects their own views on what is beneficial for the children. In particular, we assume that parents are paternalistic towards welfare participation. For example, parents with a high cost from welfare participation suffer a high disutility from their children participating in welfare, even though their children may find it optimal if they have a low cost from participation.

We calibrate the key parameters of the model to US data for 2000-2010 using the Panel

Study of Income Dynamics and the Child Development Supplement. We use the structure of the model to estimate the persistence in preferences as a residual after matching intergenerational persistence in income and welfare program participation. In the quantitative exercise, we focus on two major US welfare programs: the Temporary Assistance for Needy Families (TANF henceforth) and the Supplemental Nutrition Assistance Program (SNAP henceforth), formerly known as Food Stamps. Together these programs constitute about one-third of total non-health-related transfers to poor households.[3]

Using our calibrated model, we simulate a counterfactual economy without the persistence in participation cost. In this counterfactual economy, everyone face the same distribution of participation costs that is equal to the aggregate distribution of participation cost in the benchmark economy. We then look at intergenerational correlation in welfare participation in these two economies. We find that around 50% of the intergenerational correlation in welfare participation can be explained by the intergenerational transmission of the welfare culture, while the remaining 50% is accounted for by the (endogenous) persistence of income across generations.

As we argued before, "welfare culture" may have a significant impact on parents' incentives to invest in their children's skills. In particular, when we remove the persistence in welfare participation cost, the probability of drawing a low participation cost is higher, compared to the benchmark, for those whose parents had a high participation cost, and lower for those whose parents have a low participation cost. Thus, high-cost parents internalize the higher probability of participation of their children, which is costly for them due to the paternalistic preferences. At the same time, low-cost parents realize that their children will find it costlier to participate, increasing their welfare loss from a negative income shock. Consequently, both high- and low-cost parents decide to increase their time and investments by 29% and 14%, respectively. As a result, the economy with uncorrelated participation costs exhibits 9.3% higher income than in the benchmark economy, and higher social mobility, in particular, intergenerational persistence in skills decreases by 4.3%.

Finally, we explore the role of paternalistic preferences. We study a counterfactual economy in which parents are altruistic towards their children, i.e. they evaluate their children's actions according to their children's preferences. This counterfactual economy exhibits substantially lower money and time investments, which are especially large for households with a high cost from program participation. The reason is that in this counterfactual economy high-cost parents do do not suffer any utility loss from their children's participation in

3. In 2012, total federal spending on non-health-related transfers was $316 billion, including TANF, SNAP, tax credits, housing assistance, and Pell Grants. The TANF and SNAP totaled $97 billion. See Congressional Budget Office (2013).

welfare, which lowers their incentives to invest in their children's skills substantially.

1.1 Related Literature

This paper is related to three strands of the literature. First, it is related to the large empirical literature on the intergenerational persistence of welfare dependence. In their review of the literature, Black and Devereux (2011) note that while there is consensus on the strong intergenerational correlations on welfare participation, whether a causal relationship exists is less clear. Using data from the Aid of Families with Dependent Children (AFDC), the predecessor of the Temporary Assistance for Needy Families (TANF), Levine and Zimmerman (1996) find that this intergenerational correlation can be explained almost entirely by the intergenerational correlation in economic status. On the other hand, Gottschalk (1996) finds significant causal links between parents' and children's use of AFDC. More recent studies also support the idea of a welfare culture. In particular, Hartley et al. (2021), who exploit the welfare reform during the 1990s, find "strong evidence for a causal transmission of AFDC/TANF participation from mothers to daughters" (page 3). Dahl et al. (2014) and Dahl and Gielen (2021) also find evidence for welfare culture in the use of Disability Insurance programs in Norway and the Netherlands, respectively. Building on these empirical results, we build a quantitative model that can account for the main forces behind the joint transmission of economic status and welfare culture.

Our paper is also related to the literature on intergenerational transmission of economic status using dynamic economic models. Greenwood, Guner, and Knowles (2000) show that the increase in single motherhood since the 1960s can lead to intergenerational welfare dependence, as single mothers are more likely to be on welfare and their children do not fare well as adults. Several recent papers highlight the importance of parental background on children's lifetime economic outcomes and study the role of government policies. Some examples of this literature are del Boca, Flinn, and Wiswall (2016), Daruich (2018), Lee and Seshadri (2019), Petit (2019), Caucutt and Lochner (2020), and Daruich and Fernández (2020).[4] Within this literature, Mullins (2019) builds a structural model to study the effect of the design of welfare policies on maternal investment in children. However, none of these papers consider the intergenerational transmission of the welfare culture.[5]

Finally, our work is also related to the transmission of culture across generations. Bisin

4. Another strand of literature focuses on the effects of the welfare system on female labor supply and family formations, e.g., Blundell, Dias, Meghir, and Shaw (2016), Low, Meghir, Pistaferri, and Voena (2018).
5. There is also an extensive empirical literature on the long-term benefits of early-childhood education programs targeted at disadvantaged children, see, e.g., García, Heckman, Leaf, and Prados (2020), for a recent example.

and Verdier (2001), Doepke and Zilibotti (2008), and Fernández-Villaverde, Greenwood, and Guner (2014) build models in which parents shape the preferences of their children. Fernández (2013) studies a model of culture learning to explain the increase in labor force participation over the second half of the 20th century. Fernández et al. (2004) build a model in which husbands whose mothers participated in the labor market suffer a lower utility cost if their wives decide to work than the one suffered by those whose mother did not participate. In our model, we assume an exogenous cultural transmission in which individuals whose parents have a low cost from participating in welfare programs have, on average, a lower welfare participation cost, so, given their economic conditions, they are more prone to participate in welfare. Finally, our model, like Bisin and Verdier (2001), Doepke and Zilibotti (2008) and Fernández-Villaverde et al. (2014), also displays paternalistic preferences towards welfare participation which affects the way parents invest in building their children's skills.

The paper is organized as follows. Section 2 provides a description of the model. Section 3 discusses the calibration. Section 4 discusses the role of welfare culture. Section 5 explores the role of paternalistic preferences. Finally, section 6 concludes.

2 Model economy

The economy is populated by a continuum of households who consume and work, and a government that taxes households' income and provides welfare transfers. Households are heterogeneous in terms of their age (j), skills (θ) and labor productivity (z). Every period, households have the opportunity to receive a transfer from the government, but participation implies a utility cost, given by $\nu \in \mathbb{R}_+$.[6]

Intergenerational linkages. The model includes two sources of intergenerational linkages. On the one hand, skills are formed during childhood upon parental investments, making children of low-income parents more likely to be low-income as adults. On the other hand, the welfare participation cost is exogenously correlated across generations so that, for a given income, children of parents with low participation cost are more likely to participate in welfare. Additionally, we assume parents have paternalistic preferences towards their children, and value their children's decisions according to their own preferences towards welfare participation.[7] This implies that high-ν parents dislike that their children partici-

6. This utility-cost is the underlying factor that makes some poor households not to participate, and we do not make a stand on its nature. The literature has emphasis the potential role of social stigma (Moffitt 1983; Keane and Moffitt 1998; Friedrichsen et al. 2018) and information costs (Kleven and Kopczuk 2011; Currie 2006).
7. We follow the literature on paternalistic preferences like Doepke and Zilibotti (2008), Fernández-Villaverde et al. (2014) and Doepke et al. (2019). Although we do not endogeneize preference transmission, paternal-

pate in welfare programs.

Life-cycle. Households consume and decide whether to participate in welfare programs throughout their lives. Households also decide how much to work until they retire at age J_R. At age J_F a child is born, and households invest time and money on child's skills until age J_I, when the child moves out and forms a new household. Finally, at age J_T they die deterministically.

Welfare program participation. Every period, households can receive welfare transfers. Household participation choice is denoted by $\mathbb{P} = \{0, 1\}$. We assume households dislike participating in welfare, which is captured by a utility cost, ν. For simplicity, we assume this participation cost can take on two values: $\nu \in \{\nu_0, \nu_1\}$, with $\nu_0 < \nu_1$.

Households draw the value of ν at the beginning of their adult life. The distribution from which ν is drawn depends on household's parents participation cost. In particular:

$$P(\nu_0|\nu_p = \nu_0) = p_0, \quad P(\nu_0|\nu_p = \nu_1) = p_1, \tag{1}$$

where ν_p is the participation cost of parents, and $p_0 > p_1 \geq 0$. This means that children of parents that have a low utility cost of participation in welfare are more likely to draw a low utility cost from welfare participation.

Child's skills formation. Household's skills, θ, are fixed throughout the (adult) life-cycle and are formed during childhood. Before a household moves out from parental home, skills evolve endogenously as a result of parental investments in the form of time and money. From the point of view of the parent, we denote children's skills by $\theta_k \in \mathbb{R}_+$.

Following the literature on early child development (e.g. del Boca et al. 2014; Lee and Seshadri 2019), we assume a technology of skills formation that combines past skills, parental skills and parental investments, and takes the following form:[8]

$$\log \theta_k' = \mu_k \log \theta_k + \mu_p \log \theta + \mu_I \log I(m, t) + \epsilon, \quad \epsilon \sim N(0, \sigma_\epsilon^2), \tag{2}$$

with $\mu_k + \mu_p + \mu_I = 1$, and where $I(m, t)$ is the investment function that combines money (m) and time (t), and is given by:

$$I(m, t) = \alpha_j \log t + (1 - \alpha_j) \log m, \tag{3}$$

istic preferences affect parental investments in children.

8. The level of skills at age 1 is given by equation (2) where the previous level of skills, θ_k is given by an exogenous initial level $\underline{\theta}$.

where α_j drives the relative role of time in building child's skills, which is allowed to change over time.

Preferences. Households derive utility from consumption and dislike working and participating in welfare. If the household has children, parents also dislike spending time building children's skills, which captures the disutility from forgone leisure. We assume a linear disutility from time investment.[9] Overall, the per-period utility function of households is:

$$u(c, \ell, \mathbb{P}, t; \nu) = \frac{c^{1-\sigma}}{1-\sigma} - \varphi_\ell \cdot \frac{\ell^{1+\gamma_\ell}}{1+\gamma_\ell} - \mathbb{P} \cdot \nu - \phi t \,, \tag{4}$$

where c stands for household consumption, ℓ for the labor supply choice, σ denotes the coefficient of relative risk aversion, φ_ℓ captures the level disutility of work, γ_ℓ controls the Frisch elasticity, given by $1/\gamma_\ell$, and ϕ denotes the level of disutility of time investment.

Income. Working-age household's income is given by $y = w(z, j)\theta\ell$, where $w(z, j)$ is a wage rate that depends on household's age and labor productivity, z. In particular:

$$\log w(z, j) = w_0 + \omega_j + z$$

where ω_j is a non-stochastic age profile, and w_0 is an exogenous parameter, used to normalize average income in the economy to 1. Finally, labor productivity evolves according to a standard AR(1) process given by

$$z' = \rho_z z + u, \quad u \sim N(0, \sigma_u^2), \tag{5}$$

Retirement. Retirees receive pension benefits from the government that equals a fixed proportion $b_R \in [0, 1]$ of the last wage, so that total income is $y = w(z_{J_R}, J_R)\theta b_R$, where z_{J_R} is the household's level of productivity at the age of retirement. For simplicity, we assume retirees cannot participate in welfare programs.

2.1 Government

The government collects income taxes through a progressive tax schedule and uses these revenues to fund welfare. We consider a parametric function for the average tax rate that depends on income and the presence of children, widely used in the public finance literature (Benabou 2002, Heathcote, Storesletten, and Violante 2017). In particular, the average tax

9. Linear disutility from investment has been assumed in other quantitative macroeconomic studies, for instance, see Daruich (2018).

rate of a household with income y is

$$t(y,n) = 1 - \lambda(n) y^{-\tau(n)}, \tag{6}$$

where $n \in \{0,1\}$ indicates whether a child is present in the household, $\lambda(n)$ controls for the level of taxes, and $\tau(n)$ drives the degree of progressivity of the tax system. Household's tax liability is then given by $T(y,n) = y \cdot t(y,n)$.

Similar to taxes, and following Guner, Rauh, and Ventura (2021), we consider a parametric transfer function that depends on income and the presence of children. In particular

$$TR(y,n) = \begin{cases} \gamma(n) & \text{if } \ y = 0 \\ \exp\{\beta_0(n) + \beta_1(n) y + \beta_2(n) \log(y)\} & \text{if } \ y > 0\,, \end{cases} \tag{7}$$

where $\gamma(n)$ represents the amount of transfers received by households with zero income. In the analysis we include two welfare programs: Supplemental Nutrition Assistance Program (SNAP, former Food Stamps) and Temporary Assistance for Needy Families (TANF).

Finally, there is a social security administration that runs its own budget. Households pay a fixed proportion $\tau_{ss} \in [0,1]$ of their labor income as contributions while active—deductible from income taxes—and receive pensions when retired.

2.2 Recursive formulation

The life-cycle of a households has three main stages: from ages 1 to J_F the household consume, work and choose whether to participate in welfare programs. Then, from ages J_F to J_I there is a kid in the household so parents also decide on time and money investments. Finally, from ages J_I to J_T the hosehold

Stage 1: young households without children. From ages 1 to J_F the household consume, work and choose whether to participate in welfare programs. Household's state vector is given by age, productivity shock, skill and welfare participation cost: $(j, z; \theta, \nu)$. Their value function reads as:

$$\begin{aligned} V_j(z;\theta,\nu) \quad &= \quad \max_{c,\ell,\mathbb{P}} u(c,\ell,\mathbb{P},t=0;\nu) \ + \ \beta \mathbb{E}_j \left[V_{j+1}(z';\theta,\nu) \right], \\ \text{s.t.} \quad & \quad c = y - T(y,n=0) + \mathbb{P} \cdot TR(y,n=0), \\ & \quad y = (1-\tau_{ss}) w(z,j) \theta \ell \\ & \quad z' = \rho_z z + u \end{aligned} \tag{8}$$

When household's age is $J_F - 1$ the continuation value incorporates the initial skills of children, $\underline{\theta}$.

At age J_R households retire, their labor supply is zero, $\ell = 0$, and their income is $y = w(z_{J_R}, J_R)\theta b_R$, where b_R is the replacement rate, defined as fraction of the hourly wage in the last period before retirement. At the end of age J_T, households die.

Households with children at home. While children are at home (ages $J_F \leq j \leq J_I$), parents make investment decisions in their children's skills (θ_k) on top of the usual consumption, labor and welfare participation decisions. The state vector of a household with children is given by $(j, z, \theta_k, \theta, \nu)$, where parents' skills (θ) and participation cost (ν) are fixed through time. Thus, for ages $j \in [J_F, J_I)$, household's problem is:

$$
\begin{aligned}
V_j(z, \theta_k; \theta, \nu) \;=\; & \max_{c,\ell,\mathbb{P},m,t} u(c, \ell, \mathbb{P}, t; \nu) \;+\; \beta \mathbb{E}_j \left[V_{j+1}(z', \theta_k'; \theta, \nu) \right], \qquad (9) \\
\text{s.t.} \quad & c + m = y - T(y, n = 1) + \mathbb{P} \cdot TR(y, n = 1), \\
& y = (1 - \tau_{ss}) w(z, j) \theta \ell \\
& \log \theta_k' = \mu_k \log \theta_k + \mu_p \log \theta + \mu_I \log I(m, t) + \epsilon \\
& z' = \rho_z z + u
\end{aligned}
$$

At age J_I parents make their last investment choices and, at the end of the period, children move out and form a new household. At this age, the problem of the household incorporates a new term that captures parternalism. In particular:

$$
V_{J_I}(z, \theta_k; \theta, \nu) \;=\; \max_{c,\ell,\mathbb{P},m,t} u(c, \ell, \mathbb{P}, t; \nu) \;+\; \beta \left[\psi \mathbb{E} V_{J_I+1}(z'; \theta, \nu) \;+\; (1 - \psi) \hat{V}(\theta_k', \nu) \right],
$$

where $\hat{V}(\theta_k, \nu)$ denotes the utility that parents with particupation cost ν derive from their children with skills θ_k. This term depends on parent's participation cost both because of two reasons: (i) parents' participation cost determines the distribution from which the new household will draw their own cost, and (ii) parents evaluate children's choices according to their own preferecences.

Paternalistic preferences. We assume that parents have paternalistic preferences towards their children, meaning that they evaluate their children's value according to their own preferences towards welfare participation (i.e. their utility cost from participation).[10] In

10. This follows the literature on preference transmission from parents to children (Doepke and Zilibotti 2008, Fernández-Villaverde et al. 2014, Doepke et al. 2019).

particular, the term $\hat{V}(\theta_k, \nu)$ is given by:

$$\hat{V}(\theta_k, \nu_p) \;=\; P\left(\nu_0|\nu_p\right) \cdot \underbrace{E_z\left[\widetilde{V}_1(z;\theta_k,\nu_0|\nu_p)\right]}_{\text{Low participation cost}} \;+\; P\left(\nu_1|\nu_p\right) \cdot \underbrace{E_z\left[\widetilde{V}_1(z;\theta_k,\nu_1|\nu_p)\right]}_{\text{High participation cost}}.$$

where $\widetilde{V}_1(z;\theta,\nu|\nu_p)$ is the value function of a household with age 1 and state vector (z,θ,ν_p) whose choices corresponds to a state vector (z,θ,ν). More specifically:

$$\begin{aligned}
\widetilde{V}_j(z;\theta_k,\nu|\nu_p) \;&=\; u(c,\ell,\mathbb{P},t;\nu_p) \;+\; \beta\mathbb{E}_j\left[\widetilde{V}_{j+1}(z';\theta_k,\nu|\nu_p)\right], \\
\text{where} \quad & c = c(j,z,\theta_k,\nu), \quad l = l(j,z,\theta_k,\nu), \quad \mathbb{P} = \mathbb{P}(j,z,\theta_k,\nu), \\
& m = m(j,z,\theta_k,\nu), \quad t = t(j,z,\theta_k,\nu)
\end{aligned}$$

Note that the value function, $\widetilde{V}$, includes the consumption, labor, welfare participation and investment decisions of children, which depend on children's states but not on parents' participation cost. But the parents evaluate these decisions according to their preferences towards welfare, ν_p, not their children's. This means that:

$$\widetilde{V}_j(z,\theta_k;\theta,\nu|\nu_p) \leq V_j(z,\theta_k;\theta,\nu)$$

The reason is that high-ν parents dislike their children to participate, even if their children are low-ν themselves they do not internalize the participation cost of children. Because of this, high-ν parents face higher incentives to invest in their children's skills, so as to prevent them to participate in welfare programs. More generally,

$$\begin{aligned}
&\text{High-}\nu\text{ parents:} \quad \widetilde{V}_j(z,\theta_k;\theta,\nu=\nu_0|\nu_p=\nu_1) \leq \widetilde{V}_j(z,\theta_k;\theta,\nu=\nu_1|\nu_p=\nu_1) \\
&\text{Low-}\nu\text{ parents:} \quad \widetilde{V}_j(z,\theta_k;\theta,\nu=\nu_0|\nu_p=\nu_0) \geq \widetilde{V}_j(z,\theta_k;\theta,\nu=\nu_1|\nu_p=\nu_0)
\end{aligned}$$

That is: high-ν parents are better off if their children draw a high-ν, while the opposite is true for low-ν parents.

3 Calibration

The model's period corresponds to one year and critical periods (between brackets ages in real world) are: fertility age, $J_F = 7$ (26), age at which children become independent $J_I = 24$ (43), retirement age $J_R = 46$ (65) and terminal age, everyone dies deterministically at age $J_T = 61$ (80).

We set the parameter values in two stages. First, we set some parameter values either from relevant papers in the literature, or estimating them directly from the data. The remaining parameters are estimated internally using the Simulated Method of Moments.

3.1 Exogenous parameters

Some parameters are set exogenously from relevant papers in the literature. In particular, we set $\sigma = 1$, so that the utility from consumption becomes logarithmic, and set the Frisch elasticity to 1, following Guner et al. (2016), so $\gamma_\ell = 1$. Finally, we set $\beta = 0.97$, which corresponds to an annual interest rate of 3%.[11]

Investment function. Following Lee and Seshadri (2019), we set the substitutability parameters in the investment function to 1, $\xi = 0$, so that the investment function takes a Cobb-Douglas form. We also allow the productivity of time investments to vary by child age and set α to their estimated values.[12] In particular, we set $\alpha = \{0.90, 0.71, 0.68\}$ for ages $j \in [9, 12]$ (children ages from 0 to 5), $j \in [13, 18]$ (children ages from 6 to 11) and $j \in [19, 24]$ (children ages from 12 to 17) respectively.

Tax function. Parameters for taxes are estimated using data from the Current Population Survey (CPS). In particular, we estimate:

$$\log\left(\frac{y_{i,t} - T(y_i, n_{i,t})}{\bar{y}_t}\right) = \alpha + \beta \log\left(\frac{y_{i,t}}{\bar{y}_t}\right) + \epsilon_{i,t} \tag{10}$$

where $\bar{y}_t$ is the year-specific average income. In the model, we allow parameters (λ, τ) to differ by the presence of children at home. Consequently, we estimate equation (10) separately for households with no children, $n = 0$, and with 2 children, $n = 2$. Using the estimated parameters, $(\hat{\alpha}, \hat{\beta})$, we can recover the parameters of the tax function as: $\hat{\lambda} = \exp(\hat{\alpha})$ and $\hat{\tau} = 1 - \hat{\beta}$. Table 1 collects the results from this estimation.

These results show that tax rates tend to be lower but more progressive for families with children (higher λ and τ). For instance, a household with children and income equal to the average income faces an average tax rate of 5.5%, while a similar household with no children would face a 12.5% tax rate, a 7 p.p. difference. The higher progressivity of taxes among households with children implies that this difference shrinks as we move towards higher-income households. For instance, the difference in tax rates for families with twice

11. The real lending interest rate between 2000 and 2015 was 2.91%, the World Development Indicators, the World Bank, https://data.worldbank.org/indicator/FR.INR.RINR?locations=US.
12. While their model is a 6-year model, they estimate the investment function parameters on a yearly basis, which allows us to use their estimated parameters despite having a different time period.

Table 1. Parameters of the tax function

	Constant	Slope	N. Obs.	λ	τ
Households w/o child	-0.1341	0.9356	214,695	0.8745	0.0644
	(0.0002)	(0.0002)			
Households w/ child	-0.0562	0.8834	80,412	0.9453	0.1166
	(0.0003)	(0.0004)			

Note: The table shows the parameters for the transfer function in equation 10, by the presence of children. Household with children are those with 2 kids.
Source: CPS, 2000-2009.

the average income is of 3.6 p.p. (12.8% for households with children, and 16.4% for childless households).

Transfers function. We estimate the transfer function using data from the Survey of Income and Program Participation (SIPP) from 2001 to 2010. We include in the analysis the Supplemental Nutrition Assistance Program (SNAP) and the Temporary Assistance for Needy Families (TANF). To simplify the model, we estimate a single transfer function that includes both transfer programs.

The parameter $\gamma(n)$ captures the amount of transfers received by a household with n kids and zero income. Thus, it is estimated as the average transfer for households with no children and with 2 children, respectively. To estimate the remaining parameters, we run the following regression:

$$\log\left(\frac{TR_{i,t}}{\bar{y}_t}\right) = \beta_0 + \beta_1\left(\frac{y_{i,t}}{\bar{y}_t}\right) + \beta_2 \log\left(\frac{y_{i,t}}{\bar{y}_t}\right) + \epsilon_{i,t} \tag{11}$$

where $\bar{y}_t$ is the year-specific average household income. As we did with the tax function, we allow the parameters of the transfer function $(\beta_0, \beta_1, \beta_2)$ to be different for households with and without children. Accordingly, we run the regression (11) for households with no children and for households with 2 children, separately. Table 2 collects the results, and figure **??** in Appendix **??** plots the estimate transfers functions.

The estimated coefficients imply that households without children that have no income receive a transfer of 2.5% of average income. For higher incomes, households without children receive a (nearly) flat transfer for households without children, who receive a transfer of about 1.5% of average income. The transfer function for households with children, however, is decreasing in income. For instance, a household with children and income of $40,000 (84% of the average income in 2010) would receive $1,312 (2.7%). A similar household with income of $20,000 (42%) would receives $1,657 (3.5%), 26% higher.

Table 2. Parameters of the transfers function

	β_0	β_1	β_2	N. Obs.	γ
Households w/o child	-4.1331	-0.0884	-0.0102	3,591	0.0247
	(0.0608)	(0.0516)	(0.0265)		(0.0004)
Households w/ child	-3.7145	0.0629	-0.3746	3,380	0.1046
	(0.0528)	(0.0447)	(0.0268)		(0.0025)

Note: The table shows the parameters for the transfer function in equation 11, by the presence of children. Household with children are those with 2 kids. We exclude households with income below 1% the average household income.
Source: SIPP, 2001-2010.

Household income. We estimate the parameters of the income process using data from the PSID for the years 2000 to 2010. We proceed in three steps. First, we estimate households' fixed effects, then the age profile of income, and finally, the labor productivity process. To estimate households' fixed effects, we run the following regression:

$$\log w_{i,t} = \alpha + \gamma_{t,a} + \theta_i + u_{i,t} \tag{12}$$

where $\gamma_{t,a}$ are year-age fixed effects. The estimated individual fixed effects, θ_i are taken as our measure of skills, θ.[13] To estimate the age profile, we subtract the fixed effect from the dependent variable of the previous regression and fit a third-order polynomial to $\gamma_{a,t}$ and take the residual as our measure of labor productivity. Finally, we estimate the AR(1) parameters for the labor productivity process by running the following regression

$$z_{i,t} = \rho_z z_{i,t-1} + \epsilon_{i,t}$$

where we instrument $z_{i,t-1}$ with $z_{i,t-2}$ to control for potential measurement error. We get $\hat{\rho}_z = 0.946$ (0.016), and sd$(\epsilon_{i,t}) = 0.257$.

Other parameters. Finally, the scale parameter in wages, w_0, is set to -1.94, so that the average income in the economy is normalized to 1. We set the social security tax rate to 4.8%, which is the level of τ_{ss} that balances the social security budget.

13. The wage rate is define as the ratio of total household labor income and average household hours worked. The implication of using average hours is that wage rates will be higher for married households, which is then captured by the individual fixed effect.

Table 3. Parameters and targets

Parameter		Value	Moment
φ_ℓ	Disutility work	1.425	Average labor supply
ϕ	Disutility time invest	1.219	Average time investment
σ_ϵ	Standard deviation shocks	0.805	Standard deviation of skills
μ_I	Cobb-Douglas parameter on investments	0.0187	Average skills = 1 (normalization)
μ_p	Cobb-Douglas parameter on θ_p	0.0192	Intergenerational correlation skills
ν_0	Low participation cost	0.097	% participating welfare
ν_1	High participation cost	20.4	Diff. skills $\theta(\mathbb{W}_p = 1) - \theta(\mathbb{W}_p = 0)$
p_0	prob. low cost (low cost parents)	0.786	% part. welfare, partic. parents
p_1	prob. low cost (high cost parents)	0.245	% part. welfare, non-partic. parents

Note: We classify as a households with participating parents in period t as those whose parents have ever participated at any point in time up to year t.

3.2 Calibrated parameters

We are left with 9 parameters to calibrate internally: the level of disutility of labor and time investment in children (φ_ℓ, ϕ), the parameters in the technology of child skill formation (σ_q, μ_I, μ_p), and the parameters related to the cost of participating in welfare and the transmission process (ν_0, ν_1, p_0, p_1). We calibrate them using the Simulated Method of Moments.

Identification

The parameter φ_ℓ control how costly it is for households to supply labor, so we identify its value by matching the average labor supply. We estimate the average labor supply using data from the PSID for the years 2000 to 2010. In particular, we measure ℓ as the average labor supply of household members. This implies that labor supply of married and single households are comparable in scale. This implies that the higher labor income of two-earners households is captured by households' fixed effect.

The parameter ϕ determines the cost of investing time in children's skill formation. Thus, we identify the value of ϕ by matching the avergae time investment of parents in the data. We use time diary data from the Child Development Supplement to the PSID to measure the amount of time parents spend with their children. In particular, we measure time investment as the total time that parents are actively engaged in children's activity (Daruich 2018, Lee and Seshadri 2019, Petit 2019).

The parameters of the child skill formation technology are identified by matching the intergenerational correlation of skills, and the mean and variance of skills. Note that the parameter μ_p controls how parental skills shape the technology of skill formation of children, and thus, it is very informative about the degree of skill persistence across generations,

Table 4. Model fit: Targeted Moments

Moment	Model	Data
Labor supply	32.1	32.4
Average time investment	19.9	19.0
Standard deviation of skills	0.87	0.90
Average skills (normalization)	0.97	1.00
Intergenerational correlation of skills	0.35	0.35
Participation rate welfare (%)	12.3	11.3
Diff. skills, $\log\theta(\mathbb{W}_p = 1) - \log\theta(\mathbb{W}_p = 0)$	-0.54	-0.60
Participation rate welfare (parents didn't participate, %)	8.08	5.77
Participation rate welfare (parents participate, %)	27.7	27.2

and consequently, about the intergenerational persistence in income. At the same time, the parameter μ_I controls the dynamic complementarities in children's skills. Thus, given an average amount of time invested by parents (controlled by ϕ), this parameter drives the overall level of skills. Finally, the variance of skill formation shocks is key to generate a realistic variation of skills in the model. As explained before, households skills are measured as the fixed effect of a regression of (log) household wages and a set of year-age dummies, as shown in equation (12).

The parameters governing welfare program participation in the model are identified by matching the participation rate, both on average and by parental participation, and the difference in skills between those whose parents participated in welfare and those whose parents did not. Note that while the level of ν_0 controls the overall participation rate, the probability of drawing a low participation rate controls how many households have $\nu = \nu_0$ depending on their parents participation cost. Thus, ν_0 is identified by matching the average participation rate, while p_0 and p_1 are identified by matching the participation rate by parental participation status. Finally, the high cost of welfare participation ν_1 is identified by matching the difference in skills between those whose parents participated in welfare and those whose parents did not. More specifically, ν_1 determines the cost of children participation for those parents that have a high cost of participation (who do not participate in welfare). As a result, the higher the cost, the higher the incentives to invest in their children's skills for those with a high cost of participation.

Table 3 presents the values of the calibrated parameters and the targeted moment.

Model fit

The model does a good job in matching the empirical moments. Table 4 collects the moments included in the calibration algorithm and their data counterparts.

The model replicates well household labor supply and moments related to parental investment in children. In particular, the model generates an average time investment, skill dispersion and integenerational persistence of skills that are very close to their data counterparts. Matching the intergenerrational correclation of skills is particularly important for this paper. The reason is that the model structure allows us to estimate the magnitude of welfare culture (which, in the model, is captured by the difference in the probability of drawing a low participation cost, $p_1 - p_0$) as a residual. In particular, once the model generates the empirically observed persistence in skills, we can identify "welfare culture" as the difference between p_1 and p_0 that makes the difference in participation choices between those with participating and non-participating parents equal to its data counterpart.

The model does a good job in matching the moments related to participation in welfare. In the model, 12.3% of households participate in welfare compared to 11.4% in the data. The model also captures well the differences in participation rate by participation status of the parents. In particular, in the model, around 8% (compared to 6% in the data) of those households whose parents did not participate in welfare do participate in welfare, while this magnitude is much bigger for those whose parents participated at some point, 27.9% in the model (27.2% in the data). Finally, the model reproduces well the difference in skills of those whose parents participated in welfare and those whose parents did not. In particular, in the model, children of welfare participants have, on average, 0.54 log points lower skills, compared to 0.60 log points in the data.

Non-targeted moments

To validate the predictions of our model, we look at a number of important moments that are not explicitly included in our calibration algorithm. Table 5 collects the non-targeted moments on labor supply, skills and parental investment in children. The model captures the labor supply by welfare participation status well. The model slightly overestimates the difference in skills between welfare participants, in particular the model generates a log difference of 1.27 compared to 0.83 in the data. This is mainly because welfare participants in the model have lower skills than in the data (-1.151 in the model vs -0.735 in the data, in log skills).

We have also seen that the model generates time investment by households consistent with the data. The model also reproduces the time investment for non-participants in welfare well, 22.1 hours per week in the model compared to 19.9 in the data, while the model underestimates the time investment of participants in welfare, 9.4 hours per week in the model compared to 14.9 in the data. Finally, the model does not target money investment

Table 5. Non-targeted Moments

Moment	Model	Data
Labor supply, non-participants	32.65	33.85
Labor supply, participants	28.44	20.98
Average skills (log), non-participants	0.123	0.091
Average skills (log), participants	-1.151	-0.735
Time investment, non-participants	22.05	19.86
Time investment, participants	9.40	14.98
Money investment	13.11	8.02
Money investment, non-participants	15.25	8.89
Money investment, participants	2.82	2.62

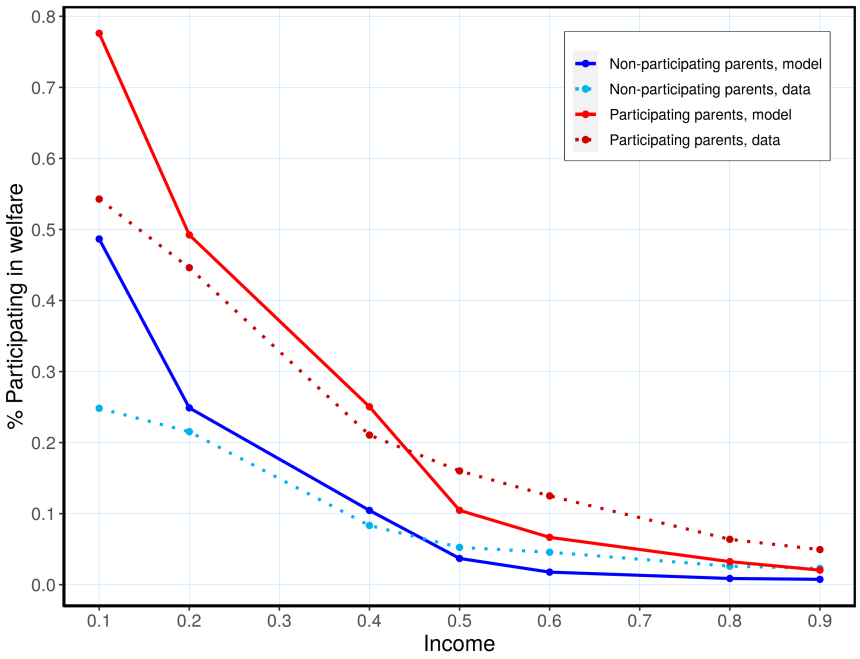
Note: Money investment is expressed as a percentage of average income in the economy.

and money investment by welfare participation status.[14] The model slightly overestimates average money investment in the model. In the model, households invest, on average, 13% of average income in building their children's skills compared to 8% in the data. The main reason is that the model overestimates money investment of those that do not participate in welfare. In particular, non-participants in welfare invest around 15% of average income compared to 9% in the data. The model reproduces well the money investment of those that participate in welfare, who invest 2.8% of average income in the model compared to 2.6% in the data.

Figure 2 presents the participation rate in welfare programs by income for those whose parents ever participated in welfare and those whose parents did not participate for both the model and the data.[15] Although this is not targeted by the model, the model generates a shape of both curves close to their data counterparts, except for the lowest level of income. As a result, the model generates a pool of welfare participants, in terms of income, consistent with the pool of participants in the data. The figure also makes it explicit why including heterogeneous participation cost is important. Note that, if the model had a single and common welfare cost of participation, as usually assumed in the literature, we would observe a 100% participation rate among households with very low income, while households with higher incomes would not participate at all. With two values for the participation cost allows our model to generate welfare participants even with incomes close to the average household income, as in the data.

14. We compute money investment from the PSID 2000-2010. We define money investment in children as the sum of school fees and childcare expenditures.
15. This figure is the analogue of Figure 1 including the model results.

Figure 2. Fraction participating in welfare programs by income



4 The Role of Welfare Culture

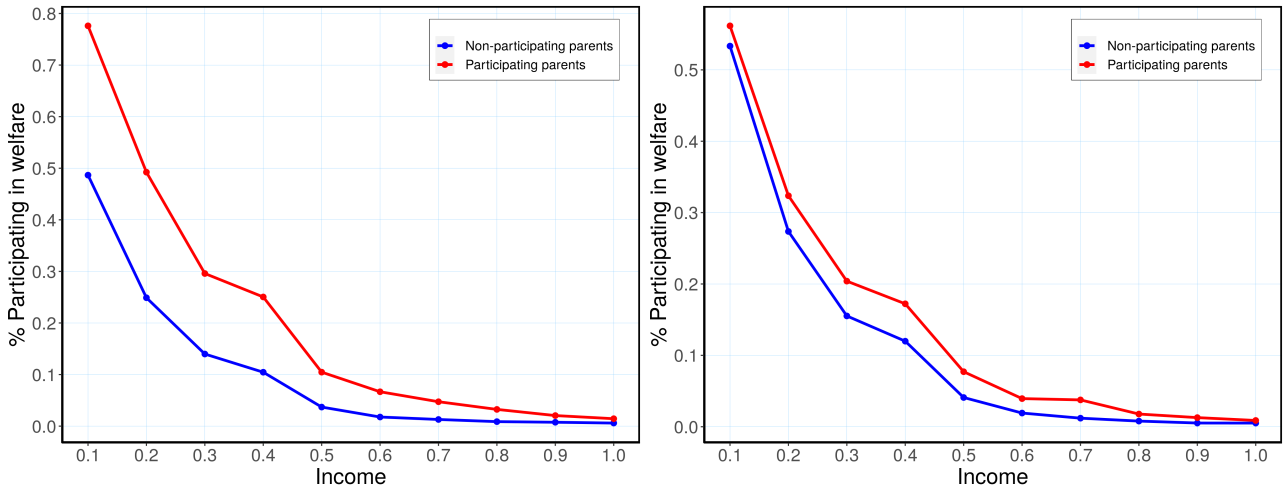
The main goal of the paper is to understand the welfare implications of the persistence in "welfare culture". The persistence makes the participation cost not to be independent and identically distributed across households. Thus, the pool of program participants in the economy with persistent cost may be different from the one in an economy with iid costs, affecting the incentives to invest in children's skills. However, we first study how much of the intergenerational persistence in welfare participation is accounted by welfare culture, and how much by intergenerational persistence in income. Then, we study how welfare culture affects parental investments, average income and intergenerational mobility in the economy.

Table 6. Conditional distribution of child's participation cost, $Pr(\nu|\nu_p)$

Baseline			Counterfactual		
	$\nu = \nu_0$	$\nu = \nu_1$		$\nu = \nu_0$	$\nu = \nu_1$
Parents' $\nu_p = \nu_0$	0.786	0.214	Parents' $\nu_p = \nu_0$	0.540	0.460
Parents' $\nu_p = \nu_1$	0.246	0.754	Parents' $\nu_p = \nu_1$	0.540	0.460

To study the role of welfare culture, we simulate an economy in which the distribution from which new households draw their value of ν does not depend on parents' ν_p. In the baseline economy, the share of households with $\nu = \nu_0$ is 0.540. Consequently, we set $p_0 =$

Figure 3. Participation rate by income: Benchmark and Counterfactual



(a) Benchmark economy

(b) Counterfactual Economy

$p_1 = 0.540$, so that the counterfactual economy has the same number of households with low participation cost. Table 6 presents the welfare culture process for both the benchmark and the counterfactual economies.

In the benchmark economy, those whose parents have a low cost from welfare participation have a higher probability of having low participation cost than those whose parents have a high cost, $Pr(\nu_0|\nu_{parents} = \nu_0) = 0.786 > 0.246 = Pr(\nu_0|\nu_{parents} = \nu_1)$, while in the experiment both probabilities are the same and equal to 0.540. Figure 3 shows the participation rate as a function of income for those whose parents participated in welfare and those whose parents did not for the benchmark economy (Figure 3a) and the counterfactual economy (Figure 3b). While in the benchmark economy there is a big gap in participation rates between those whose parents participated in welfare and those whose parents did not for any given level of income, this gap substantially decreases when we shut down the welfare culture. As a result, in the counterfactual economy, for a given level of income, the probability of participation in welfare for those whose parents participated and those whose parents did not is very similar.

4.1 Intergenerational persistence in welfare participation

Understanding the source of intergenerational persistence in welfare program participation has important policy implications. If the transmission of welfare culture explains an important fraction of this correlation, expansion of welfare programs may create welfare traps and distort investment in children's skills. To quantify the relative importance of persistence in welfare culture accounting for the intergenerational correlation in welfare participation, we

compare the difference in participation rate between those whose parents ever participated and those whose parents did not or, in mathematical terms, $Pr(\mathbb{P} = 1|\mathbb{W}_{parents} = 1) - Pr(\mathbb{P} = 1|\mathbb{W}_{parents} = 0)$ in the benchmark economy with the counterfactual economy where all households draw the cost in welfare participation from the same aggregate distribution. Thus, we are removing the persistence in utility cost from participation (in the experiment it does not depend anymore on whether parents have participated or not), and, therefore, persistence in program participation is completely determined by persistence in economic status.

We find that $Pr(\mathbb{P} = 1|\mathbb{W}_{parents} = 1) - Pr(\mathbb{P} = 1|\mathbb{W}_{parents} = 0)$ falls from 19.8 percentage points (p.p. hereafter) in the benchmark economy to 9.8 p.p. Therefore, intergenerational transmission of participation cost accounts for slightly more than 50% of total intergenerational correlation in welfare program participation.

Welfare culture plays an important role for intergenerational correlation in welfare participation. As a result, we study how it affects parental investments in children, skills in the economy and intergenerational mobility.

4.2 Welfare Culture and Economic Outcomes

Table 7 shows the effect of removing welfare culture on different economic outcomes. When welfare culture is removed, time and money investment increase substantially. In particular, households increase, on average, time investment by 29.3% and money investment by 14.4%. This is due to the increase in misalignment of preferences between parents and children.

In the benchmark economy, households with a low cost from participation expect their children to have a low cost with a high probability (78.6%, see Table 6). Consequently, they know that their children can rely in the welfare system in case they suffer adverse shocks and, thus, have lower incentives to invest in their children's skills. In the counterfactual economy, when welfare culture is removed, this probability decreases importantly from 78.6% to 54%. In this economy, parents with a low cost know that their children may be unable to participate in welfare, with high probability, in response to an adverse economic shock due to the high cost from participation. This inability to participate in welfare affects negatively consumption and labor supply of children. As a result, parents with a low cost have higher incentives to invest in their children's skills to reduce the effects of negative shocks on their children. Indeed, this is what we observe: parents with a low cost from program participation increase their time and money investment by 16.7% and 20.4%, respectively.

Parents with a high cost from participation do not participate in welfare. In the bench-

mark economy, they expect their children to have a high cost from participation, and do not participate in welfare, with high probability (75.4%). However, when we remove welfare culture, this probability falls to 46%. In this counterfactual economy, parents with a high cost see that their children are much more likely to participate in welfare if they suffer a negative shock and have low income, which is very costly for the parents due to the paternalistic preferences. As a result, parents invest more in developing their children's skills so that, even in the event that their children might face a negative shock, it is not worth for them to participate in welfare. In particular, we find that parents with a high cost significantly increase time and money investments in their children by 35.4% and 10.4%, respectively.

Table 7. Welfare Culture, Parental Investments and Intergenerational Mobility

	Benchmark	Counterfactual	Difference
Intergenerational persistence in skills	0.351	0.336	-4.3%
Average Income	0.962	1.049	+9.0%
Participation rate (%)	12.30	10.08	-18.0%
Time investment (hours/week)	19.87	25.69	+29.3%
Time investment, low cost	12.0	14.0	+16.7%
Time investment, high cost	29.1	39.4	+35.4%
Money investment	13.12	15.01	+14.4%
Money investment, low cost	10.3	12.4	+20.4%
Money investment, high cost	16.4	18.1	+10.4%

The increase in parental investments in children skills, when we remove welfare culture, leads to an increase of average income by 9% and a decrease in participation rate in welfare programs by more than 2 percentage points. Finally, the increase in parental investments in children also increases the intergenerational mobility, the intergenerational persistence in skills decreases by 4.3% when we remove the welfare culture.

In summary, the correlation of participation costs between parents and children change significantly the incentives to invest in children's skills. When we remove this correlation, parents increase time and money investments significantly in order to reduce the probability that they participate in welfare programs, which is especially harmful for parents with a high cost from program participation. As a result of this increase in investments, average income in the economy increases, the fraction of the population participating in welfare is smaller and income mobility increases.

5 The Role of Paternalistic Preferences

In this section, we explore what are the implications of paternalistic preferences for parental investments in children skills and income mobility. For that purpose, the paternalistic term is set to the value function of the children at age $j = 1$, i.e. parents have now altruistic preferences towards their children. Remember that in the benchmark economy, in the paternalistic term, parents suffer disutility from their children participating in welfare according to their own preferences (not those of the children). In contrast, in the counterfactual economy, parents suffer disutility from their children participating in welfare according to their children preferences. As a result, in the counterfactual economy, parents with a high cost of welfare participation will not suffer from their children participating in welfare if they have a low cost.

Table 8 shows the results of replacing paternalistic preferences with altruistic preferences. Removing paternalistic preferences decreases time and money investment by 55% and 44%, respectively. This result highlights the role of paternalistic preferences on the incentives to invest in children's skills. This effect is especially salient for households with high cost of participation in welfare programs.

We also find that removing paternalistic preferences has a significant effect on investments for both high cost and low cost households. However, the effect is especially large for parents with a high cost of participation, who reduce their time and money investments by 60% and 56% respectively, compared to 26% and 33% in the case of parents with a low cost. In the benchmark economy, parents with a large cost of participation in welfare programs suffer a high disutility from their children participating in welfare, as a result, they invest a large amount of money and time in building their skills so that, even in the event of a negative income shock, their children avoid participating in welfare. When we move from paternalistic towards altruistic preferences, parents do not suffer any longer their children participating in welfare, as a result, they do not need to invest so large amounts on building their skills.

The decrease in parental investments in children due to the altruistic preferences also decreases the average income in the economy by 23% and increases the fraction of households participating in welfare by 3 percentage points. Finally, it also decreases intergenerational mobility, however it is not a big effect, intergenerational persistence in skills increases by around 2%.

Table 8. Paternalistic Preferences, Parental Investments and Intergenerational Mobility

	Benchmark	Counterfactual	Difference
Intergenerational persistence in skills	0.351	0.358	+2.0%
Average Income	0.962	0.740	-23.0%
Participation rate (%)	12.30	15.33	+24.6%
Time investment (hours/week)	19.87	8.93	-55.1%
Time investment, low cost	12.0	8.8	-26.7%
Time investment, high cost	29.1	9.0	-60.1%
Money investment	13.12	7.02	-44.5%
Money investment, low cost	10.3	6.9	-33.0%
Money investment, high cost	16.4	7.1	-56.7%

6 Conclusions

Welfare programs are an essential part of social safety net in the US, and in many other countries. They provide insurance to households against adverse income shocks. However, understanding how welfare transfers affect households choices is essential for the design of this key social policy. While the effects of welfare programs on labor supply and savings has been extensively documented, their intergenerational effects remain largely unexplored. This paper fills this gap.

In the US, individuals whose parents participated in welfare programs are almost three times more likely to participate in welfare than those whose parents did not. This correlation combines two sources of intergenerational persistence: economic status and welfare culture. We have built a partial equilibrium life cycle model with overlapping generations, incomplete markets, parental investments in children's skills, and paternalistic preferences to quantify the relative importance of these two sources, and to better understand how they affect each other. We calibrate the main parameters so that the model replicates some key features of the data regarding labor supply, welfare program participation, and parental investments in children's skills.

Using the calibrated model as a laboratory economy, we find that around 50% of the intergenerational persistence in welfare participation can be explained by the welfare culture transmission channel. We also find that removing welfare culture leads to a substantial increase in parental investments in children's skills, which increases average income in the economy and leads to higher economic mobility. Paternalistic preferences are key for this result. When welfare culture is removed, parents with high welfare participation cost realize

that their children are now more likely to draw a low participation cost, making them more prone to participate in welfare programs. Since children participation is very costly for these parents, they decide to invest more on their skills to avoid them being in need of social assistance. At the same time, parents with low participation cost understand that their children are now less likely to draw a low participation, making it harder for them to access to welfare transfers in case of a negative income shock. Consequently, they decide to increase their investments in children's skills to compensate for the lack of welfare transfers.

To further explore the role of paternalistic preferences, we simulate an economy in which parents value children's actions according to their children's preferences. In this economy, parents invest substantially less on their children skills. The reason is that without paternalist preferences, welfare programs are always welfare improving (even for high-ν parents), lowering the returns to parental invesments.

Overall, our paper makes it explicit that social assistante programs may have important intergenerational effects by shaping parental investments in children's skills. Thus, taking these intergenerational effects into account seems to be key for better understand the welfare effects of social assistance programs.

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