Intergenerational Persistence in Welfare Program Participation

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Motivation

- Low take-up in welfare programs in the US: between 30% and 83% (Ribar, 2014).

  $\rightarrow$ Why? Lack of information, transaction costs, social stigma, ...

- Strong intergenerational correlation on welfare participation (Black and Devereux, 2011).

  PSID (2000-2010): Children of participanting parents are 3 times more likely to participate.

  A. Persistence in income, education, skills.

  B. Persistence in welfare culture

     Persistence in the underlying factors (information, stigma, ...) behind incomplete take-up

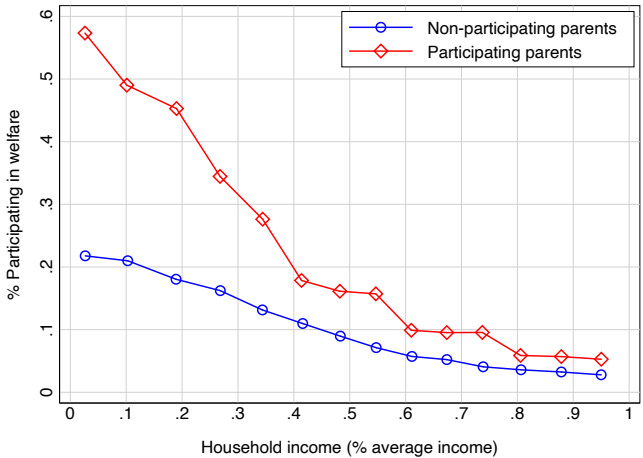
- Available empirical evidence suggests that (B) plays an important role.

  Dahl, Kostol and Mogstad (2014), Hartley, et al (2017), Dahl and Gielen (2018)

- Research question: How do (B) and (A) interact?

Introduction

- Persistence in income is important, but cannot explain everything.



Motivation

- Persistence in income is important, but cannot explain everything.

Dep. var: Participation$_t = \{0, 1\}$	(1)	(2)	(3)	(4)
Participating parents (ever)	0.205***	0.112***	0.072***	0.067***
	(0.003)	(0.003)	(0.005)	(0.005)
(Log) Income		-0.098***	-0.077***	-0.077***
		(0.002)	(0.003)	(0.003)
HH characterstics				✓
Wealth			✓	✓
Observations	40,762	33,681	13,470	13,470
R-squared	0.094	0.181	0.155	0.183
Mean dep. variable	0.139	0.104	0.073	0.073

Motivation

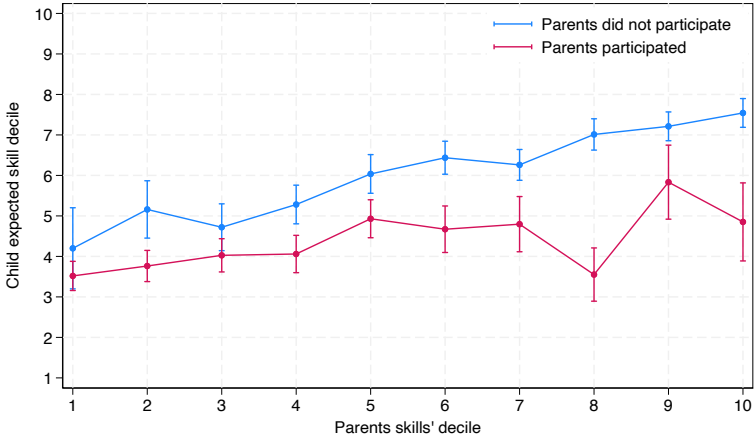
- For a given level of income, participating parents invest less time and money on their children's human capital. . . lowering child's test scores.

	Investments		
	Money	Time	Test scores
(Log) Income	0.765***	0.0622	0.0463***
	(0.0744)	(0.225)	(0.00791)
Participating parents	-0.975***	-1.663***	-0.160***
	(0.159)	(0.473)	(0.0170)
Observations	5,889	4,485	4,142
R-squared	0.109	0.197	0.618
Mean dep. variable	2.093	19.367	-0.571

Notes: all regressions include FE for years, child's age, number of children, and marital status.

Motivation

- As a result, children of participating parents have lower level of skills.



This paper

- Research questions:
  - (A) How does welfare culture affect persistence in welfare participation?
    - → Welfare culture explains around 40% of the differential participation rate.
  - (B) How does welfare culture affect persistence in skills?
    - → Welfare culture accounts for around 10% of the persistence in skills.
- Use an OG model with heterogeneus agentes and:
  - Endogenous persistence in income (child's skill formation).
  - Persistence in preferences for welfare participation (welfare culture)
  - Paternalistic preferences: value children's choices acccording to their own preferences.

The model

Main features

- Life-cycle OG model with heterogeneous agents and uninsurable income risk: More
  - Wage heterogeneity: age profile + skills + persistent shock. More
  - Endogenous skill formation during childhood (Lee and Seshadri, JPE, 2019) More
- Welfare programs: heterogeneous utility cost from participation (ν) $\rightarrow$ incomplete take-up.

  Fact 1. Incomplete take-up of welfare programs.
- Welfare culture: utility cost from participation is correlated across generations.

  Fact 2. For a given income, children of particiapting parents are more likely to participate.
- Paternalistic preferences: parents' value their children utility with their own preferentes.

  Fact 3. For a given income, non-particiapting parents invest more in their children's skills.

The model

Welfare participation

- Households suffer utility cost in case of welfare participation, $\nu \in \{\nu_L, \nu_H\}$, with $\nu_L > \nu_H$.
  - Value of ν_H such that participating is never optimal
  - All welfare program participants have a low participation cost, ν_L.
- Welafare culture: Pariticpation cost drawn when moving out depending on parents' cost (ν_p):

$$P(\nu = \nu_L | \nu_p = \nu_L) = p_{L|L} > p_{L|H} = P(\nu = \nu_L | \nu_p = \nu_H)$$

  - Children of low-cost parents are more likely to draw a low participation cost.
  - For given level of income, children of participating parents are more like to participate.

The model

Value function

- Households withoutwith kids solve:

$$V_j(z, \tilde{\theta}, \tilde{\theta}; \theta, \nu) = \max_{c,\ell,\mathbb{P},m,t,m,t} u(c,\ell) - \mathbb{P}\nu - \phi t - \phi t + \beta \mathbb{E}_j \left[V_{j+1}(z', \tilde{\theta}', \tilde{\theta}'; \theta, \nu) \right]$$

$$\text{s.t.} \quad c + m + m = y - T(y, n = 01) + \mathbb{P} \cdot TR(y, n = 01) \qquad \text{Taxes}$$

$$y = (1 - \tau_{ss}) w(j, \theta, z) \ell \qquad \text{Income process}$$

$$\tilde{\theta}' = f_j(\tilde{\theta}, m, t) \; \tilde{\theta}' = f_j(\tilde{\theta}, m, t)$$

- When children move out (age J_l, 43), parents' continuation value is:

$$\mathbb{E}_{J_l} \left[V_{J_l+1}(z', \tilde{\theta}'; \theta, \nu) \right] = \mathbb{E}_{J_l} \left[V_{J_l+1}(z'; \theta, \nu) \right] + \underbrace{W(\tilde{\theta}', \nu_p = \nu)}_{\text{Altruism}}$$

The model

Paternalistic preferences

- The utility parents derive from the children is $W(\tilde{\theta}, \nu_p)$ which is given by:

$$W(\tilde{\theta}, \nu_p) \;=\; P(\nu_L|\nu_p) \cdot \underbrace{E_z\left[\widetilde{V}(z, \xi\,\tilde{\theta}, \nu_L|\nu_p)\right]}_{\text{Low participation cost}} \;+\; P(\nu_H|\nu_p) \cdot \underbrace{E_z\left[\widetilde{V}(z, \xi\,\tilde{\theta}, \nu_H|\nu_p)\right]}_{\text{High participation cost}}$$

- Paternalistic preferences: children's choices evaluated according to parents' preferences.

$$\widetilde{V}(z, \theta, \nu|\nu_p) \;=\; V_1(z, \theta, \nu_p) \quad \text{with} \quad x = x(z, \theta, \nu), \quad x \in \{\mathbb{P}, \ell, m, t\}$$

  - High-ν parents suffer a welfare loss if their low-ν child participates. More
  - Low-ν parents suffer a welfare loss if their high-ν child refuses to participare. More

Calibration

- We calibrate the model to the US in the 2000's for households aged 20-80.
- Exagenous parameters: $\sigma = 1$ (log utility), $\gamma = 0.5$ (Frish elasticity), $\beta = 0.97$.
- Data sources:
  - PSID: age, labor, income, welfare participation.
  - PSID's CDS: parental investments investments.
  - Estimate tax function using CPS, 2000-2010.
  - Estimate transfers function using SIPP, 2001-2012.

Measurement Income process Taxes Transfers

Calibration (preliminary)

Calibrated parameters

Parameter		Value	Moment	Model	Data
φ	Level disutility work	41.1	Average hours	31.7	31.7
$p_{L\|L}$	$P(\nu = \nu_L \| \nu_p = \nu_L)$	0.34	Participation rate	9.5	12.6
$p_{L\|H}$	$P(\nu = \nu_L \| \nu_p = \nu_H)$	0.20	Differential participation rate	0.18	0.20
ν_L	Low part. cost	0.05	Participation elasticity, income	-0.09	-0.10
ν_H	High parti. rate	3.85	DIff. income P vs NP parents	-0.33	-0.44
μ_0	Share invest. in $\tilde{\theta}'$, scale	0.39	IGC of skills	0.39	0.37
μ_j	Share invest. in $\tilde{\theta}'$, shape	0.32	Age elasticity of skills	0.05	0.15
γ_0	Share time in Λ_j, scale	0.97	Ave. money invest.	4.70	3.96
γ_j	Share time in Λ_j, shape	0.01	Ave. time investment, mid-age child	18.1	21.0
ϕ	Disutility time invest	3.01	Ave. time investment	24.1	20.1
ξ	Anchor of skills	-2.80	Ave. skills	1.00	1.00
σ_k	Std of shocks to child's skills	0.07	Std of skills	0.40	0.68

Results

How does welfare culture affects...

1. ...intergenerational persistence in welfare participation?
2. ...intergenerational persistence in skills?

To answer this questions we compare the bechmark economy with one in which:

- Set $p_{L|L} = p_{L|H} = \bar{p}$ such that total amount of transfers does not change: $\bar{p} = 0.23$.
- Probability of having a low-ν child is independent of parents' participation cost, so...
  - Any remaining persistence in welfare participation only due to persistence in income.
  - Differences in investment only due to differences in parental income & skills.

Results

1. How does welfare culture affects intergenerational persistence in welfare participation?

	Benchmark	Counterfactual	Diff.
Participation rate, P parent	24.7 pp	19.4 pp	-5 pp
Difference, P *vs* NP	18.0 pp	11.8 pp	-7 pp
Difference if $y < 0.5$	16 pp	7 pp	-9 pp

- Lower participation differential: children of participating parents are now 11 pp more likely to participate, 7 pp lower differential. Larger reduction among lower income households.
- Welfare culture explains around 40% of the persistence in participation.

Results

2. How does welfare culture affects intergenerational persistence in skills?

	Benchmark	Counterfactual	Diff.
IGC skills	0.39	0.35	-0.04
Time investment, NP parent	25	26	1 h/week
Money investment, NP parent	5.1	5.3	0.2% $\bar{y}$
$\mathbb{E}(\theta\|\nu=\nu_H)-\mathbb{E}(\theta\|\nu=\nu_L)$	7.1%	0%	-7.1 pp
$\mathbb{E}(y\|\nu=\nu_H)-\mathbb{E}(y\|\nu=\nu_L)$	7.5%	1.2%	-6.3 pp

- Lower persistence in skills: High-ν parents face even more incentives to invest (due to higher probability of children's participation): 4% more time and money investments.

  ... but high-ν parents are no longer richer; in the baseline economy, 7% higher level of skills.

- Welfare culture accounts for around 10% of the persistence in skills.

Conclusions

We build a quantitative macroeconomic model featuring both income persistence and welfare culture (persistence in preferences towards welfare programs) and find:

- Welfare culture explains around 40% of the differential participation rate.

  Takeaway 1. Transfers not granted "only" based on income, with potentially large welfare consecuences of welfare culture: misallocation of welfare income?

- Welfare culture accounts for around 10% of the persistence in skills.

  Takeaway 2. Moral hazard problems associated to welfare programs have an intergenerational dimension: persistence in factors behind incomplete take-up may distort parental incentives to invest in children's human capital.

  $\rightarrow$ Parents with high-participation cost have extra incentives to invest in their kids' human capital to prevent them from participating in welfare programs: higher IGC of skills.

Thanks for your attention

Measurement

- Sample selection: households aged 20 to 80, both married and singles.
- Household income (PSID): both labor income and labor supply are measured as averages across spouses.
- Welfare participation (PSID): $\mathbb{P}_t = 1$ if any of the spouses receives either TANF or Food Stamps during period t.
- Parental investmentes (PSID-CDS):
  - Time: total weekly hours that either the father, the mother or both have been actively involve in child's activity (time diary data).
  - Money: sum of the following expenses: private schools fees, tutoring programs, other lessons, sports-related activities, community groups or programs.

Back

Income process

- Wage rate of a household with age j and state (z, θ) given by:

$$\log(w) = \omega_j + \theta + z, \quad \text{with} \quad z' = \rho\, z + \epsilon$$

- Using wages $w_{i,j}$ from PSID, estimate the following regression:

$$\log(w_{i,j}) \;=\; \underbrace{a_0 + a_1 j + a_2 j^2}_{\omega_j} \;+\; \alpha_i \;+ \alpha_t \;+\; z_{ij}, \qquad \text{with} \quad \underbrace{\theta_i = \exp(\alpha_i)}_{\text{Skills}}$$

where i stands for the hoisehold, j for the houshold age, and t for the year. Then, fit an AR(1) process to z using $z_{i,j-1}$ to instrument for $z_{i,j}$ (measurement error).

$$z_{i,j} = \rho\, z_{i,j-1} + \epsilon, \quad \text{with} \quad (\rho_z, \sigma_z) = (0.953, 0.249)$$

Main features | Value function | Calibration

Children's skill formation

- Skills formation technology as in Lee and Seshadri (JPE, 2019).

$$\log \tilde{\theta}_{j+1} \;=\; \mu_j \underbrace{\log \Lambda_j(t,m)}_{\text{Investments}} \;+\; (1-\mu_j)\; \underbrace{\log \tilde{\theta}_j}_{\text{Past skills}} \;+\; \epsilon_k, \quad \epsilon_k \sim N(0,\sigma_k^2),$$

- Parents invest money (m) and time (t) in their children's skills:

$$\log \Lambda_j(t,m) = \gamma_j \log\left(t + \frac{\gamma_j x_j}{\bar{w}}\right) + (1-\gamma_j)\log\left(m + (1-\gamma_j)x_j\right)$$

  where x_j is the amount of public investment in children at age j.

- Technology is age-dependent:

$$\mu_j = \mu_0 \exp(-\mu_1 j), \quad \gamma_j = \gamma_0 \exp(-\gamma_1 j)$$

Main features Value function

Tax function

	λ	τ
No children	0.865	0.070
2 children	0.924	0.112

- We consider a standard tax function:

$$T(y,n) = (1 - t(y,n))y \quad \longrightarrow \quad t(y,n) = 1 - \lambda(n)y^{\tau(n)}$$

- Estimate the parameters by presence of children using CPS 2000-2010 data

Model Calibration

Transfers function

	γ	α	β_0	β_1
No children	0.026	-3.313	-0.380	0.053
2 children	0.065	-2.921	-0.351	-0.034

- Transfers function:

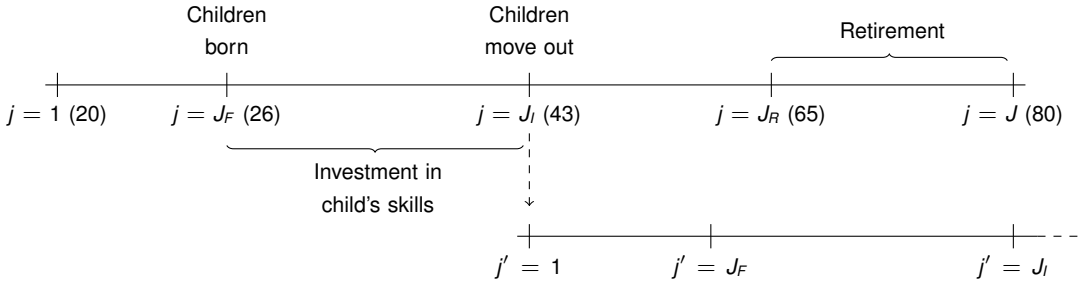
$$TR(y,n) = \begin{cases} \gamma(n) & \text{if } y = 0 \\ \exp\left(\alpha(n) + \beta_0(n)y + \beta_1(n)\log y\right) & \text{if } y > 0 \end{cases}$$

- Estimate by presence of children using SIPP data, 2001-2012

  Use data on Temporary Assistance for Needy Families and Food Stamps

Model Calibration

Life-cycle structure



- Households ork until age J_R and can participate in welfare at any time.
- Every household has a kid at age J_F and invest in her skill until age J_I.
- Retirees receive pension income and cannot participate in welfare (simplification).

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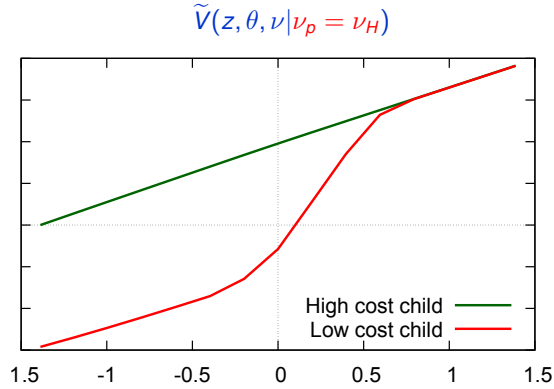
Paternalistic preferences

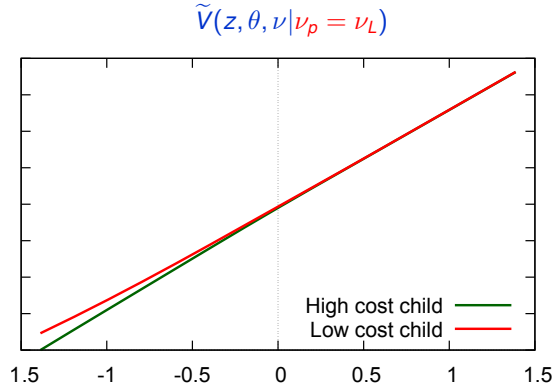


- High-ν parents, suffer a large utility loss if children are low-ν and low-θ.

  If the child has low-ν and low skills, large welfare costs from children's participation.

Back

Paternalistic preferences



- Low-ν parents, instead, suffer a (small) utility loss if children are high-ν and low-θ.

  They don't suffer distuility from their children's participation but they do from lack of insurance.

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Calibration

Non-targeted moments

Calibration