

The Economics of Parenting

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1. Introduction

- Among the distinct characteristics of humans is extraordinarily slow development.
- We are born helpless and then go through a prolonged phase of childhood and adolescence before reaching full maturity decades into our lives.
- As a consequence, young humans depend on their parents.
- Child rearing or parenting refers to everything that parents do to support the development of their children, from basics such as providing food and shelter to guiding their emotional and intellectual development.
- In the past parenting was mostly studied in other social sciences such as sociology and developmental psychology; however, in recent years, a large literature on parenting has developed within economics.

- In part, this reflects the growing reach of economics, which in the case of the study of parenting goes back to Gary Becker's work on the family (see Becker 1981).
- However, an equally important factor is the fact that recent research shows that parenting decisions have profound economic implications.
- In modern economies, approximately two-thirds of total income goes to workers as wages, and most of this income reflects the return to accumulated human capital rather than raw labor.
- A key factor in the accumulation of human capital, in turn, is parenting decisions that start in the very first years of life and continue through a child's development to adulthood.
- Economists who want to study the role of human capital in economic development, determinants of social mobility, and the drivers of long-run inequality must take parenting decisions into account.

2. An Economic Model of Parenting

- In this section, we outline a general economic model of parenting that we use below to discuss parenting styles, skill formation, and neighborhood and peer effects.
- What we mean by economic model is that we conceive of parenting decisions in the same way that economists conceive of any other decision: Parents pursue particular objectives that are summarized by a utility function; they act rationally and purposefully in pursuing these objectives; and they are subject to various constraints such as limits to their financial resources, their knowledge, their time, and the underlying technology of child development.
- Given that much of parenting is about parent–child interactions, the model also allows for children to have a say and take actions on their own.
- The main elements of the model are a combination of work on parenting style by Doepke & Zilibotti (2017) with the notion of a multistage production function for skills, as in James Heckman’s recent work with different coauthors (e.g., Cunha & Heckman 2007, Cunha et al. 2010).

- In the model, we limit attention to a single parent and a single child.
- We start with the parent's objectives. The parent derives utility during two periods of adulthood, and also cares about the child.
- The value function that the parent seeks to maximize is given by

$$V = U_1(C_1, L_1|A) + U_2(C_2, L_2|A) + Z[(1 - \gamma)v + \gamma\tilde{v}] \quad 1.$$

- We use the convention that upper-case variables refer to the parent, and lower-case variables to the child.

- The value function that the child seeks to maximize (and that enters into the parent's altruistic utility) is

$$v = u_1(c_1, l_1 | a_1) + u_2(c_2, l_2 | a_2) + zV'$$

The equation is annotated with purple markings: a horizontal line under u_1 , a horizontal line under u_2 , a vertical line with a downward arrow pointing to l_1 , and a circle around zV' .

2.

- In this case, c_t and l_t are the consumption and leisure of the child; a_t is the child's preference vector at age t ; and V' is the expected continuation utility of the child after reaching adulthood, which, in a dynastic model, would be of the form in Equation 1.
- Unlike the parent's preferences A , the child's preferences a_t at evolve during childhood, which captures the gradual formation of attitudes and noncognitive skills such as patience and perseverance.
- Leisure l_t can be a vector of different activities from which the child derives enjoyment.

- The parent's paternalistic concern about the child \tilde{v} is given by

$$\tilde{v} = \tilde{u}_1(c_1, h_1|A) + \tilde{u}_2(c_2, h_2|A) + zV';$$

- that is, the parent's paternalistic utility is defined over the same objects as the child's actual utility but with a potentially different functional form for utility that may depend on the parent's preferences A .
- The key implication of the paternalistic component in preferences is that the parent may disagree with the actions of the child; this scope for disagreement turns out to play a central role in the economics of parenting.
- In particular, parenting styles relate to how the disagreement between parent and child is resolved.

- As a specific example, we can capture such a difference in patience by setting the utility of the child to

$$v = a_1 u(c_1, l_1) + a_2 \beta u(c_2, l_2) + \beta^2 V', \quad 3.$$

whereas the paternalistic preference of the parent is given by

$$\tilde{v} = u(c_1, l_1) + \beta u(c_2, l_2) + \beta^2 V', \quad 4.$$

where we define $\beta \equiv \sqrt{z}$.

- In this case, β is the parent's discount factor, whereas the child's (scalar preference parameters $a_1 \geq 1$ and $a_2 \geq 1$ capture additional weight that the child places on experience early in life relative to the later-in-life expected utility V' .
- Next, we turn to choices and constraints. The parent's choices at time t include her own consumption C_t , the child's consumption c_t , her own leisure l_t , and her own labor supply N_t .

- The parent's investment in the child's development is represented by a vector I_t , where

$$I_t = \{X_t, E_t\}.$$

time → *money*

- In this case, X_t is a time investment in child rearing, and E_t is a monetary investment (expense) in child rearing.
- The parent can also affect the influence of peers on the child's development by choosing the district of residence d_t where the family lives.
- Finally, the parent can determine the choice set X_t for the child, which determines how much freedom of choice the child has.
- The parent is constrained by an intertemporal budget constraint,

$$C_1 + c_1 + E_1 + q(d_1) + \frac{1}{R} [C_2 + c_2 + E_2 + q(d_2)] = w_1(S)N_1 + \frac{1}{R}w_2(S)N_2, \quad 5.$$

and by a time constraint,

$$L_t + N_t + X_t = 1.$$

- In the first period of childhood, the child's skills evolve as a function of initial conditions, the parent's investment, the environment, and the child's effort x_1 :

$$s_2 = f_1(S, s_1, I_1, d_1, x_1). \quad 6.$$

- In the second period (adolescence), we have

$$S' = f_2(S, s_2, I_2, d_2, x_2), \quad 7.$$

where $S' = \{H', A'\}$ is the child's skill vector at the beginning of adulthood, which in turn determines the child's utility as an adult V' .

3. The Economics Of Parenting Style

- The framework outlined in Section 2 can shed light on a variety of aspects of parent–child interactions.
- In developmental psychology, starting with the seminal work of Baumrind (1967), the concept of parenting style takes a central place in categorizing types of parenting.
- For us, the choice of parenting style describes the extent to which parents interfere with their children’s own inclinations and how they go about getting children to conform to their own wishes.

3.1. Parenting Styles in the General Model

The three traditional parenting styles in developmental psychology can be understood as archetypes of resolutions of this conflict between parent and child.⁸ The *permissive* parenting style is the scenario where the parent lets the child have her way and refrains from interfering in the choices x_t . The *authoritarian* style is one where the parent imposes her will through coercion. In the model above, coercion (i.e., authoritarian parenting) is captured through the notion of restricting the choice set \mathcal{X}_t . An authoritarian parent chooses a small set \mathcal{X}_t that leaves little or no leeway to the child. The third parenting style, *authoritative* parenting, is also one where the parent aims to affect the child's choice. However, rather than using coercion, an authoritative parent uses persuasion: she shapes the child's preferences a_2 through investments I_1 in the first period of life. For example, such a parent may preach the virtues of patience or the dangers of risk during when the child is little, so that the child ends up with more adult-like preferences when the child's own decisions matter during adolescence.

3.2. The Impact of Economic Conditions on Parenting Style

- For the child, we abstract from utility during the first (early childhood) period. During the second (adolescence) period, the child gets linear utility from leisure l_2 , which depends on the child's vector x_2 of education investments.
- There is disagreement about the intertemporal trade-off between the child and the paternalistic parent, as in Equations 3 and 4.
- Given that utility is only derived in the second period, we can rewrite Equations 3 and 4 as

$$v = a_2 l_2 + \beta V', \quad 8.$$

$$\tilde{v} = l_2 + \beta V', \quad 9.$$

where $a_2 \geq 1$ is the extent to which the child places more weight on fun in the present versus welfare in the future.

- Next, we turn to the technology of skill formation.
- In the first period, the technology in Equation 6 for the accumulation of the skill vector $s_2 = \{b_2, a_2\}$ takes the form

$$\text{H.C.} \rightarrow b_2 = f_{b,1}(S, d_1),$$

$$\text{Discount factor} \rightarrow a_2 = f_{a,1}(S, X_1, d_1).$$

- That is, the child's cognitive skills in adolescence b_2 evolve passively depending on endowments (represented by the parent's skill vector S) and the environment (represented by the neighborhood quality d_1 , taken as fixed in this case).
- We abstract from investment in cognitive skills by both the parent and the child at this stage.
- Instead, parental involvement is crucial for the acquisition of noncognitive skills, represented in this case by the child's preference parameter a_2 .

Table 1: Three parenting styles

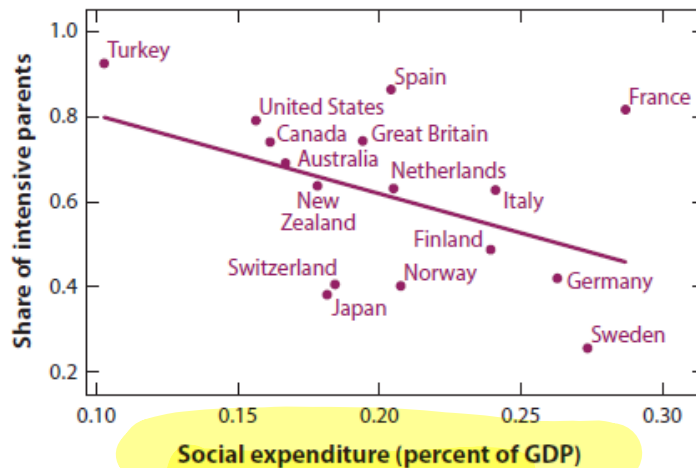
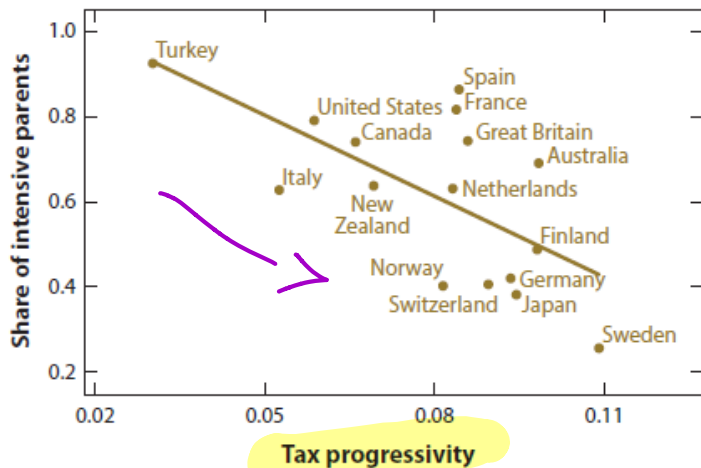
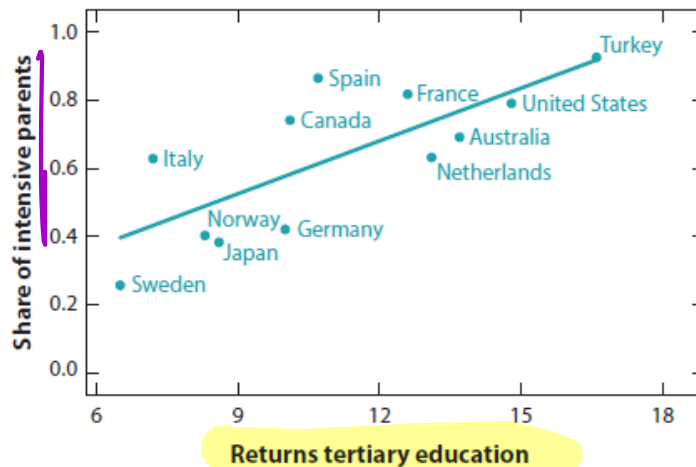
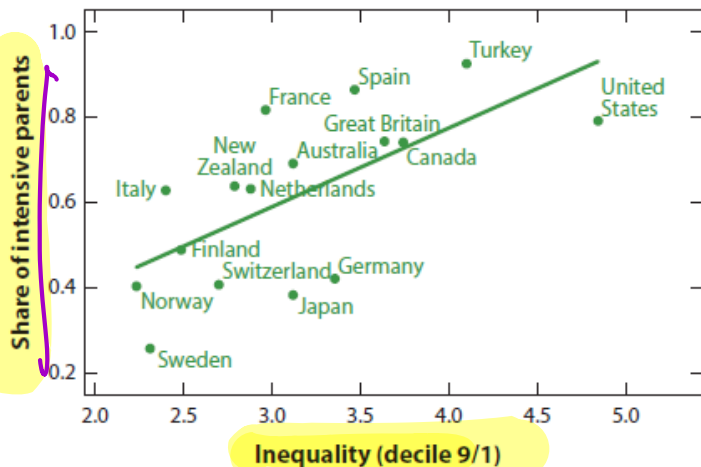
Parenting style	Indoctrinate child?	Restrict child's choice?	Cost to parent
Permissive	No ($a_2 > 1$)	No	0
Authoritarian	No ($a_2 > 1$)	Yes	$X_{AR} > 0$
Authoritative	Yes ($a_2 = 1$)	No	$X_{AV}(S, d_1) > 0$

3.3. Empirical Evidence on Economic Conditions and Parenting Styles

- A large share of the increase in child care time is related to educational activities. In 1976, US couples spent an average of two hours a week on playing with, reading to, and talking to their children and approximately 17 minutes a week on helping them with homework.
- In 2012, the average went up to six and a half hours a week for playing, reading, and talking to children and more than 1.5 hours for helping them with homework.
- Overall, US parents now spend 3.5 times more time on these education-related child care activities.
- This shift to more intensive and less permissive parenting styles is reflected in children's experiences.
- The percentage of kids walking or biking alone to school fell from 41% in 1969 to 13% in 2001. Among 6-to-8-year-old US children, unsupervised play time decreased by 25% between 1981 and 1997, whereas time spent on homework more than doubled. This is consistent with parents pushing children toward academic achievement.

- Figure 1 plots the results for Wave 5 of the WVS, which was carried out in 2005 and has the largest number of countries.
- As predicted by the theory, the share of intensive parents increases with pretax inequality and the return to education and decreases with the extent of redistribution through tax progressivity and social expenditure.
- For instance, 79% of US respondents are classified as intensive—and the United States has both high earnings inequality and a high return to education and low tax progressivity and social expenditure.
- Among the US respondents, 49% are authoritative, and 30% are authoritarian in the classification of Doepke & Zilibotti (2017).
- In contrast, only 26% of the Swedes are intensive parents, whereas 74% are relaxed—and Sweden has low inequality and high redistribution. Countries with moderate inequality, such as Germany and Japan, fall in between.

Figure 1: Inequality, redistribution, and intensive parenting across countries



- To examine this prediction, we perform regression analysis based on individual data.
- We estimate the following equation:

$$\text{INT_PAR}_{ict} = \alpha_c + \alpha_t + \beta \cdot \text{INEQ}_{ct} + X'_{ict} \cdot \gamma + \varepsilon_{ict},$$

where i , c , and t stand for individual, country, and time (wave).

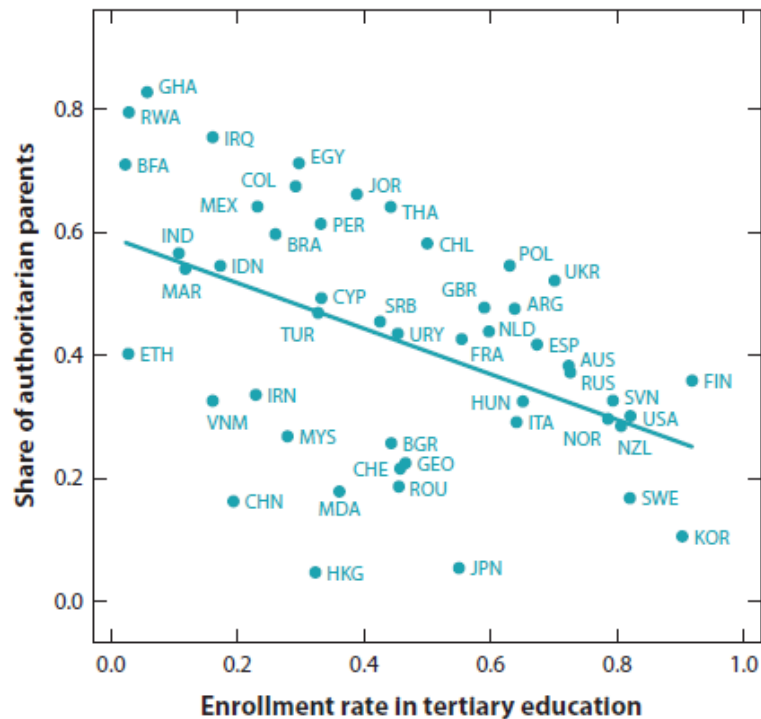
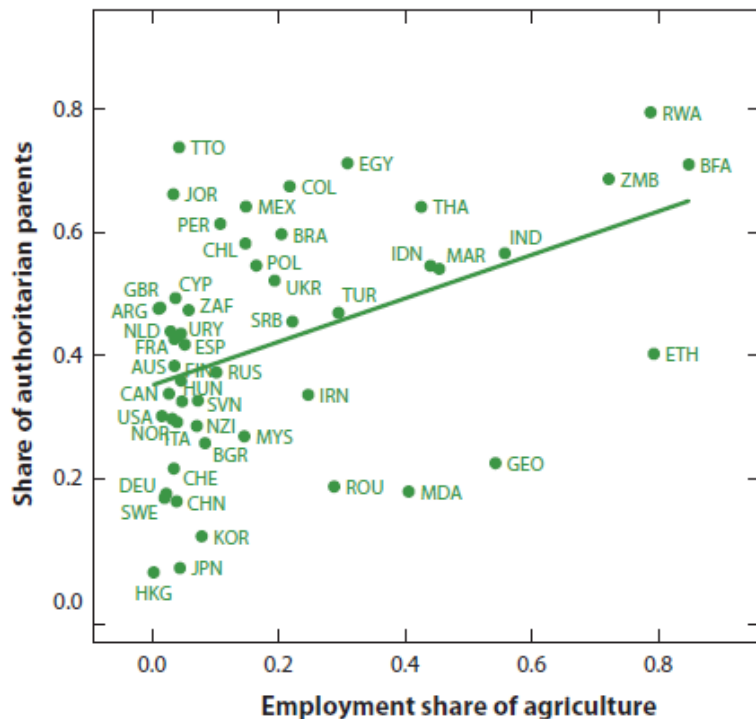
- The dependent variable INT_PAR is an indicator for parenting style, where INT_PAR=1 means that the parent is intensive, whereas INT_PAR=0 means that the parent is relaxed.
- Among the right-hand side variables, α_c is a country fixed effect, α_t is a wave fixed effect, INEQ_{ct} is a time-varying measure of inequality (the 90–10 earnings ratio), X is a vector of individual and country characteristics including gender, age, age squared, and the (log of) GDP, and ε is an error term.

Table 2: Inequality, redistribution, and parenting styles

	(1) Logit intensive	(2) Logit intensive	(3) Logit intensive	(4) Logit intensive	(5) Logit intensive	(6) Logit intensive
Inequality	2.38*** (0.44)	2.50*** (0.29)	2.12** (0.72)	1.74*** (0.37)	1.74*** (0.28)	27.22** (35.21)
Tax progressivity				0.20** (0.13)	0.24** (0.17)	5.35 (5.88)
Social expenditure				0.70 (0.29)	0.58 (0.25)	0.21** (0.14)
Controls	No	Yes	Yes	No	Yes	Yes
Country fixed effects	No	No	Yes	No	No	Yes
Observations	45,482	45,482	45,482	32,196	32,196	32,196

- Table 2 displays the estimates for β , expressed as odds ratios.
- All regressions include wave fixed effects with standard errors clustered at the country level. Column 1 displays the basic specification. Column 2 adds the control variables X_{ict} .
- Column 3 also adds country fixed effects. The odds ratio is significantly larger than unity and stable across specifications.
- In all cases, higher inequality increases the probability of intensive parenting. In columns 4, 5, and 6, we repeat the analysis while also including the measures of tax progressivity and social expenditure.
- The results in columns 4 and 5 confirm that each of the three variables of interest has the predicted effect: Inequality increases the intensive parenting style, while tax progressivity and social expenditure reduce it (although the effect of the latter is not statistically significant). In the regression in column 6, the three effects are less well identified.

Figure 2: Share of agriculture, higher education, and authoritarian parenting



- Figure 2 shows that these predictions are borne out in the data: Across countries, the share of authoritarian parents is increasing in the employment share of agriculture and decreasing in the enrollment rate in tertiary education.
- Doepke & Zilibotti (2019) also examine the effect of religiosity on parenting.
- They show that religious people are significantly less permissive and more authoritarian than nonreligious people.
- This finding is consistent with the hypothesis that many traditionally religious parents believe that the world is regulated by a never-changing order, and that it is their duty to transmit to their children an immutable set of values and truths.

3.4. Additional Mechanisms for the Choice of a Parenting Style

- The economic literature on parenting has identified additional mechanisms that are relevant for the choice of a parenting style but that are not captured by the model outlined in Section 3.2.
- Among the earliest contributions is that of Weinberg (2001), who focuses on the role of monetary incentives in raising children.
- In his model, richer parents can use monetary rewards to get their children to comply with their wishes.
- Poor parents lack the resources to do the same and thus may be more likely to resort to authoritarian methods such as corporal punishment.
- Thus, the mechanism can contribute to our understanding of the distribution of parenting styles in the population and also help explain the impact of parental income on child achievement.

4. The Economics of Children's Skill Acquisition

- In our parenting model in Section 2, the technology of skill acquisition is represented by Equations 6 and 7, reproduced here for easy reference:

$$s_2 = f_1(S, s_1, I_1, d_1, x_1),$$

$$S' = f_2(S, s_2, I_2, d_2, x_2),$$

where the skill vectors during childhood s_t and adulthood (S for the parent, S' for the child) include both cognitive and noncognitive skills.

- This formulation of skill acquisition already incorporate some central insights of the recent literature on skill acquisition.
- For example, the technology gives a role to both endowment (represented by the parent's skills S and the child's initial skills s_1) and later investments in skills.

- A focal point of the literature on skill formation is to pin down the technology in Equations 6 and 7 in more detail, beyond the general functional form.
- Some of the central questions in this literature are:
 - What is the relative importance of endowments, parental investment, own investment, and the environment for the acquisition of cognitive and noncognitive skills?
 - During which phase of childhood are investments in cognitive and noncognitive skills most effective?
 - Are early and late investments in skills complements or substitutes?
- All of these questions are relevant for parents who want to decide which parenting style to adopt and how to best invest in the skills of their children.
- What is more, these questions are also crucial for the design of public policy.

5. The Interaction of Parenting and Neighborhoods in Child Development

- In the past decades, an extensive and multidisciplinary literature has studied the importance of neighborhoods in shaping an individual's life opportunities (for reviews of neighborhood effects, see Jencks & Mayer 1990, Sampson et al. 2002).
- Most of the research focuses on children, especially children living in poor and distressed areas.
- Neighborhoods play an important role in part because, especially for older children, much of human capital accumulation takes place in schools, which may vary in quality and organization.
- Broadly defined neighborhoods also matter because they define the set of labor market opportunities that children face.
- Most young people start working in the same commuting zone in which they grew up.
- This affects the incentives for parents to adopt different parenting styles and to invest in their skill formation.

5.1. Empirical Evidence on Neighborhood Effects in Child Development

- Children who grow up in distressed areas tend to reach lower outcomes and display less upward mobility when compared to children from wealthier areas (Brooks-Gunn et al. 1993, Cutler & Glaeser 1997, Chetty et al. 2014).
- This stylized fact makes the analysis of neighborhood and peer effects a key point of theories of social capital accumulation (Coleman 1988) and human capital externalities and growth (Benabou 1993, Lucas 1988).
- One potential explanation underlying neighborhoods effects (Wilson 1987, Akerlof 1997, Glaeser & Scheinkman 2001) is that children in better neighborhoods are exposed to adults acting as role models who shape aspirations and adherence to social norms.
- Social networks and peer effects also play a role. For example, higher-income peers may have more information about labor market opportunities to be shared with the surrounding children (once grown up) and their parents (Manski 2000, Durlauf 1996).

5.2. Neighborhood Choice in a Model of Parenting

- From the perspective of the economics of parenting, the results of this literature suggest that parents have a major impact on their children through determining their environment, including (but not limited to) the choice of which neighborhood to live in.
- To date, there is little work from a modeling perspective on neighborhood choice as an aspect of parenting, and none that considers how this important dimension of parenting interacts with other parenting choices, such as that of a parenting style.
- Eckert & Kleineberg (2019) estimate a model of neighborhood choice where the value of the neighborhood is exogenous (and estimated).
- In the work of Fogli & Guerrieri (2018), endogenous neighborhood effects arise from a human capital spillover. Agostinelli (2018) estimates a dynamic model of skill formation where children choose their own peer groups, and parental investments respond to the children's peer groups (although the choice of neighborhood is not modeled).

6. Conclusions and Directions for Future Research