Discussion of ``Child Development, Parental Investments, and Social Capital'' by Qianyao Ye

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- Recent literature since Cunha, Heckman, and Schennach (2010) models the technology of skill formation

$$\overbrace{\mathbf{K(a+1)}}^{\text{Skills at } \mathbf{a+1}} = \mathbf{f}^{(\mathbf{a})}\Big(\underbrace{\mathbf{K(a)}}_{\text{Skills at } \mathbf{a}}, \overbrace{\mathbf{I(a+1)}}^{\text{Investment}}, \underbrace{\mathbf{G(a+1)}}_{\text{Environmental Variables}} \Big). \tag{1}$$

- This paper examines how social capital - a key component of environmental variables - affects children's skill development
- Unlike existing literature that treats neighborhoods as black boxes, this paper provides insights into how neighborhood social capital affects skill formation

Using the Project on Human Development in Chicago Neighborhoods (PHDCH) data, this paper:

(i) construct the social capital: the community survey conducted in 1995 provides a unique set of measures of social capital in the neighborhood
   - neighbors taking action in cases of children skipping school, children defacing buildings, and neighbors reprimanding children for disrespectful behaviors
   - whether parents generally know each other, whether adults generally know who local children are, whether adults would watch out for children, etc.

(ii) identify and estimate the causal impacts of social capital on children's multiple skill development: using Public housing Demolition in 1995 in Chicago as the exogenous treatment on the neighborhood's social capital

- The key component of the paper is to estimate the following skill formation technologies:

$$\begin{aligned}\theta^{c}_{i,r,t+1} &= f(\theta^{c}_{i,r,t}, \theta^{s}_{i,r,t}, I_{i,r,t}, SC_{i,r,t}, X_{i,r,t}, \varepsilon_{i,r,t}) \\ \theta^{s}_{i,r,t+1} &= f(\theta^{c}_{i,r,t}, \theta^{s}_{i,r,t}, I_{i,r,t}, SC_{i,r,t}, X_{i,r,t}, \eta_{i,r,t})\end{aligned}$$

  where i,r,t represent child i in the neighborhood r at wave t
- Then, the author mainly focuses on the Cobb-Douglas technology specification as follows:

$$\ln \theta^{p}_{i,r,t+1} = \delta^{p}_{0} + \delta^{p}_{1} \ln \theta^{c}_{i,r,t} + \delta^{p}_{2} \ln \theta^{s}_{i,r,t} + \delta^{p}_{3} \ln I_{i,r,t} + \delta^{p}_{4} lnSC_{i,r,t} + \mathbf{X}'_{i,r,t}\Gamma^{p}_{1} + \varepsilon^{p}_{i,r,t} \quad (2)$$

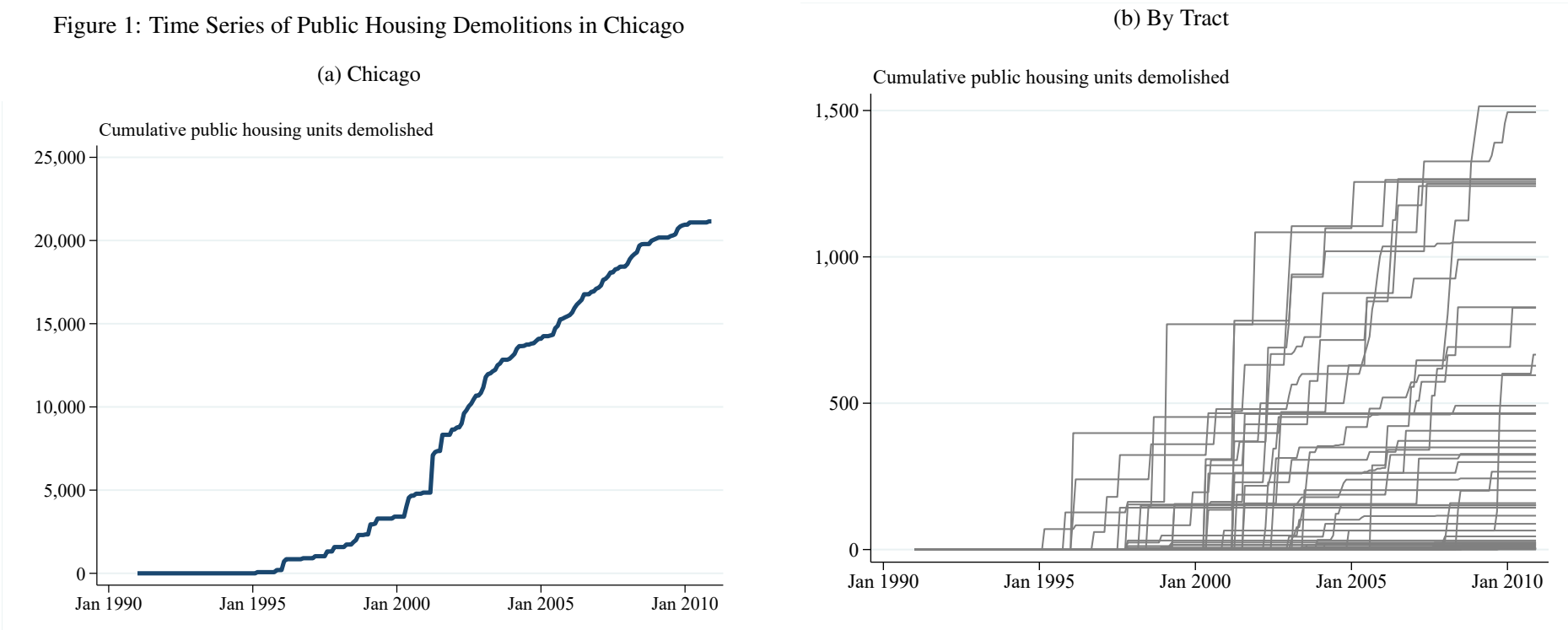
  - Since all skills are latent, this paper follows the standard method (see Cunha et al. (2010),Attanasio et al. (2020), and Agostinelli and Matthew (2023) to construct latent factors through measures in the data.
  - The major work tried to solve in this paper is the endogeneity of parental investment ($\ln I_{i,r,t}$) and social capital ($\ln SC_{i,r,t}$) as shown in equation (2)

$$\ln \theta^{p}_{i,r,t+1} = \delta^{p}_{0} + \delta^{p}_{1} \ln \theta^{c}_{i,r,t} + \delta^{p}_{2} \ln \theta^{s}_{i,r,t} + \delta^{p}_{3} \ln I_{i,r,t} + \delta^{p}_{4} lnSC_{i,r,t} + \mathbf{X}'_{i,r,t}\Gamma^{p}_{1} + \varepsilon^{p}_{i,r,t}$$

- To solve the potential endogeneity issue of social capital, this paper uses the implementation of public housing demolition in Chicago in 1995 to construct two types of households:
  - (a) Treatment group: the ones not demolished but living in the neighborhoods with demolition in 1995 or neighborhoods adjacent to a demolished building (within 1 km)
  - (b) Control group 1: the ones living in all other neighborhoods with public housing
  - (b') Control group 2: the ones living in neighborhoods with public housing to be demolished in later years

Figure 1: Public Housing Demolitions in Chicago

(a) (b)



- The initial demolitions were largely driven by unforeseen events or logistical challenges, such as heating system breakdowns, pipe bursts, and lawsuits

Source: Milena Almagro, Eric Chyn, and Bryan A. Stuart (2023)

Questions about control group

- For control group 1: Does it mean all other neighborhoods without any demolition until 1995/2000/2016? This paper only uses the data till 1999; therefore, for the control group 1, it would be better for the households living in the neighborhoods with public housing without any demolition until 2000
- For control group 2: "the ones living in neighborhoods with public housing to be demolished in later years" here later years means until 2016?

Balance Check

The key idea of using demolition policy to get the exogenous changes of "social capital" in some neighborhoods

- Need to check the measures of social capital prior to the demolition policy between the treated and control neighborhoods
- For household characteristics: it would be better to include the measure of single mother
- Step down p-values across all measures

Instrumental variables for parental investment

$$\ln \theta^{p}_{i,r,t+1} = \delta^{p}_{0} + \delta^{p}_{1} \ln \theta^{c}_{i,r,t} + \delta^{p}_{2} \ln \theta^{s}_{i,r,t} + \delta^{p}_{3} \ln I_{i,r,t} + \delta^{p}_{4} lnSC_{i,r,t} + \mathbf{X}'_{i,r,t}\Gamma^{p}_{1} + \varepsilon^{p}_{i,r,t}$$

- To solve the potential endogeneity concern with parental investments, this paper uses the percentage change in female employment by education attainments from 1996 to 1997. If there exists a correlation such that more educated mothers have more able children, the exogenous variable for the proposed IV may not be valid.
- The policy of EITC significantly changed in 1996, and it could be a better IV for parental investment

The Linkage between Parental Investment and Social Capital

- It seems that parental investment is independent of the input of social capital conditional on household characteristics
  - Can households use parental investment to respond to the changes in social capital?
- How to form social capital?
  - Through local community tax? Or could the household improve the neighborhood's social capital through their budget constraint?

Complimentarity

$$\ln \theta^{p}_{i,r,t+1} = \delta^{p}_{0} + \delta^{p}_{1} \ln \theta^{c}_{i,r,t} + \delta^{p}_{2} \ln \theta^{s}_{i,r,t} + \delta^{p}_{3} \ln I_{i,r,t} + \delta^{p}_{4} lnSC_{i,r,t} + \mathbf{X}'_{i,r,t}\Gamma^{p}_{1} + \varepsilon^{p}_{i,r,t}$$

- $\theta^{p}_{i,r,t+1} = A{\theta^{c}_{i,r,t}}^{\delta^{p}_{1}} {\theta^{s}_{i,r,t}}^{\delta^{p}_{2}} {I^{c}_{i,r,t}}^{\delta^{p}_{3}} {SC_{i,r,t}}^{\delta^{p}_{4}}$
- Cobb-Douglas function implies that parental investment and social capital are complementary to each other, which may not be true
- Either needs empirical evidence to support it or
- Try CES production function or at least the format as follows:

$$A{\theta^{c}}^{\delta^{p}_{1}} {\theta^{s}}^{\delta^{p}_{2}} \left(\beta_1 I^{\gamma} + (1-\beta_1) SC^{\gamma}\right)^{1/\gamma}$$

Cost effectiveness of alternative policies

Table 11: Estimates of the Production Functions

	Cognitive skills w2		Socio-emotional skills w2	
	OLS	IV	OLS	IV
Social capital	0.003 [-0.026, 0.049]	0.158 [0.067, 0.381]	0.03 [-0.012, 0.102]	0.190 [0.104, 0.547]
Parental investments	0.056 [0.025, 0.081]	0.421 [0.191, 0.616]	0.043 [0.003, 0.084]	0.156 [-0.159, 0.406]
Cognitive, w1	0.613 [0.518, 0.701]	0.547 [0.478, 0.663]	0.112 [0.066, 0.203]	0.106 [0.05, 0.215]
Socio-emo., w1	0.074 [0.051, 0.12]	0.064 [0.045, 0.125]	0.558 [0.475, 0.611]	0.574 [0.496, 0.637]

- A one SD increase in log social capital leads to a 0.16 SD increase in log cognitive skills and a 0.19 SD increase in log socio-emotional skills.
- 1 SD increase in log social capital is correlated with a $50,000 increase in the average household income in a neighborhood.
- one SD increase in log parental investments improves log cognitive skills by 0.42 SD

Cost effectiveness of alternative policies

- To increase $50,000 in average household income seems not effective compared to directly cash transfer in terms of either household income or parental investment
- Back to the previous question, if we know how to form social capital, we may have better ways to conduct an effectiveness comparison among different alternative policies
- It would also be good to link children's skill improvement with their expected lifecycle earnings

This paper works on a very important topic, and I am really enjoying to read the draft!

Thank You