

Understanding Parental Decision-making: Beliefs about Returns to Parenting Styles and Neighborhoods

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Abstract

I study parental beliefs about the returns to two factors affecting the development and long-term outcomes of children: (i) parenting styles defined by the extent of warmth and control parents employ in raising children, and (ii) neighborhood quality. Based on a representative sample of 2,119 parents in the United States, I show that parents perceive large returns to the warmth dimension of parenting as well as neighborhoods, and document that perceived returns to parenting depend on the neighborhood a family is living in. Mothers expect larger returns than fathers, but there is no socioeconomic gradient in perceived returns. I introduce a measurement error correction by leveraging beliefs measured in two different domains, and show that parents' perceived returns relate to their actual parenting styles. I conclude that parental beliefs are an important determinant of parental decision-making, but cannot explain socioeconomic differences in parenting.

Keywords: Beliefs, Parenting styles, Neighborhoods, Child outcomes, Human capital

JEL-Codes: I24, I26, J13, J24, D19, R23

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1 Introduction

Parents play a crucial role for the development and success of children as inequalities can be traced back to early life (Francesconi and Heckman, 2016; Kalil, 2015). Yet, not much is known about the factors determining how parents decide to raise their children. In particular, evidence on the parental decision-making process and the consequences of different parenting styles remains scarce, in part due to their complexity (Attanasio, 2015). In a recent study, Doepke and Zilibotti (2017) argue that the economic environment creates incentives to engage in different forms of parenting. As parents decide where to live and how to raise their children, it is important to understand how parents perceive environments and parenting to interact.¹

In this paper, I study how parents perceive the returns to two factors affecting the development and long-term outcomes of children: first, I focus on parenting styles describing strategies that parents use in raising their children (Baumrind, 1967), and, second, I focus on the quality of the neighborhood a family is living in. In addition, I examine their perceived substitutability or complementarity, analyze the heterogeneity in perceived returns, and investigate the relevance of these beliefs for actual parental decision-making. Studying parents perceive different parenting styles and neighborhoods helps to predict behavioral responses to (policy-induced) changes in the quality of neighborhoods.

In order to investigate parental beliefs, I adopt a hypothetical scenario approach used by Cunha, Elo, and Culhane (2013), Boneva and Rauh (2018), Bhalotra et al. (2017), and Attanasio, Boneva, and Rauh (2019). I construct eight scenarios in which parents raise their children. Across scenarios, I vary the parenting style that parents adopt – commonly defined as different intensities of warmth and control employed in raising children (Maccoby and Martin, 1983)² – as well as the quality of the neighborhood families are living in. In addition, I randomize the children’s age and gender across respondents. For each of these scenarios, I then elicit parental expectations about the future earnings and expected life satisfaction of the child at age 30.³ This

¹In general, observed choices may be consistent with different combinations of preferences and beliefs. Manski (2004) therefore argues that one cannot solely rely on observed behavior to infer underlying beliefs and advocates for a direct elicitation of beliefs.

²Parenting styles have a long tradition in developmental psychology going back to Baumrind (1967). Initially, she identified three parenting styles, while Maccoby and Martin (1983) extend her original typology to four styles defined according to two dimensions – the extent of warmth and control used in raising children. Depending on their intensities, these two dimensions define four distinct parenting styles: authoritative (high warmth, high control), permissive (high warmth, low control), authoritarian (low warmth, high control), and neglecting (low warmth, low control). The psychology literature often refers to these dimensions as responsiveness and demandingness instead of warmth and control.

³This approach of eliciting future wage expectations dates back to Dominitz and Manski (1996) and has subsequently been used in a range of studies focusing on returns to human capital investments

design has several noteworthy features: First, by eliciting parents' beliefs for all eight scenarios and varying one dimensions at a time, I can infer parents' perceived returns to one particular dimension while controlling for (unobserved) heterogeneity across respondents. Second, comparing scenarios that change several factors at the same time allows me to investigate the perceived substitutability or complementarity of parenting styles and neighborhoods. Third, having access to multiple elicited beliefs per parent, I can estimate how each parent perceives these returns and subsequently link them to their characteristics and actual parenting styles. I implement the scenarios in a survey of 2,119 parents with school-aged children in the United States, who are selected to be representative in terms of their gender, age, income, and region of living.

I find that parents expect considerable returns to the warmth dimension of parenting, but not to control. A one standard deviation increase in warmth is associated with parents expecting 15.3 percent higher child earnings, whereas increasing control is not perceived to yield any returns. In addition, my estimates show that parents expect that earnings increase of 22.6 percent when raising a child in a relatively good neighborhood. When analyzing the interaction of the different factors, parents seem to adapt their expectations. Parents perceive warmth and control as complements, increasing expected earnings by an additional 4.6 percentage points if combining high levels of both warmth and control. Moreover, parenting is perceived to be more effective in low quality neighborhoods. The perceived return to warmth (control) is 1.4 (1.5) percentage points higher in low-quality neighborhoods corresponding to an approximate 9 percent increase of the perceived return to warmth. Parents therefore expect that their parenting can partly compensate for deprived environments. Yet, authoritative parenting styles featuring warmth and control are perceived to be more effective in high quality neighborhoods. In addition, I show that these results are not restricted to the monetary domain, but carry over to the life satisfaction domain.

How do these perceived returns vary by age and gender of the child? First, my results reveal a pronounced age gradient: high levels of warmth are perceived as more effective for younger children, while exerting control is especially important for older, teen-age children living in adverse environments. I do not find differences in perceived returns by child gender. However, when focusing on parental gender, I find pronounced differences in perceived returns. Mothers expect higher returns to warmth and neighborhoods than fathers, while there are no differences in the control dimension of parenting styles. Although there is a large dispersion in perceived re-

(e.g., Attanasio and Kaufmann, 2014; Hastings et al., 2016; Jensen, 2010; Kaufmann, 2014; Nguyen, 2008).

turns, I do not find systematic associations to other socio-demographic characteristics, which is in line with findings in Attanasio, Boneva, and Rauh (2019) but contrasts Boneva and Rauh (2018). My findings imply that parental beliefs about returns to parenting styles and neighborhoods are similar for parents from different socioeconomic backgrounds and thus unlikely to explain socioeconomic differences in parenting behavior. Despite the absence of socioeconomic differences in perceived returns, there are systematic variations. In particular, I show that parenting values – parents’ altruism and paternalism towards their own child – are strongly related to perceived returns. In particular, altruistic parents expect high payoffs of being responsive (high warmth) and living in good neighborhoods, while paternalistic parents expect larger returns to exerting control. These patterns provide empirical support for assumptions made in Doepke and Zilibotti (2017) and underline the role of parental preferences and parenting values for understanding perceived returns.

Finally, I investigate whether perceived returns are relevant for actual parenting behavior. Importantly, I find that perceived returns to both parenting dimensions are related to actual parenting behavior in the respective dimension: parents who expect larger returns to warmth (control) are more likely to raise their own children with warmth (control) highlighting that parental beliefs are consistent with actual behavior.

These results contribute to three strands of the literature. First, the paper relates to a growing literature on subjective expectations in the context of human capital formation.^{4,5} It is most closely connected to studies of parental beliefs about the process of human capital formation pioneered by Cunha, Elo, and Culhane (2013). Boneva and Rauh (2018) and Attanasio, Boneva, and Rauh (2019) build on their hypothetical scenario approach to study the timing (childhood or adolescence) or type of investment (time or money), while Bhalotra et al. (2017) consider different forms of time investments (intensity of breastfeeding and child interaction). By contrast, I study a different margin by allowing the mode of interaction, i.e., the parenting style, to vary. The rationale behind this is that a time investment of one hour can have different

⁴The literature discussed here builds on a growing literature analyzing students’ subjective expectations about schooling decisions (Attanasio and Kaufmann, 2014; Giustinelli, 2016; Jensen, 2010; Kaufmann, 2014) and major choices (Arcidiacono, Hotz, and Kang, 2012; Beffy, Fougère, and Maurel, 2012; Hastings et al., 2016; Stinebrickner and Stinebrickner, 2014; Wiswall and Zafar, 2015; Zafar, 2013), or family and job preferences as well as the resulting gender differences (Kiessling et al., 2019; Wiswall and Zafar, 2018a,b).

⁵I focus on a literature that assesses subjective expectations as part of decision-making processes. In the context of parental beliefs, there also exist some papers (e.g., Dizon-Ross, 2019; Kinsler and Pavan, 2018) that concentrates on the accuracy of parental beliefs for outcomes such as children’s school performance. For these outcomes, parents can learn about realizations and thus verify beliefs in principle, while for subjective expectations considered here, this is typically not the case.

effects depending on the intensity of parent-child interactions and thus I pay attention to the quality rather than the quantity margin of parental investments. Apart from analyzing a novel margin, I also add methodologically to this literature on subjective expectations by embedding a second belief measure to correct for measurement error. In particular, when studying the relevance of perceived returns for actual behavior, I lever two distinct measures of the same underlying factor, but measured in different domains (monetary or life satisfaction) to mitigate attenuation bias by applying a measurement error correction proposed by Gillen, Snowberg, and Yariv (2019).

Second, I contribute to a series of papers that explicitly incorporate parenting styles in addition to parental investments in their analyses. These studies analyze the development (Cobb-Clark, Salamanca, and Zhu, 2019; Cunha, 2015; Del Bono et al., 2016; Ermisch, 2008; Fiorini and Keane, 2014) and intergenerational transmission of skills and preferences (Brenøe and Epper, 2019; Falk et al., forthcoming; Zumbuehl, Dohmen, and Pfann, 2018), a child's behavior (Dooley and Stewart, 2007) or school outcomes (Cosconati, 2012). While these papers as well as the developmental psychology literature are primarily concerned with the consequences of particular investments or parenting styles for child outcomes, Doepke and Zilibotti (2017) and Doepke, Sorrenti, and Zilibotti (forthcoming) choose a different approach. They focus on parental decision-making and argue that economic incentives created by the environment shape parents' parenting style choices.^{6,7} The present paper complements these papers by focusing on the parental decision-making process and by presenting evidence on the perceived long-term consequences of different parenting styles in two relevant domains – earnings and life satisfaction. Moreover, my results provide support for modeling choices made in Doepke and Zilibotti (2017), namely that parental altruism and paternalism are key to understanding the choice of parenting styles.

Lastly, the paper relates to the literature showing how neighborhoods affect long-term outcomes of children (see, e.g., Chetty et al., 2018; Chetty and Hendren, 2018a,b; Deutscher, forthcoming, for evidence that neighborhood exposure affects a variety

⁶In particular, they focus on inequality and occupational mobility (in terms of an incumbency premium) as two features of the environment that create such incentives. Using data from the World Value Survey, Doepke and Zilibotti (2017) provide cross-country evidence that these two measures correlate with average parenting styles in a country. Dohmen et al. (2019) provide related evidence from Sweden that the effectiveness of parenting styles indeed hinges on the economic environment. In contrast to these papers, I focus on the decision-making process of individual parents and ask whether parents think such associations to exist, study the size of and heterogeneity in those perceived returns, and investigate whether these perceived returns are related to parent's actual decision-making.

⁷Relatedly, Cuellar, Jones, and Sterrett (2015) review the psychological literature on the relationship between parenting styles and neighborhoods. While a general finding in developmental psychology is that an authoritative form of parenting is most effective in raising successful children, there exists a large variety in adopted parenting styles (e.g., Chan and Koo, 2011; Dornbusch et al., 1987; Lamborn et al., 1991; Steinberg et al., 1991).

of social and economic outcomes) and that analyzes behavioral responses of parents. Kling, Liebman, and Katz (2005), Pop-Eleches and Urquiola (2013), and Han (2019) provide evidence that parents are more involved in their children’s upbringing in low quality neighborhoods. By contrast, Patacchini and Zenou (2011) suggest that parental involvement actually increases in neighborhood quality. I contribute to this discussion by providing first evidence on parental perceptions of both neighborhood effects as well as their interactions with parenting decisions. Moreover, my results show that parents perceive the returns to high warmth *or* high control parenting to be relatively larger in low quality neighborhoods. However, these effects reverse when analyzing authoritative parenting styles characterized by high levels of warmth *and* control. This indicates that conflicting findings in the literature may be due to a focus on different parenting behaviors. Collectively, these papers as well as my paper therefore suggest that the way in which parents raise their children interacts with neighborhood quality thereby pointing towards an additional mediator of neighborhood effects besides schools (e.g., Laliberté, 2018) or peers (e.g., Agostinelli, 2018).

In the next section, I describe the main survey instrument as well as the data collection process. Section 3 documents parents’ beliefs about the returns to parenting styles and neighborhoods before section 4 turns to an individual-level analysis. Section 5 examines the relevance of individual perceived returns for parental decision-making. Finally, section 6 concludes.

2 Survey description and data

My aim is to study parental beliefs about the effectiveness of different parenting styles and to analyze their interaction with the economic environment a family is living in. In order to study these beliefs, I conduct a survey with a representative sample of 2,119 parents in the United States. In this section, I describe the survey instrument and the sample for this study.

2.1 Hypothetical scenario approach

Analyzing parental beliefs is difficult for several reasons: First, inferring beliefs from observed behavior can be challenging as different sets of preferences and beliefs can in principle rationalize a given action (Manski, 2004). Second, eliciting beliefs only about the consequences of one’s own actual parenting style ignores important counterfactual beliefs that are an integral part of the decision-making process (Arcidiacono, Hotz, and Kang, 2012). Third, collecting beliefs about parents’ own behavior towards

their child might trigger motivated or self-serving beliefs resulting in over- or understating of their beliefs. In order to circumvent these issues, I adopt a hypothetical scenario approach used by Cunha, Elo, and Culhane (2013), Boneva and Rauh (2018), Bhalotra et al. (2017), as well as Attanasio, Boneva, and Rauh (2019), and elicit beliefs about the consequences of different parenting styles directly. These scenarios have the advantage that they allow me to elicit returns over different dimensions and counterfactuals by varying one dimension at a time while holding other factors constant. In addition, by asking about the consequences of a hypothetical family, I reduce the scope for self-serving beliefs.

The survey instrument consists of different scenarios varying the parenting style of parents as well as the quality of the environment a family is living in. I adopt the typology of parenting styles introduced by Baumrind (1967) and further specified by Maccoby and Martin (1983) and vary whether parents raise their children with high or low warmth as well as high or low control. The combination of these two dimensions results in four distinct parenting styles: neglecting (low warmth, low control), authoritarian (low warmth, high control), permissive (high warmth, low control), and authoritative (high warmth, high control). In order to study how the effectiveness of these different parenting styles depend on the quality of the neighborhood, I elicit parents' expectations about the consequences of the four parenting styles in two different environments: one neighborhood (the "good" neighborhood) describes an environment with low unemployment and few crimes, while the other has relatively high unemployment and more crimes ("bad" neighborhood). This allows to test whether parents believe that the effectiveness of different parenting styles hinges on the environment a family is living in as suggested in Doepke and Zilibotti (2017). Moreover, this enables me to examine whether parents perceive one parenting style as optimal independently of the socioeconomic environment. Table 1 summarizes the resulting eight scenarios.

More specifically, I present respondents two hypothetical average American families, each having a single child whose age and gender are randomly determined as described below. The two families differ only in the neighborhood they are living in. One family, the "Joneses", is living in a good neighborhood described by relatively low unemployment rates (2%) as well as low crimes rates (10 violent crimes per 10,000 inhabitants). The other family, the "Smiths", is living in a relatively deprived neighborhood with higher unemployment (10%) as well as higher crimes (60 violent crimes per 10,000 inhabitants).⁸ The scenarios stress that apart from living in different neighborhoods, both families have similar levels of education and income,

⁸The underlying idea is that unemployment and crime rates correspond to measures of a latent neighborhood quality factor that potentially subsumes several other facets such as school quality or

Table 1: Survey scenarios

Bad neighborhood (n_L)			Good neighborhood (n_H)		
	Low control (c_L)	High control (c_H)		Low control (c_L)	High control (c_H)
Low warmth (w_L)	y_1	y_2	Low warmth (w_L)	y_5	y_6
High warmth (w_H)	y_3	y_4	High warmth (w_H)	y_7	y_8

This table summarizes scenarios j ($j = 1, \dots, 8$) in which respondents are asked to provide expected earnings for children at age 30 (y_j) for different parenting style combinations (low and high warmth/control) and neighborhoods (low or high neighborhood quality).

and invest as much time and money in their children. Across scenarios, I vary the warmth and control dimension of the parenting styles (low-low, low-high, high-low, high-high). In order to describe different parenting styles, I adopt descriptions based on established measures of parenting styles for warmth as well as control and vary the number of times parents engage in a certain behavior by one standard deviation of the respective distribution.⁹ Appendix A presents the wording of the scenarios.

Taken together, the hypothetical scenarios vary (a) the parenting style a family adopts by varying the intensity of the two dimensions warmth and control from low to high, and (b) the quality of the family's neighborhood ("good" or "bad" characterized by high or low unemployment and crime). Importantly, respondents are asked not only about one of the scenarios, but answer all of them. This feature allows me to infer the perceived returns over all three dimensions warmth, control, and neighborhood quality for each individual. By comparing individual responses across these scenarios, I am able to infer perceived returns of the three dimensions as well as their relationship in terms of their substitutability and complementarity.

the availability of amenities. Similar proxies for neighborhood quality have been used before (e.g., Han, 2019).

⁹Before the actual survey, I conducted a pilot study to decide over the items in the scenarios. In particular, I have chosen the items that had the highest predictive power for the warmth and control dimension of parenting styles. In addition, I elicited the number of times parents engage in the respective behavior to obtain estimates of the frequency distribution. This distribution was then used to calibrate the scenarios corresponding to approximately one standard deviation differences between low and high intensities of warmth and control.

2.2 Outcomes

The survey instrument elicits respondents' expectations for two outcomes of the hypothetical children at age 30. First, as a main outcome, I elicit parents' expectations about the expected gross yearly earnings of the children in terms of today's USD if they are working full-time. This measure allows me to calculate monetary returns over the different dimensions. In order to test whether the inferred returns carry over to other dimensions, I also elicit the expected life satisfaction at age 30 as a second outcome (measured on a scale from 1, low, to 100, high). Moreover, I can use this measure to correct for measurement error when analyzing the relation of perceived returns and actual parenting behavior. To do this, I adopt the "obviously related instrumental variable" approach proposed by Gillen, Snowberg, and Yariv (2019).

2.3 Randomizations

In order to analyze the extent to which parental beliefs depend on the characteristics of the child, I implement two randomizations: First, I randomly determine the gender of the child.¹⁰ One group answers the scenarios in which both families have sons ("John" or "Simon"), while for another group, the families have daughters ("Emily" or "Sarah").¹¹ By comparing elicited beliefs between respondents seeing a son or a daughter, I can study gender differences in perceived returns. Second, the age of the child in the scenarios is randomly drawn from a uniform distribution between 6 and 16 years. The rationale for this is to analyze whether specific parenting styles are perceived more effective in certain periods as the literature on parental investments has identified periods during childhood which are crucial for skill development and long-term outcomes of children (Cunha and Heckman, 2007; Cunha, Heckman, and Schennach, 2010). Similarly, this helps to analyze whether parents perceive neighborhoods to be particularly important at certain ages.

2.4 Additional survey elements

In addition to the hypothetical scenarios described above and standard socioeconomic characteristics, the survey elicits respondents' actual parenting styles. To do this, I adopt two established measures of parenting styles as used in the German Socioeconomic Panel Study (SOEP). In particular, I use the short versions-versions of the

¹⁰The randomization of gender and age is on the level of the respondent and not on the level of the hypothetical family. In other words, both families a respondent sees have either sons or daughters only and these children have the same age.

¹¹These names correspond to the most popular names at the beginning of the 2000s, i.e., at a time when the hypothetical children of the scenarios were born.

warmth and control dimension of parenting styles using three and four items scales based on Perris et al. (1980) and Schwarz et al. (1997), respectively. Moreover, I elicit several parenting values such as parents' belief about the malleability of their child's skills and the degree of altruism as well as paternalism towards their child.¹²

Furthermore, I ask parents to assess the quality of the neighborhood they are living in by eliciting their agreement to the three statements (i) "My neighborhood is a good place to raise children", (ii) "I feel safe in my neighborhood", and (iii) "My child attends a school of good quality", which I use to extract a factor for subjective neighborhood quality. Additionally, based on respondents' zip-codes, I can link several neighborhood characteristics provided by Chetty and Hendren (2018a,b).

2.5 Summary statistics

In October and November 2018, I collected a sample of 2,119 parents in the United States in collaboration with the market research company *Research Now*. To be eligible to take part in the study, respondents have to live with at least one child aged 6 to 16 years and respondents are sampled to be representative in terms of their gender, age, household income, and geographic distribution.¹³ Table 2 presents socio-demographic statistics of the final sample and the Current Population Survey (CPS): 61% of the respondents are female with an average age of 40 years. The average household has an annual income of USD 82,644, and matches the geographic distribution across census regions similar to the Current Population Survey (CPS). Moreover, the sample also matches several non-targeted characteristics such as the share of married respondents (75%) and the average number of children (2.13), but has slightly higher education but lower employment than the CPS sample.

3 Parental beliefs about the effectiveness of parenting styles and neighborhoods

In this section, I study parental beliefs about the effectiveness of different parenting styles and neighborhoods. I begin by documenting the beliefs in the scenarios elicited in the survey and estimate returns to different levels of warmth, control, and

¹²These values are measured using parents agreement to the following statements: "I am usually willing to sacrifice my own desires to satisfy those of my child" (altruism), "As a parent, I sometimes need to be strict if my child acts against what I think is good for it" (paternalism), and "My child develops at its own pace and there is not much I can do about that" (malleability of skills).

¹³If more than one child in this age-range is present in the household, one child is randomly selected and answers to child-specific questions are elicited with respect to this child.

Table 2: Summary statistics

	(A) Sample		(B) CPS
	Mean	SD	Mean
<i>Socio-demographic variables</i>			
Female	0.61	0.49	0.57
Age	40.25	7.38	40.89
Employed	0.72	0.45	0.79
College degree	0.52	0.50	0.36
Household income (in USD)	82644	55117	78018
<i>Family structure</i>			
Married	0.75	0.43	0.74
Cohabiting	0.08	0.27	
Single parent	0.16	0.37	
Number of children	2.13	1.08	2.05
Share of children being female	0.46	0.37	
<i>Geographic distribution across census regions</i>			
Northeast	0.16	0.37	0.15
Midwest	0.19	0.40	0.21
South	0.39	0.49	0.37
West	0.26	0.44	0.27
Observations	2119		

This table presents summary statistics of the sample collected for this study in Panel (A) and representative statistics of American parents based on the Current Population Survey (CPS) in Panel (B).

neighborhood quality. In a second step, I analyze whether the perceived returns for boys and girls as well as younger and older children differ from each other based on randomizations across respondents.

In order to analyze parental beliefs, I estimate the perceived returns to different parenting styles and neighborhoods by comparing an individual's beliefs in different scenarios to each other. I therefore identify returns from within-respondent variation in beliefs. More specifically, let w_j and c_j be equal to 1 if scenario j corresponds to a parenting style with high warmth or high control, respectively, and zero otherwise. Analogous, let n_j equal to 1 if scenario j corresponds to a high quality neighborhood and zero otherwise. Moreover, y_{ij} denotes respondent i 's expectation over the gross yearly earnings of a child at age 30 in scenario j . My main specification is then given by

$$\begin{aligned} \log(y_{ij}) = & \beta_w w_j + \beta_c c_j + \beta_n n_j \\ & + \beta_{wc}(w_j \times c_j) + \beta_{wn}(w_j \times n_j) + \beta_{cn}(c_j \times n_j) + f_i(X_i) + \epsilon_{ij}. \end{aligned} \quad (1)$$

The main coefficients of interest are $\beta_w, \dots, \beta_{cn}$, which describe parents' perceptions about the returns to the different factors. While β_k with $k = w, c, n$ denote the first-order returns to warmth, control, and neighborhoods, the coefficients on the interaction terms ($k = wc, wn, cn$) capture whether two dimensions are complements ($\beta_k > 0$) or substitutes ($\beta_k < 0$). Positive coefficients on interaction effects therefore imply that parents expect that the return of two dimensions increases when they are paired; negative coefficients mean that the returns are jointly lower than separately. The term $f_i(X_i)$ either controls for a vector of individual-specific characteristics ($f_i(X_i) = X_i'\gamma$) or individual fixed effects ($f_i(X_i) = \delta_i$) to absorb any observed or unobserved heterogeneity across individuals, respectively. Finally, ϵ_{ij} is an idiosyncratic error term clustered on the individual level.¹⁴

Estimating equation (1) on the whole sample informs about the perceived returns to parenting and neighborhoods for a representative set of parents in the United States. In the following, I will also leverage the individual panel dimension of the data to infer individual-level perceived returns that I can subsequently link to their determinants and actual decision-making. For this, I estimate a simplified version of equation (1) for each respondent separately. This recovers individual-level perceived returns denoted by $R_{warmth,i}$, $R_{control,i}$, and $R_{neighborhood,i}$ for warmth, control, and neighborhoods.¹⁵

3.1 Representative evidence on perceived returns

How do parents' expectations vary over the scenarios and what returns do they associate with different parenting styles and neighborhoods? Figure 1 depicts the mean parental beliefs for each of the eight scenarios from Table 1. Several findings emerge: first, parental beliefs for earnings of a child at age 30 vary strongly across scenarios ranging between USD 40,000 and USD 57,000 with an average of USD 47,810.¹⁶ Second, comparing the same parenting styles across neighborhoods reveals that parents expect large returns to neighborhoods. Being raised in a relatively good neighborhood increases expected earnings by USD 7,000 to USD 8,000 on average. Third, there are sizable returns to different parenting styles. Parents expect authoritative

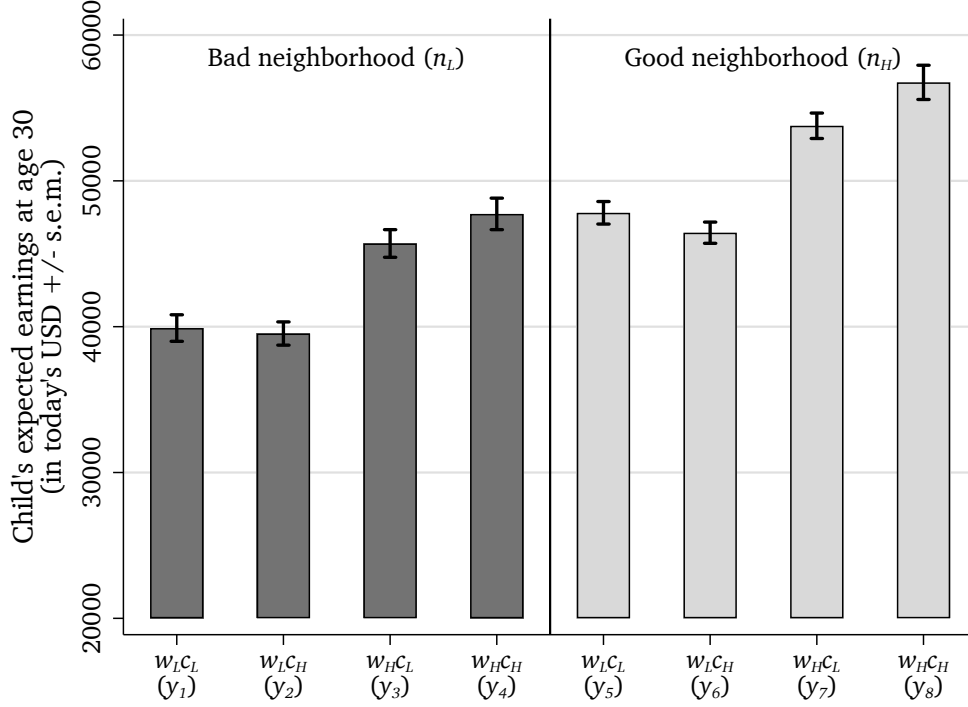
¹⁴In my main specification, I follow Boneva and Rauh (2018) and Attanasio, Boneva, and Rauh (2019) and restrict my attention to interactions of two dimensions (warmth and control, warmth and neighborhoods, control and neighborhoods). In Table 3, I present additional results including a triple interaction of high levels of warmth and control as well as good neighborhoods.

¹⁵This approach differs from Attanasio, Boneva, and Rauh (2019) and Boneva and Rauh (2018). They calculate returns to each dimension by calculating log differences between high and low characteristics and averaging over the other two dimensions. By contrast, I estimate the same specification as used for the whole sample to obtain individual-level returns and thereby control for the presence of perceived interaction effects.

¹⁶Conditional on working, respondents in the CPS earn approximately USD 46,200.

parenting with high levels of warmth and control to partly compensate for raising children in low-quality neighborhoods. Moreover, the patterns suggest that the different dimensions interact with each other.

Figure 1: Parental beliefs about expected earnings



This figure presents parents' expectations about a child's earnings at age 30 in each of the eight scenarios. The first four bars correspond to scenarios with low neighborhood quality, while the latter four to high neighborhood quality. Moreover, $w_j c_k$ ($j, k = L, H$) indicate different parenting styles with a low (w_L) or high level of warmth (w_H) and a low (c_L) or high level of control (c_H), respectively; cf. Table 1. Error bars indicate standard errors to the mean.

In order to analyze these patterns in more detail, Table 3 presents OLS-estimates as specified in equation (1). In columns (1) through (3), I focus on returns to primary dimensions only, while columns (4) to (6) acknowledge the presence of interactions between different dimensions of parenting styles as well as neighborhoods. Finally, column (7) investigates the interaction of all three dimensions and asks whether authoritative parenting (high warmth and high control) is more effective in good neighborhoods.

I find that parents perceive large returns to the warmth and neighborhood dimension, but no returns from exerting control. Increasing the warmth dimension of parenting by one standard deviation in column (1) increases a child's expected earnings by 16.9 percent, while the estimated perceived return to control is statistically indistinguishable from zero with a 95% confidence interval ranging from -0.2

to 1.2 percent. The perceived return to neighborhoods amounts to 21.1 percent. Neither the inclusion of socio-demographic controls in column (2) nor taking out all individual-level unobserved heterogeneity by including individual fixed effects in column (3) affects the coefficients of interest, i.e., the returns to warmth, control, and neighborhoods.

Table 3: Parental beliefs about the returns to parenting styles and neighborhoods

	log. of expected earnings at age 30 ($\log(y_{ij})$)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
High warmth	0.169*** (0.007)	0.169*** (0.007)	0.169*** (0.007)	0.153*** (0.008)	0.153*** (0.008)	0.153*** (0.008)	0.163*** (0.009)
High control	0.005 (0.004)	0.005 (0.004)	0.005 (0.004)	-0.011 (0.007)	-0.011 (0.007)	-0.011 (0.007)	-0.000 (0.008)
Good neighborhood	0.211*** (0.008)	0.211*** (0.008)	0.211*** (0.008)	0.226*** (0.009)	0.226*** (0.009)	0.226*** (0.009)	0.236*** (0.010)
High warmth × High control				0.046*** (0.010)	0.046*** (0.010)	0.046*** (0.010)	0.026** (0.012)
High warmth × Good neighborhood				-0.014* (0.008)	-0.014* (0.008)	-0.014* (0.008)	-0.035*** (0.009)
High control × Good neighborhood				-0.015** (0.006)	-0.015** (0.006)	-0.015** (0.006)	-0.036*** (0.009)
High warmth × High control × Good neighborhood							0.041*** (0.013)
<i>Individual-level controls</i>							
Female		-0.075*** (0.022)			-0.075*** (0.022)		
Age		-0.004** (0.002)			-0.004** (0.002)		
White		-0.030 (0.025)			-0.030 (0.025)		
College degree		0.097*** (0.022)			0.097*** (0.022)		
Employed		-0.052** (0.024)			-0.052** (0.024)		
log(Household income)		0.196*** (0.019)			0.196*** (0.019)		
Single parent		0.021 (0.026)			0.021 (0.026)		
Number of children		0.002 (0.010)			0.002 (0.010)		
Share of children being female		0.014 (0.025)			0.014 (0.025)		
Mean expected income (in USD)	47810	47810	47810	47810	47810	47810	47810
Controls for heterogeneity	No	Controls	FE	No	Controls	FE	FE
Observations	16952	16952	16952	16952	16952	16952	16952
Individuals	2119	2119	2119	2119	2119	2119	2119
R ²	.052	.14	.73	.052	.14	.74	.74

This table presents least squares regressions of log earnings expectations based on equation (1). Columns (1) through (3) focus on first-order effects. Columns (4) to (6) additionally include two-way interactions, while column (7) also adds a three-way interaction of warmth, control and neighborhoods. Standard errors clustered by respondent in parentheses. *, **, and *** denote significance at the 10, 5, and 1 percent level.

Columns (4) through (6) additionally allow for interaction effects between warmth, control, and neighborhoods. These specifications allow, for example, that the warmth

and control dimensions of parenting styles are perceived as substitutes or complements, or that returns to parenting differ across neighborhoods. First, I find that the primary effects on the dimensions are similar to the previous estimates without interactions. Second, when considering interaction terms, the estimates reveal a perceived complementarity between warmth and control. Parents expect an additional return of 4.6 percentage points if children are raised with *both* high levels of warmth and control. Hence, parents expect authoritative forms of parenting (i.e., high warmth and high control) to be most effective for children's long-term success. This is similar to what has been found in the psychology literature (Baumrind, 1967; Dornbusch et al., 1987; Lamborn et al., 1991). Interestingly, there are negative interactions of good neighborhoods with warmth and control. Thus, parents perceive parenting to be *more* important in relatively adverse environments or strict parenting is less necessary if the surrounding conditions are favorable. In other words, respondents expect parenting to partly compensate for the lack of a beneficial neighborhood. This is consistent with the observation that parents become more involved in raising their children when the quality of a neighborhood decreases (e.g., Han, 2019; Kling, Liebman, and Katz, 2005; Pop-Eleches and Urquiola, 2013).¹⁷

Finally, column (7) introduces a triple interaction of high levels of warmth and control as well as living in a good neighborhood and thus measures the additional perceived return to authoritative parenting (high warmth and high control) in good neighborhoods. While the main conclusions remain qualitatively as well as quantitatively similar to the previous results, the additional interaction shows that parents perceive the complementarity of warmth and control to be stronger in favorable neighborhoods compared to detrimental ones. Thus, parents perceive neighborhoods and intensive parenting (i.e., authoritative parenting styles) as complements. As far as these perceptions correspond to actual returns, this result suggests that increasing segregation may help to explain why the rich adopt more intensive parenting styles (and higher subsequent investments), and less investments among the poor (see also the discussion in Doepke, Sorrenti, and Zilibotti, forthcoming). Moreover, this helps to reconcile the finding of cultural complementarity in Patacchini and Zenou (2011) with my previous findings as well as other studies documenting substitution effects between neighborhoods and parenting (e.g., Pop-Eleches and Urquiola, 2013). While parents may try to compensate for the lack of a good environment by increasing their involvement in raising children, living in a high quality neighborhood may induce an

¹⁷For example, Kling, Liebman, and Katz (2005) provide evidence that families in high poverty neighborhoods spend a large fraction of their time on monitoring their children and keeping them safe, i.e., they exert high levels of control in raising them.

additional complementarity for very intensive forms of parenting (e.g., authoritative parenting).

3.2 Perceived returns by child's gender and age

While the previous estimates are average returns across all scenarios, the design of the survey allows me to go one step further. In particular, I vary both the gender (male/female) as well as the age of the child in the scenario (6–16 years) across respondents. Table 4 analyzes whether parental expectations differ across these randomizations. As shown in columns (1) to (3), parents expect boys to earn more than girls when they are grown up. They expect boys to earn on average 49,492 USD and girls with 46,123 USD about 7% less. Despite these level-differences, I do not find evidence for differences in perceived returns across gender. Yet, there are significant changes in perceived returns when varying the age of the child. More specifically, the warmth dimension becomes less important the older the child is according to parents' expectations. While for 6 to 9-year-old children, a one standard deviation increase yields a perceived return of 18.6 percent, it amounts to only 14.7 and 12.7 percent for 10 to 12-year-old and 13 to 16-year-old children, respectively (corresponding t-tests of the difference between coefficients yield p-values of $p = 0.060$ and $p = 0.003$). In line with county exposure effects in Chetty and Hendren (2018a), I do not find evidence of perceived critical age effects, during which living in certain neighborhoods is crucial for long-run outcomes. Rather, I find that the interaction of the control dimension of parenting and neighborhoods is perceived to be of particular importance for older children. More specifically, parents associate control to yield a 2.9 percentage point return in adverse environments for the oldest age group in my sample. By contrast, there is no such effect for the youngest age group (test of the difference between coefficients: $p = 0.042$). Thus, parents adapt their return expectations to characteristics of children such as their age.

Table 4: Perceived returns by child's gender and age

	log(y_{ij})		p-value	log(y_{ij})			p-values		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Boys	Girls	(1)-(2)	6-9 years	10-12 years	13-16 years	(4)-(5)	(4)-(6)	(5)-(6)
High warmth	0.163*** (0.012)	0.142*** (0.012)	0.209	0.186*** (0.014)	0.147*** (0.015)	0.127*** (0.014)	0.060	0.003	0.325
High control	-0.018* (0.010)	-0.003 (0.010)	0.266	-0.018 (0.013)	-0.008 (0.012)	-0.005 (0.012)	0.557	0.434	0.832
Good neighborhood	0.219*** (0.013)	0.233*** (0.013)	0.462	0.241*** (0.017)	0.223*** (0.016)	0.214*** (0.016)	0.439	0.248	0.711
High warmth × High control	0.052*** (0.013)	0.040*** (0.014)	0.547	0.037** (0.017)	0.052*** (0.016)	0.050*** (0.016)	0.510	0.575	0.924
High warmth × Good neighborhood	-0.023** (0.011)	-0.006 (0.011)	0.255	-0.019 (0.012)	-0.019 (0.015)	-0.006 (0.013)	0.974	0.447	0.521
High control × Good neighborhood	-0.011 (0.009)	-0.020** (0.008)	0.468	0.001 (0.010)	-0.017 (0.012)	-0.029*** (0.011)	0.237	0.042	0.454
Mean expected income (in USD)	49492	46123		48373	46999	47915			
Controls for heterogeneity	FE	FE		FE	FE	FE			
Observations	8528	8416		5888	4896	6168			
Individuals	1066	1052		736	612	771			
R^2	.75	.71		.75	.74	.72			

This table presents least squares regressions of log earnings expectations based on equation (1) for different sample splits according to the child's gender (columns 1 and 2) and age group (columns 4-6). Reported p-values stem from t-tests of interaction terms in fully interacted regression models. Standard errors clustered by respondent in parentheses. *, **, and *** denote significance at the 10, 5, and 1 percent level.

3.3 Robustness checks using different sample restrictions

In Table 5, I check the robustness of the main findings by restricting the sample in various ways. First, I restrict the sample in column (1) to those respondents who report to be one of the main caregivers of the child. Second, after eliciting expectations in the scenarios, I asked how certain parents are about their responses and exclude in column (2) those who report to be uncertain or very uncertain. Third, respondents may either pay little attention and quickly click through the survey or may do other activities next to answering the survey. I therefore exclude respondents with the 5% lowest and highest response times in column (3). Finally, I focus on those respondents, who have children similar to those in the scenarios and potentially hold more accurate beliefs. Thus, I restrict the sample to those who have children of the same gender (column 4), the same age group (column 5), or both the same gender and age group (column 6). As shown in Table 5, neither excluding non-main caregivers, focusing on certain respondents only, or removing respondents with very short or long response times affects the estimates in columns (1) through (3). When restricting the sample to those respondents answering scenarios with hypothetical children sharing their own children's characteristics, the estimates remain robust, although they lose some precision due to smaller samples.

3.4 Relationship of returns in earnings and life satisfaction domain

The previous results stem from scenarios in which parents were asked about their expectations for children's earnings at age 30, who are raised with a particular parenting style and in a specific neighborhood. Although monetary returns are appealing for their ease of interpretation, one potential concern with them is that parents may not perceive expected earnings at age 30 as the relevant outcome to evaluate the consequences of different parenting styles. Parents may perceive non-monetary outcomes such as well-being or life satisfaction as more important. In order to test whether the results from the monetary domain are comparable to those from other domains, I study a second outcome measure, expected life satisfaction of children at age 30 (measured on a scale from 1 to 100), which parents may have in mind when deciding about the adoption of different parenting styles.

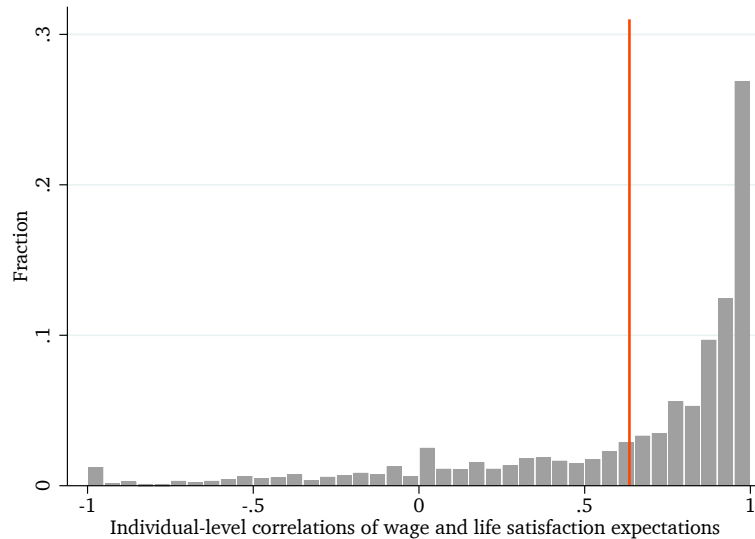
In Figure 2, I examine the relationship between expectations in the earnings and life satisfaction domain. More specifically, the figure displays the distribution of individual-level correlations between expectations across the two domains. For each individual, I calculate the correlation of their expectations for earnings and

Table 5: Robustness of perceived returns for different samples

	log. of expected earnings at age 30 ($\log(y_{ij})$)					
	(1) Main caregivers	(2) Certain response	(3) Response time	(4) Same sex	(5) Same age	(6) Same sex+age
High warmth	0.154*** (0.009)	0.155*** (0.010)	0.159*** (0.009)	0.152*** (0.010)	0.143*** (0.013)	0.138*** (0.017)
High control	-0.012* (0.007)	-0.012 (0.008)	-0.006 (0.007)	-0.011 (0.008)	-0.007 (0.011)	0.002 (0.015)
Good neighborhood	0.226*** (0.010)	0.217*** (0.011)	0.235*** (0.010)	0.217*** (0.011)	0.227*** (0.015)	0.220*** (0.021)
High warmth × High control	0.046*** (0.010)	0.051*** (0.011)	0.041*** (0.010)	0.040*** (0.011)	0.048*** (0.015)	0.037** (0.019)
High warmth × Good neighborhood	-0.014* (0.008)	-0.009 (0.009)	-0.018** (0.008)	-0.014 (0.009)	-0.009 (0.012)	-0.004 (0.016)
High control × Good neighborhood	-0.014** (0.006)	-0.017** (0.007)	-0.015** (0.006)	-0.013* (0.008)	-0.012 (0.011)	-0.010 (0.015)
Mean expected income (in USD)	47835	48932	47040	48802	48390	49278
Controls for heterogeneity	FE	FE	FE	FE	FE	FE
Observations	16384	12792	15272	12312	7376	4000
Individuals	2048	1599	1909	1539	922	500
R^2	.74	.74	.73	.73	.73	.74

This table presents least squares regressions of log earnings expectations based on equation (1). Column (1) restricts the sample to respondents, who are main caregivers to their children, column (2) excludes parents, who report to be uncertain about their responses, column (3) excludes respondents with the 5% highest and lowest response times, columns (4) to (6) restricts the sample to parents whose children and the child in the scenario have the same characteristics in terms of gender (column 4), age group (column 5), and gender as well as age group (column 6). Standard errors clustered by respondent in parentheses. *, **, and *** denote significance at the 10, 5, and 1 percent level.

Figure 2: Individual-level correlation of earnings and life satisfaction expectations



This figure presents the distribution of individual-level correlations of earnings and life satisfaction expectations. The red line indicates the mean correlation across respondents of .63.

life satisfaction across the eight scenarios. As depicted, most correlations exceed 0.50 with a mean correlation of 0.63.¹⁸ If analyzing the correlation of individual-level returns rather than levels, I also find strong correlations between returns in the monetary and returns in the life satisfaction domain as shown in Appendix Table B.1. Furthermore, Appendix Table B.2 replicates Table 3 using expected life satisfaction instead of expected earnings as an outcome. The results are both qualitatively and quantitatively similar. This implies that responses in terms of expected earnings are sensible outcomes capturing returns that do not only apply to a monetary domain. In the following, I therefore restrict my attention to monetary returns.

3.5 Accuracy of beliefs and perceived returns

How accurate are the beliefs parents report in the scenarios? In this section, I briefly discuss their accuracy. As reported in Table 3, the average expected income across all eight scenarios is USD 47,810, which is similar to the mean yearly earnings conditional on working at age 30 of respondents in the CPS (approx. USD 46,200). The coefficients on individual-level controls in columns (2) and (5) also reveal patterns consistent with findings from the literature on subjective wage expectations (e.g., Kaufmann, 2014): females expect lower earnings, college educated individuals as well as those with higher household income report higher earnings expectations. Moreover, similar to findings from the psychology literature (e.g., Chan and Koo, 2011; Dornbusch et al., 1987; Lamborn et al., 1991), parents associate neglecting parenting (low warmth and control) with low outcomes and authoritative parenting (high warmth and control) with high future outcomes.

In order to compare the perceived returns to actual returns, I conduct two comparisons.¹⁹ First, I compare perceived returns from my sample to average marginal effects of intensive parenting styles from Falk et al. (forthcoming). They estimate how children's skills develop as a function of intensive parenting styles. While they do not consider different dimensions of parenting styles (i.e., warmth and control), they construct a latent factor based on similar survey items. Falk et al. find marginal effects ranging from 0.313 to 0.424, which are somewhat higher than the combined effects of warmth and control reported in Table 3.²⁰ Second, I exploit the fact that

¹⁸Appendix Figure B.1 presents the distribution using rank correlations. These have the advantage that they only require an ordinal rather than a cardinal scaling for life satisfaction. The figure reveals that the individual-level correlations are even higher when relying on ranks rather than levels.

¹⁹Boneva and Rauh (2018) show in a related setting, in which they analyze the perceived returns to parental investments at different ages, that the hypothetical scenario approach adopted in this paper yields perceived returns similar to actual returns.

²⁰Note that the outcomes I am interested in here are long-term outcomes at age 30. In contrast, Falk et al. (forthcoming) are interested in children's development of skills during childhood. Since these

respondents were asked to state their beliefs for children of *average* American families. I draw on data from the National Longitudinal Survey of Youth 1997 (NLSY97), in which children aged 12-17 in 1997 evaluate both their mother's and their father's parenting style. Regressing respondent's log earnings in 2013, when they were on average 30 years old, on indicators for warmth and control as well as their interaction (see Appendix Table B.3) reveals returns similar to the average perceived returns in my sample: the return to mother's warmth and control is .104 and .020, respectively, while the coefficient on the interaction is .026 indicating quantitatively and qualitatively returns consistent with those in Table 3. Using fathers' parenting styles yields similar results.²¹ All in all, the perceived returns in my dataset seem to be consistent with actual returns from other settings.

4 Heterogeneity in individual-level returns

The previous section documented perceived returns to different parenting styles and neighborhoods. Yet, these returns depict only average patterns. Hence, I additionally estimate equation (1) individual by individual to recover each parent's perceived returns, and subsequently link these to individual determinants.²²

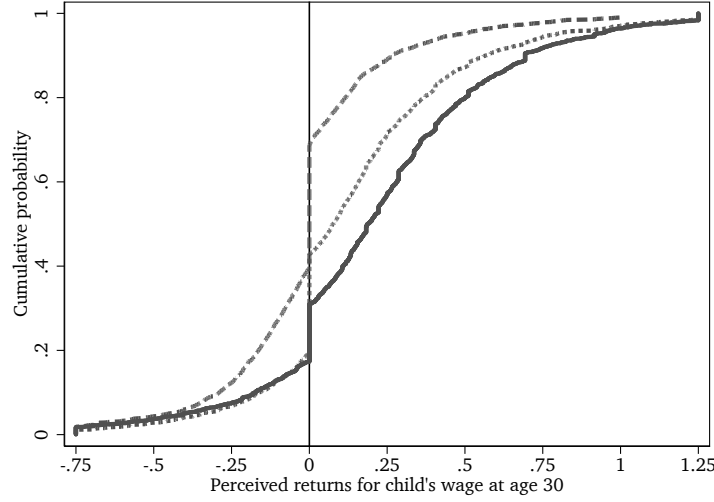
Figure 3 and Table 6 present the distributions of returns to the three dimensions warmth, control, and neighborhood. Several findings emerge. First, there is large heterogeneity in perceived returns. The majority of respondents expect positive returns to all three dimensions with less than 20% of the sample expecting negative returns to warmth and neighborhoods. This number amounts to approximately 40% for control. Second, there is a sizable fraction of parents who do not expect parenting styles or neighborhoods to matter at with shares of 14% for neighborhoods to 32% in the control dimension. Third, correlations of returns across the three dimensions are positive although not perfect indicating that the different dimensions are related, but capture distinct concepts.²³ Taken together, most parents expect that parenting can pay off for children's long-term outcomes.

To what extent is the heterogeneity in the distribution of perceived returns systematic? One point of departure is to investigate potential differences in perceived returns by parental gender. In particular, there is evidence that mothers spend about

skills translate only imperfectly into earnings, these higher returns are consistent with the perceived returns reported here.

²¹Note that these estimates are correlations and should not be interpreted as causal. Yet, respondents in the survey were asked to state their beliefs over the outcomes of children of *average* American families. Hence, looking at these basic regressions is informative despite not accounting for measurement error, the endogeneity of parenting styles, and other confounding factors. In addition to monetary returns, Appendix Table B.3 also presents results from the NLSY on children's high school GPA with similar

Figure 3: Distribution of individual-level perceived returns



This figure presents the distributions of individual-level perceived returns based on equation (1) for the dimensions warmth ($R_{warmth,i}$; dotted), control ($R_{control,i}$; dashed), and neighborhood ($R_{neighb.,i}$; solid).

Table 6: Correlations of individual-level perceived returns

	$R_{warmth,i}$	$R_{control,i}$	$R_{neighb.,i}$
$R_{warmth,i}$	1.000		
$R_{control,i}$	0.254***	1.000	
$R_{neighb.,i}$	0.290***	0.255***	1.000

This table presents correlations of individual-level returns across the three dimensions warmth ($R_{warmth,i}$), control ($R_{control,i}$) and neighborhood ($R_{neighb.,i}$). *, **, and *** denote significance at the 10, 5, and 1 percent level.

twice as much time on child rearing activities as fathers (Guryan, Hurst, and Kearney, 2008).²⁴ I therefore analyze differences in the distribution of perceived returns between fathers (dark, dashed lines) and mothers (light, solid lines) in Figures 4a–4c to the three dimensions warmth, control, and neighborhood. The figures reveal significant gender differences in parental perceptions: mothers expect larger returns relative to fathers in the warmth (t-test of equality of means: $p < 0.001$; Kolmogorov-

patterns: the warmth dimension of parenting has large positive returns, while control has smaller, although positive returns.

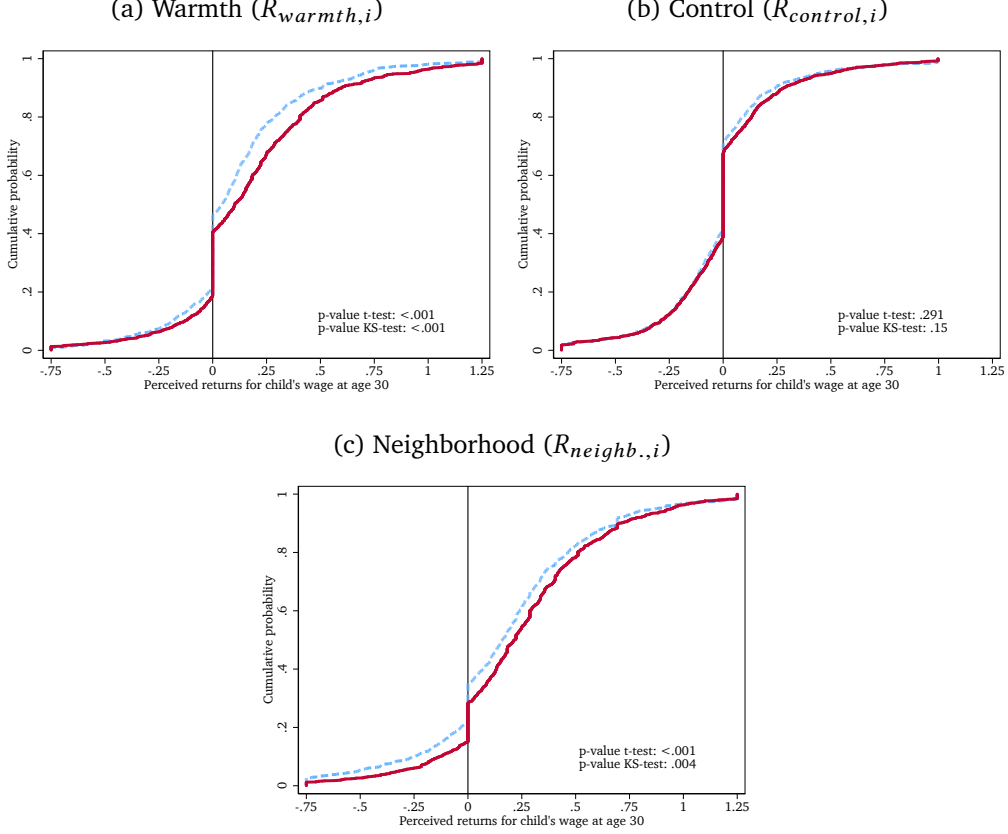
²²To avoid that results are driven by outliers, I winsorize perceived returns at the 1% and 99% level.

²³Moreover, expecting zero returns is highly correlated across the different dimensions, see Appendix Table B.5.

²⁴Moreover, data from the National Longitudinal Survey of Youth 1997 suggest that mothers are approx. 5.7 and 1.8 percentage points more likely to adopt parenting styles featuring high levels of warmth and control, respectively (see Appendix Table B.4).

Smirnov tests of equality of distributions: $p < 0.001$) and neighborhood dimension (t-tests: $p < 0.001$, KS-test: $p = 0.004$), while there are no significant differences in the control dimension (t-test: $p = 0.291$, KS-test: $p = 0.150$). Moreover, mothers' higher perceived returns seem to be relatively uniform across the distribution.

Figure 4: Distribution of individual-level perceived returns by parental gender



These figures presents the distributions of individual-level perceived returns based on equation (1) for the dimensions warmth ($R_{warmth,i}$; Figure 4a), control ($R_{control,i}$; Figure 4b) and neighborhood ($R_{neighb.,i}$; Figure 4c) for mothers (solid, red) and fathers (dashed, blue) separately.

In the following, I analyze whether perceived returns are related to other parental characteristics besides gender. For this, I estimate

$$R_{k,i} = \alpha_0 + \alpha_1 X_i + \eta_{k,i}, \quad (2)$$

in which $R_{k,i}$ denotes the perceived return of individual i to dimension $k \in \{\text{warmth, control, neighborhood}\}$ estimated based on equation (1), X_i is a vector of parental characteristics, and $\eta_{k,i}$ denotes idiosyncratic noise. I consider two sets of variables: first, I employ socio-demographic characteristics such as gender, age, and education; second, I associate returns with a respondent's parenting values (malleability of skills, altruism, and paternalism towards a child).

Table 7 presents estimates based on equation (2) for each return measure separately. Panel A focuses on socio-demographic determinants of perceived returns. Interestingly, apart from gender differences in the warmth (+6.2%) and neighborhood dimension (+6.3%) as shown in Figure 4, almost no other characteristics seem to be systematically associated with perceived returns. In particular, I cannot reject the hypothesis that all other socio-demographic coefficients jointly equal zero in each of the three specifications regarding warmth (F-test: $p = 0.108$), control (F-test: $p = 0.935$), and neighborhoods (F-test: $p = 0.300$) in columns (1)–(3), respectively. The absence of a relationship is surprising given that Boneva and Rauh (2018) find systematic associations for some characteristics, but it is in line with other studies (e.g., Attanasio, Boneva, and Rauh, 2019), which also do not find associations.²⁵ Thus, there are sizable differences in perceived returns by parental gender, but no differences along variables capturing differences in socioeconomic status. Moreover, these perceived returns are highly predictive for actual parenting styles as I will show in the next section. The absence of associations between socio-demographics and returns therefore indicates that these beliefs capture an important aspect of parental decision-making that is distinct from standard individual characteristics and constraints.

When analyzing the effects of parenting values on returns in Panel B of Table 7, some interesting patterns emerge. All three return measures are significantly related to parents' beliefs about the malleability of skills similar to Attanasio, Boneva, and Rauh (2019) and Boneva and Rauh (2018). In particular, those parents who believe that skills are malleable perceive returns to be higher. In other words, those parents, who do not share this belief, react less to differences across scenarios. Moreover, returns in the warmth and neighborhood dimensions are related to parents' altruism towards their children, whereas returns in the control dimension are associated to parental paternalism. This supports theoretical results by Doepke and Zilibotti (2017), who show that sufficiently paternalistic parents adopt parenting styles with more control, i.e., authoritarian or authoritative parenting styles in which parents exert effort to mold their children's preferences.²⁶ Parents' altruism and paternalism are two key parameters in their model leading to different parenting styles.

In Appendix B.3, I present a different approach to analyze the determinants of perceived returns. There, I rely on a measurement error correction based on two different measures of perceived returns: one measure in the monetary domain as used

²⁵One explanation for these differences is that Boneva and Rauh (2018) and Attanasio, Boneva, and Rauh (2019) study families in the United Kingdom and only the latter study employs a representative sample of parents.

²⁶Appendix Table B.6 shows that respondents with more children, females, paternalistic parents, and those who believe that skills are malleable are less likely to expect zero returns to parenting. Accounting for respondents reporting zero returns does not change the results reported in this section.

Table 7: Determinants of individual-level perceived returns

	(A) only socio-demographics			(B) incl. parenting values		
	(1) $R_{warmth,i}$	(2) $R_{control,i}$	(3) $R_{neighb.,i}$	(4) $R_{warmth,i}$	(5) $R_{control,i}$	(6) $R_{neighb.,i}$
<i>Socio-demographic characteristics</i>						
Female	0.062*** (0.017)	0.015 (0.014)	0.063*** (0.020)	0.056*** (0.017)	0.014 (0.014)	0.052*** (0.020)
Age	-0.000 (0.001)	-0.000 (0.001)	0.003*** (0.001)	-0.001 (0.001)	-0.001 (0.001)	0.002* (0.001)
White	0.047** (0.019)	0.016 (0.015)	0.004 (0.022)	0.044** (0.019)	0.017 (0.015)	0.005 (0.022)
College degree	-0.005 (0.019)	-0.007 (0.015)	-0.004 (0.020)	-0.002 (0.019)	-0.003 (0.015)	0.001 (0.020)
Employed	-0.021 (0.020)	-0.003 (0.015)	-0.016 (0.023)	-0.022 (0.020)	-0.004 (0.015)	-0.017 (0.023)
log(Household income)	0.019 (0.014)	0.006 (0.012)	-0.003 (0.016)	0.018 (0.014)	0.005 (0.012)	-0.009 (0.016)
Single parent	0.047* (0.025)	-0.005 (0.020)	0.019 (0.027)	0.045* (0.025)	-0.001 (0.020)	0.012 (0.027)
Number of children	0.009 (0.008)	-0.005 (0.006)	0.002 (0.009)	0.009 (0.008)	-0.005 (0.006)	0.001 (0.009)
Share of children being female	-0.006 (0.021)	-0.000 (0.017)	0.009 (0.022)	-0.005 (0.021)	0.003 (0.017)	0.006 (0.022)
<i>Parenting values</i>						
Altruism towards child (std.)				0.018** (0.007)	-0.005 (0.006)	0.028*** (0.009)
Paternalism towards child (std.)				0.001 (0.008)	0.013* (0.007)	0.002 (0.009)
Malleability of skills (std.)				0.030*** (0.008)	0.011* (0.007)	0.050*** (0.009)
Average return	.15	-.01	.23	.15	-.01	.23
Individuals	2119	2119	2119	2109	2109	2109
R^2	.015	.0017	.011	.023	.0053	.028

This table presents regressions of individual-level perceived returns to warmth ($R_{warmth,i}$; columns 1 and 4), control ($R_{control,i}$; columns 2 and 5) as well as neighborhood ($R_{neighb.,i}$; columns 3 and 6) on socio-demographic characteristics and parenting values according to equation (2). Individual-level perceived returns are estimated based on equation (1) for each individual separately. Robust standard errors in parentheses. *, **, and *** denote significance at the 10, 5, and 1 percent level.

throughout the paper, and another one using perceived returns in the life satisfaction domain. I adopt “obviously related instrumental variables” (Gillen, Snowberg, and Yariv, 2019) as outlined in the next section. In particular, I check whether perceived returns predict specific individual characteristics. The results in Appendix Table B.7 confirm the previous patterns: females expect larger returns to warmth as well as neighborhoods, and parenting values show the same associations as reported above.

5 Relevance of perceived returns for actual behavior

To what extent do perceived returns as described above map into actual parental decision-making? Although establishing causality without shifting parental beliefs is difficult, I can analyze the association of perceived returns with actual parenting behavior. Hence, I focus on the predictive power of returns for actual parenting styles. Remember that perceived returns capture some aspects of parenting that are not related to socio-demographic characteristics, but at the same time vary systematically with parenting behavior in the hypothetical scenarios. If perceived returns translate into actual parental decision-making, their relevance would be even higher in light of the lacking relationship to socio-demographic characteristics.

In order to examine the relevance of perceived returns, I relate the perceived returns from the hypothetical scenarios to parents' actual parenting style elicited in the survey by estimating

$$PS_{k,i} = \delta_0 + \delta_1 R_{k,i} + \delta_2 X_i + v_{k,i}, \quad (3)$$

in which $PS_{k,i}$ denotes a standardized measure of the actual parenting style and $R_{k,i}$ correspond to the standardized individual-level perceived return estimated according to equation (1) in the warmth ($k = \text{warmth}$) or control ($k = \text{control}$) dimension, X_i is the same set of socio-demographic controls as before, and $v_{k,i}$ is an error term.^{27, 28}

In Table 8, I examine the relevance of perceived returns for actual parenting styles based on equation (3). Panel (A) focuses on the warmth dimension by relating estimated returns in the earnings (column 1) and life satisfaction domain (column 2) to warm parenting. The estimates reveal that returns in both domains are significantly related to parenting behavior. A one standard deviation increase in perceived returns is associated with a .043 standard deviation increase in the warmth dimension of parenting styles. Although these individual-level returns are subject to measurement error as they are estimated only on eight observations per respondent, they capture a similar underlying factor. I therefore lever the two different perceived return measures and implement the “obviously related instrumental variables” (ORIV) estimator

²⁷Appendix Figure B.2 and Appendix Table B.8 show that an exploratory factor analysis indeed recovers two factors corresponding to warmth and control from the set of survey items used to elicit a respondent's parenting style.

²⁸While the individual-level returns are estimated both for the first-order returns ($R_{k,i}$ for $k = \text{warmth, control, neighborhood}$) as well as interactions ($R_{k,i}$ for $k = \text{wc, wn, cn}$), I restrict attention to first-order returns as they dominate over interactions effects in size as shown in Table 1.

proposed by Gillen, Snowberg, and Yariv (2019).²⁹ Applying this measurement error correcting in columns (3) and (4), I find even larger associations of .084-.088 standard deviations for a one standard deviation increase in perceived returns that even hold when simultaneously controlling for perceived returns in the control dimension.

Table 8: Relevance of perceived returns for actual parenting styles

	(A) Parenting Style – Warmth				(B) Parenting Style – Control			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Expected earnings	Expected Life Satis.	ORIV	ORIV	Expected earnings	Expected Life Satis.	ORIV	ORIV
$R_{warmth,i}$	0.043** (0.017)	0.044** (0.019)	0.084*** (0.021)	0.088*** (0.025)				-0.039 (0.026)
$R_{control,i}$				-0.021 (0.032)	0.026 (0.018)	0.055*** (0.018)	0.092*** (0.029)	0.102*** (0.032)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2119	2119	4238	4238	2119	2119	4238	4238
Individuals	2119	2119	2119	2119	2119	2119	2119	2119
R^2	.046	.046	.044	.044	.036	.04	.045	.045

This table examines the relevance of perceived returns for actual parenting styles by estimating equation (3). Panel (A) presents results for the warmth dimension using (standardized) perceived returns to warmth, while Panel (B) presents corresponding results in the control dimension. Columns (1) and (5) use returns in the earnings domain, while columns (2) and (6) employ returns in the life satisfaction domain. Columns (3) and (7) implement ORIV estimators (ORIV, Gillen, Snowberg, and Yariv, 2019) to correct for measurement error in perceived returns using the two return measures as instruments for each other. Columns (4) and (8) additionally include (instrumented) perceived returns to control and warmth, respectively. All specifications include controls for socio-demographic characteristics as in Table 3. Robust standard errors in columns (1), (2), (5), and (6); bootstrapped standard errors in columns (3), (4), (7), and (8) in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% level.

A similar picture arises when analyzing the role of perceived returns to control for the control dimension of parenting. While the perceived returns in the monetary domain are positive but insignificant at conventional levels ($p = 0.161$), accounting for measurement error using ORIV reveals significant associations even if controlling for return to warmth.

Finally, Appendix B.5 presents additional results linking perceived returns to neighborhoods to actual neighborhood characteristics. The results show that although there is only limited evidence for perceived returns to predict subjective neighborhoods assessments or economic conditions, perceived returns are strongly related to living in areas less segregation. In sum, the results from this section suggest that parents do not only adapt their expectations when faced with scenarios of varying parenting styles, but the corresponding returns are also relevant for their actual parenting behavior.

²⁹Their estimation procedure involves duplicating each observation and use each measure once as a regressor and once as an instrument. In order to account for the larger number of observations, I follow Gillen, Snowberg, and Yariv (2019) and bootstrap standard errors.

6 Conclusion

While parenting crucially affects the development of children, parenting itself remains a “mystifying subject” (Bornstein, 2002). In order to better understand how parents decide, I focus on parents’ beliefs constituting an inherent part of their decision-making process. I conduct a survey that is among the first to investigate parental beliefs of a representative sample of parents. In the main part of the survey, I elicit beliefs using a hypothetical scenario approach that varies two factors with importance for the development of children and, hence, their long-term outcomes: first, the parenting style defined by the levels of warmth and control parents employ in raising their children, and, second, the quality of the neighborhood a family is living in. This allows me to infer parents’ perceived returns to and sheds light on the perceived substitutability or complementarity of the different dimensions.

My analysis shows that parents expect large returns to high levels of warmth and beneficial neighborhoods. Parenting styles with high levels of control are only associated with positive returns if they are paired with warmth suggesting that these two dimensions are perceived as complements. Moreover, I show that parents expect parenting and neighborhoods to interact. In particular, they believe that parenting can partly compensate for living in deprived neighborhoods. Yet, the perceived return to authoritative parenting (i.e., high levels of warmth *and* control) is higher in good neighborhoods. This latter result indicates one potential explanation for divergent parenting practices along socio-economic groups: increasing segregation may lead to divergent parenting practices due to different perceived returns to intensive parenting (as also suggested by Doepke, Sorrenti, and Zilibotti, forthcoming), which may translate into different actual returns.

When studying perceived returns on the individual level, my estimates reveal some profound gender differences: mothers expect significantly larger returns than fathers in the warmth and neighborhood dimension, while parental perceptions are similar for the control dimension. Perhaps surprisingly, other socio-demographic characteristics of these perceived returns are not related to parental beliefs. The absence of a socio-economic gradient in perceived returns suggests that they are an unlikely candidate to explain socioeconomic differences in parenting behavior. Rather, the interaction between parenting and neighborhoods could provide an explanation for persistent differences in parenting across socio-demographic groups which might increase as neighborhoods become more homogeneous over time (Putnam, 2016). To the extent that some form of “optimal parenting” exists, my results suggest that the optimal parenting behavior may be environment-specific. Moreover, parenting values show distinct patterns: while paternalistic parents expect larger returns to control, altruistic

ones perceive larger returns to warmth and neighborhoods. These findings extend previous research on the determinants of parental beliefs (Attanasio, Boneva, and Rauh, 2019; Boneva and Rauh, 2018) and lend empirical support for assumptions made in Doepke and Zilibotti (2017).

Importantly, the perceived returns I recover are relevant for actual parenting behavior. Hence, they capture an important determinant of parental decision-making, but cannot be proxied by standard socio-economic variables. This highlights the value of studying beliefs to understand parental decision-making processes.

The results of this paper open at least two avenues for further research. First, since the returns to parental investments hinge on the parenting style (Cunha, 2015), it would be interesting to analyze the relationship between the quality margin of parenting considered in this paper and the quantity margin as in the previous literature (Attanasio, Boneva, and Rauh, 2019; Bhalotra et al., 2017; Boneva and Rauh, 2018). Second, as beliefs about returns to parenting hinges on the quality of neighborhoods, this calls for a deeper understanding of the human capital formation process and the relationship between parenting and a family's environment.

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Appendix – For Online Publication

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- A Wording of hypothetical scenarios
 - B Additional tables and figures
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 - B.2 Parenting in the NLSY97
 - B.3 Additional results on determinants of perceived returns
 - B.4 Exploratory factor analysis
 - B.5 Relevance of perceived returns for neighborhood characteristics
-

A Wording of hypothetical scenarios

In the following, I present the wording of the main survey instrument containing the hypothetical scenarios. Both the age (6-16 years) as well as the gender of the child in question (male/female) is randomized resulting in male names (John and Simon) or female names (Sarah and Emily) for the children in the scenarios.

We are interested in your opinion about how important different parenting styles are for the future of children.

For this purpose, we would like to ask you to imagine two average American families, the Jones and the Smiths, who make decisions how to raise their children. More specifically, we will show you different scenarios, and ask what you think the likely yearly earnings and life satisfaction of their children at age 30 will be. There are no clear right or wrong answers, and we know these questions are difficult. Please try to consider each scenario carefully and tell us what you believe the likely outcome will be.

Mr and Mrs Jones have one son (daughter), John (Sarah). John (Sarah) is 6 (7-16) years old. The Jones live in a good neighborhood with few crimes (10 violent crimes per 10,000 inhabitants) and low unemployment (2%). Now let's think about the future of John (Sarah). Assuming John (Sarah) is working full-time, what do you expect his (her) gross yearly earnings (in today's USD) to be when he (she) is 30 years old in each of the following scenarios? What do you expect his (her) life satisfaction at age 30 to be on a scale from 1 (low) to 100 (high)?

Scenario 1: *John (Sarah)'s parents show him (her) once per week that they like him (her). At the same time, they tell him (her) every other day that he (she) has to obey their decisions.*

Scenario 2: *John (Sarah)'s parents show him (her) once per week that they like him (her). At the same time, they tell him (her) once per week that he (she) has to obey their decisions.*

Scenario 3: *John (Sarah)'s parents show him (her) every other day that they like him (her). At the same time, they tell him (her) every other day that he (she) has to obey their decisions.*

Scenario 4: *John (Sarah)'s parents show him (her) every other day that they like him (her). At the same time, they tell him (her) once per week that he (she) has to obey their decisions.*

Now imagine a different family, the Smiths. In many respects, the Smiths are very similar to the Jones. For example, Mr and Mrs Smith have one son (daughter), Simon (Emily), who is also 6 (7-16) years old and as smart as John (Sarah). Mr and Mrs Smith also have similar levels of income and education as Mr and Mrs Jones and spend as much time and money for raising their child. However, there is one difference. Unlike the Jones, the Smiths are living in a bad neighborhood with many crimes (60 violent crimes per 10,000 inhabitants per year) and high unemployment (10%). Assuming Simon (Emily) is working full-time, what do you expect his (her) gross yearly earnings (in today's USD) to be when he (she) is 30 years old in each of the following scenarios? What do you expect his (her) life satisfaction at age to be 30 on a scale from 1 (low) to 100 (high)?

Scenario 5: Simon (Emily)'s parents show him (her) once per week that they like him (her). At the same time, they tell him (her) every other day that he (she) has to obey their decisions.

Scenario 6: Simon (Emily)'s parents show him (her) once per week that they like him (her). At the same time, they tell him (her) once per week that he (she) has to obey their decisions.

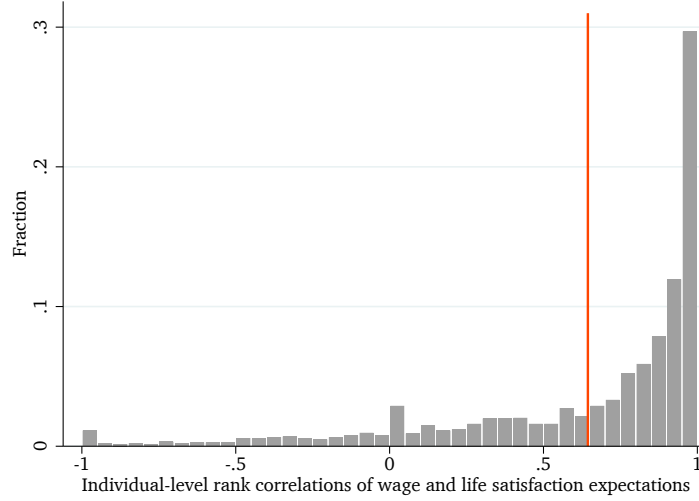
Scenario 7: Simon (Emily)'s parents show him (her) every other day that they like him (her). At the same time, they tell him (her) every other day that he (she) has to obey their decisions.

Scenario 8: Simon (Emily)'s parents show him (her) every other day that they like him (her). At the same time, they tell him (her) once per week that he (she) has to obey their decisions.

B Additional tables and figures

B.1 Relationship of perceived returns across domains

Figure B.1: Rank correlation of earnings and life satisfaction expectations



This figure presents the distribution of individual-level rank correlations of earnings and life satisfaction expectations. The red line indicates the mean rank correlation across respondents.

Table B.1: Relationship of perceived returns in earnings and life satisfaction domain

	$R_{warmth,i}^{LS}$		$R_{control,i}^{LS}$		$R_{neighb.,i}^{LS}$	
	(1)	(2)	(3)	(4)	(5)	(6)
$R_{warmth,i}$	0.652*** (0.036)	0.651*** (0.036)				
$R_{control,i}$			0.534*** (0.040)	0.533*** (0.040)		
$R_{neighb.,i}$					0.376*** (0.035)	0.377*** (0.035)
Controls	No	Yes	No	Yes	No	Yes
Individuals	2119	2119	2119	2119	2119	2119
R^2	.28	.28	.2	.2	.11	.11

This table presents regressions of individual-level perceived returns in the life satisfaction domain ($R_{k,i}^{LS}$) on perceived returns in the monetary domain ($R_{k,i}$) for $k = \text{warmth, control, neighborhood}$. Returns are calculated from estimating equation (1) for each individual using either expected earnings ($R_{k,i}$) or expected life satisfaction ($R_{k,i}^{LS}$) at age 30 as an outcome. Controls include socio-demographic characteristics as in Table 3. Robust standard errors in parentheses. *, **, and *** denote significance at the 10, 5, and 1 percent level.

Table B.2: Parental beliefs about perceived returns in the life satisfaction domain

	log. of expected life satisfaction at age 30 ($\log(l_{sij})$)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
High warmth	0.201*** (0.009)	0.201*** (0.009)	0.201*** (0.009)	0.180*** (0.011)	0.180*** (0.011)	0.180*** (0.011)	0.183*** (0.011)
High control	-0.004 (0.005)	-0.004 (0.005)	-0.004 (0.005)	-0.033*** (0.008)	-0.033*** (0.008)	-0.033*** (0.008)	-0.030*** (0.009)
Good neighborhood	0.145*** (0.010)	0.145*** (0.010)	0.145*** (0.010)	0.159*** (0.012)	0.159*** (0.012)	0.159*** (0.012)	0.162*** (0.012)
High warmth × High control				0.063*** (0.012)	0.063*** (0.012)	0.063*** (0.012)	0.057*** (0.014)
High warmth × Good neighborhood				-0.022** (0.009)	-0.022** (0.009)	-0.022** (0.009)	-0.028*** (0.011)
High control × Good neighborhood				-0.006 (0.008)	-0.006 (0.008)	-0.006 (0.008)	-0.011 (0.011)
High warmth × High control × Good neighborhood							0.011 (0.015)
<i>Individual-level controls</i>							
Female		0.000 (0.036)			0.000 (0.036)		
Age		0.003 (0.002)			0.003 (0.002)		
White		-0.026 (0.040)			-0.026 (0.040)		
College degree		-0.022 (0.039)			-0.022 (0.039)		
Employed		0.062 (0.042)			0.062 (0.042)		
log(Household income)		0.100*** (0.031)			0.100*** (0.031)		
Single parent		-0.034 (0.050)			-0.034 (0.050)		
Number of children		-0.009 (0.019)			-0.009 (0.019)		
Share of children being female		0.057 (0.044)			0.057 (0.044)		
Mean exp. life satis. (0-100)	53	53	53	53	53	53	53
Controls for heterogeneity	No	Controls	FE	No	Controls	FE	FE
Observations	16952	16952	16952	16952	16952	16952	16952
Individuals	2119	2119	2119	2119	2119	2119	2119
R ²	.021	.034	.8	.021	.034	.8	.8

This table presents least squares regressions of log life satisfaction expectations based on equation (1). Columns (1) through (3) focus on first-order effects, while columns (4) to (6) add interactions. Standard errors clustered by respondent in parentheses. *, **, and *** denote significance at the 10, 5, and 1 percent level.

B.2 Parenting in National Longitudinal Survey of Youth 1997 (NLSY97)

Table B.3: Gender differences in parenting styles (NLSY97)

	(A) Mother's PS		(B) Father's PS	
	(1) log(earnings)	(2) HS GPA	(3) log(earnings)	(4) HS GPA
Warmth	0.104** (0.045)	0.271*** (0.043)	0.147*** (0.042)	0.294*** (0.040)
Control	0.020 (0.051)	0.121** (0.048)	0.076* (0.046)	0.088** (0.043)
Warmth \times Control	0.026 (0.060)	-0.018 (0.057)	-0.021 (0.057)	0.002 (0.055)
Observations	5046	5832	4873	5645
R^2	.0037	.017	.0061	.023

This table uses data from the National Longitudinal Survey of Youth 1997 and regresses the child's log earnings in 2013 (i.e., when they are on average 30 years old) on child's reports of each of its parents' parenting style. Columns (1) and (2) focus on mother's warmth and control, while columns (3) and (4) report analogous regressions for fathers. Robust standard errors in parentheses. *, **, and *** denote significance at the 10, 5, and 1 percent level.

Table B.4: Gender differences in parenting styles (NLSY97)

	(A) PS Warmth		(B) PS Control	
	(1)	(2)	(3)	(4)
Mother	0.057*** (0.004)	0.058*** (0.004)	0.018*** (0.003)	0.017*** (0.004)
Mean of dependent variable	.65	.65	.55	.55
Observations				
R^2	16968	12310	16968	12310
r^2	.0036	.035	.00032	.027

This table uses data from the National Longitudinal Survey of Youth 1997 and regresses the child's report of each of its parents' parenting style (measured by binary indicators) on an indicator for mothers. Columns (1) and (2) focus on the warmth dimension, while columns (3) and (4) on control. Control variables include age and gender of the child, parent's education, log household income, and an indicator for whether both parents are present at home. Standard errors clustered on child-level in parentheses. *, **, and *** denote significance at the 10, 5, and 1 percent level.

B.3 Additional results on determinants of perceived returns

To what extent are the associations reported in section 4 driven by zero responses as shown in Figure 3? Table B.5 shows that respondents, who perceive no returns in one dimension are more likely to also report zero returns in another. This pattern is especially pronounced for both parenting dimensions suggesting that these individuals do not expect parenting to matter for long-term outcomes of children. Panel A of Table B.6 shows that fathers, older respondents as well as those with fewer children and who do not belief that skills are malleable are more likely to report zero responses in the parenting domains. Panel B shows how the results in Table 7 would change once I restrict the sample to respondents perceiving non-zero returns. The patterns are qualitatively and quantitatively similar to the whole sample.

Table B.5: Correlations of zero perceived returns

	Warmth	Control	Neighb.
Warmth	1.000		
Control	0.823***	1.000	
Neighb.	0.365***	0.385***	1.000

This table presents correlations of indicators for whether a respondent expects zero returns to warmth, control or neighborhoods. *, **, and *** denote significance at the 10, 5, and 1 percent level.

The perceived returns analyzed here are subject to measurement error as they are inferred from eight observations only. In order to mitigate the role of measurement error, I lever two distinct measures of the same underlying return measure. More specifically, I lever the perceived return measure constructed from parental beliefs in the life satisfaction domain to isolate the common variation in both measures. I adopt the “obviously related instrumental variables” (ORIV) estimator proposed by Gillen, Snowberg, and Yariv (2019). This estimator uses two measures of the same underlying dimension and instruments one measure with the other. Implementing the estimator requires that the (instrumented) perceived returns is an explanatory variable rather than the dependent variable as in Table 7. Hence, I perform the following exercise similar to the analysis in section 5, in which I examine the relevance of perceived returns. I duplicate all observations and check whether perceived returns can predict a specific characteristics conditional on all other characteristics by estimating

$$x_i = \delta_0 + \delta_1 R_{k,i} + \delta_2 X_{i,-x_i} + v_i. \quad (4)$$

Here, $\delta_0 = (\delta_{0,m}, \delta_{0,ls})$ denote the constants corresponding to the original and duplicated observations, $R_{k,i}$ denotes the (standardized) perceived return in dimension k

Table B.6: Perceived returns accounting for zero responses

	(A) Zero returns			(B) Returns excluding zeros		
	(1) Parenting	(2) Neighb.	(3) All	(4) $R_{warmth,i}$	(5) $R_{control,i}$	(6) $R_{neighb.,i}$
<i>Socio-demographic characteristics</i>						
Female	-0.037* (0.021)	-0.001 (0.016)	-0.015 (0.013)	0.067*** (0.021)	0.020 (0.018)	0.060*** (0.022)
Age	0.004*** (0.001)	0.001 (0.001)	0.001 (0.001)	0.000 (0.001)	-0.001 (0.001)	0.003** (0.001)
White	0.010 (0.022)	0.038** (0.017)	0.024* (0.013)	0.061*** (0.024)	0.022 (0.019)	0.020 (0.025)
College degree	-0.028 (0.021)	-0.001 (0.018)	-0.011 (0.014)	-0.010 (0.023)	-0.003 (0.019)	-0.000 (0.022)
Employed	-0.035 (0.023)	-0.015 (0.018)	-0.016 (0.015)	-0.039 (0.025)	-0.005 (0.020)	-0.029 (0.025)
log(Household income)	0.003 (0.015)	0.005 (0.012)	0.002 (0.010)	0.025 (0.017)	0.006 (0.015)	-0.008 (0.018)
Single parent	0.009 (0.027)	0.005 (0.022)	0.007 (0.018)	0.064** (0.031)	-0.003 (0.025)	0.016 (0.030)
Number of children	-0.029*** (0.009)	-0.005 (0.008)	-0.015*** (0.005)	0.005 (0.009)	-0.005 (0.008)	0.001 (0.010)
Share of children being female	0.009 (0.026)	0.022 (0.021)	0.022 (0.017)	-0.008 (0.027)	0.003 (0.023)	0.017 (0.025)
<i>Parenting values</i>						
Altruism towards child (std.)	-0.007 (0.010)	-0.001 (0.008)	-0.007 (0.007)	0.023** (0.009)	-0.007 (0.008)	0.033*** (0.010)
Paternalism towards child (std.)	-0.024** (0.010)	-0.007 (0.008)	-0.013* (0.007)	-0.004 (0.011)	0.018** (0.009)	-0.000 (0.011)
Malleability of skills (std.)	-0.020** (0.010)	-0.015* (0.008)	-0.012* (0.006)	0.034*** (0.010)	0.015* (0.009)	0.054*** (0.010)
Mean of dependent variable	.23	.14	.08	.21	0	.24
Individuals	2109	2109	2109	1626	1626	1821
R^2	.019	.0063	.012	.028	.0074	.033

This table presents regressions of an indicator of zero perceived returns (Panel A) or individual-level perceived returns excluding those with zero returns (Panel B) on socio-demographic characteristics and parenting values according to equation 2. Individual-level perceived returns are estimated based on equation (1) for each individual separately. Dependent variable in column (1) corresponds to an indicator equal to one if returns to both warmth and control are perceived to be zero, while column (2) focuses on zero perceived returns in the neighborhood dimension. Column (3) checks for all three dimensions simultaneously. Columns (4) to (6) correspond to columns (4) to (6) of Table 7, but exclude individuals that report zero perceived returns according to column (1) and (2), respectively. Robust standard errors in parentheses. *, **, and *** denote significance at the 10, 5, and 1 percent level.

($k = \text{warmth, control, neighborhood}$) in the monetary domain for the original observations (life satisfaction domain for the duplications) that is instrumented with the return in the life satisfaction domain (monetary domain for duplications) and $X_{i,-x_i}$ corresponds to a vector of all characteristics excluding x_i .¹ In order to account for

¹Note that this is equivalent to estimate seemingly unrelated regressions of these characteristics on perceived returns in both dimensions separately, for which the coefficient on the perceived returns is restricted to be equal across specifications.

the duplications, I follow Gillen, Snowberg, and Yariv (2019) and bootstrap standard errors using 100 replications.

Table B.7 presents the results of this exercise. Each cell corresponds to a coefficient from a regression of equation (4): a one standard deviation increase in perceived returns in the warmth or neighborhood dimension is associated with a 3.6-4.0 percentage point increase in the probability of being female and parenting values show similar patterns as before.

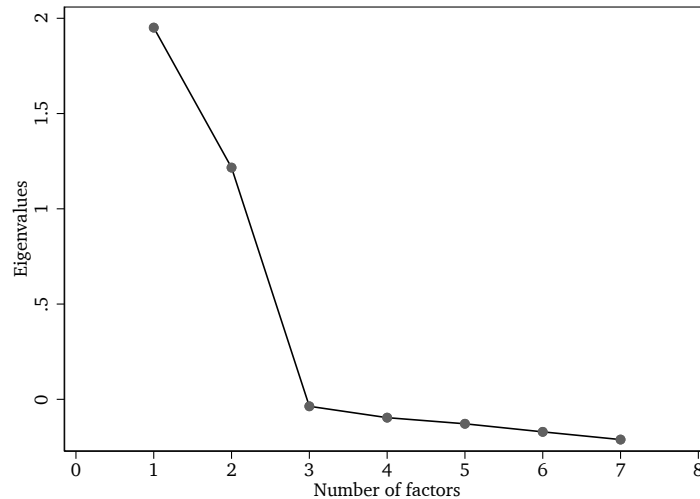
Table B.7: Determinants of individual-level perceived returns using ORIVs

	Coefficients on perc. returns		
	(1) $R_{warmth,i}$	(2) $R_{control,i}$	(3) $R_{neighb.,i}$
<i>Socio-demographic characteristics</i>			
Female	0.036*** (0.012)	0.022 (0.016)	0.040* (0.024)
Age	-0.186 (0.188)	-0.193 (0.254)	0.775** (0.372)
White	0.040*** (0.012)	0.013 (0.014)	0.004 (0.021)
College degree	-0.014 (0.014)	-0.018 (0.014)	-0.011 (0.019)
Employed	-0.026 (0.013)	-0.012 (0.015)	-0.025 (0.020)
log(Household income)	0.015 (0.020)	0.028 (0.026)	0.026 (0.028)
Single parent	0.011 (0.010)	-0.002 (0.014)	0.015 (0.016)
Number of children	0.068* (0.038)	-0.028 (0.036)	0.040 (0.055)
Share of children being female	-0.012 (0.011)	0.001 (0.015)	-0.017 (0.015)
<i>Parenting values</i>			
Altruism towards child (std.)	0.088*** (0.030)	-0.027 (0.037)	0.120** (0.049)
Paternalism towards child (std.)	0.035 (0.028)	0.128*** (0.038)	0.022 (0.053)
Malleability of skills (std.)	0.137*** (0.028)	0.043 (0.036)	0.249*** (0.050)

This table presents regressions of a respondent's characteristic x_i on the instrumented perceived return and all other individual characteristics based on equation (4). Each cell reports the coefficient of the perceived returns from a separate regression with the characteristics on the left as the dependent variable. Column (1) uses perceived returns to warmth, column (2) perceived returns to control, and column (3) perceived returns to neighborhoods as the regressor of interest. Bootstrapped standard errors in parentheses. *, **, and *** denote significance at the 10, 5, and 1 percent level.

B.4 Exploratory factor analysis

Figure B.2: Scree plot of parenting style items



This figure presents a scree plot of the eigenvalues from an exploratory factor analysis using seven items based on Perris et al. (1980) and Schwarz et al. (1997) to measure parenting styles in the warmth and control dimension, respectively.

Table B.8: Rotated factor loadings of actual parenting styles

	Rotated factor loadings	
	(1) Warmth	(2) Control
<i>Warmth measures (Perris et al., 1980)</i>		
(1) I show my son/daughter with words and gestures that I like him/her	0.72	0.06
(2) I cheer up my son/daughter when he/she is sad	0.74	0.09
(3) I praise my son/daughter	0.75	0.07
<i>Control measures (Schwarz et al., 1997)</i>		
(4) I tend to be a strict parent	0.08	0.57
(5) If my son/daughter does something against my will, I punish him/her	0.06	0.68
(6) I make it clear to my son/daughter that he/she is not to break the rules or question my decisions	0.12	0.67
(7) I never waive from my rules	0.07	0.51

This table presents rotated factor loadings from an exploratory factor analysis using seven items based on Perris et al. (1980) and Schwarz et al. (1997) to measure parenting styles in the warmth and control dimension, respectively.

B.5 Relevance of perceived returns for neighborhood characteristics

In this section, I examine whether estimated returns in the neighborhood dimension are related to the quality of the neighborhood a family is living in. I use two approaches to answer this question. First, the survey elicits parents' agreement to three statements (i) "My neighborhood is a good place to raise children", (ii) "I feel safe in my neighborhood", and (iii) "My child attends a school of good quality" on a 5-point scale. I extract a factor from these statements as a measure of the subjective neighborhood quality. Second, linking neighborhood characteristics from Chetty and Hendren (2018a,b) to respondents in my survey, I perform a second factor analysis that reveals two factors: a first factor capturing economic conditions in a neighborhood (NQ 1), and a second factor (NQ 2) related to measures of segregation and urbanization. Table B.9 presents analogous estimates to Table 8 using both the subjective assessment or objective measures of neighborhood quality as outcome variables.²

I find that only perceived returns in the monetary domain are significantly associated with the subjectively assessed quality of a neighborhood. Returns in the life satisfaction domain or ORIVs do not reveal a significant association. Yet, when looking at objective measures of the neighborhood quality in columns (4) and (5), I find that higher perceived returns to neighborhoods are associated positively, but not significantly with economic conditions of a neighborhood ($p = 0.169$). They are, however, negatively related with its segregation. Although parental beliefs do not predict subjective neighborhood assessments they are related to objective measures of the neighborhood quality. This suggests that respondents are not necessarily aware how their environment shapes their own assessments of the return to neighborhoods. Taken together, parental beliefs are not only systematically related to actual parenting styles, but also associated with characteristics of parents' place of residence. This supports the conjecture that these parental beliefs are a fundamental part of parental decision-making processes.

²One caveat of this approach to keep in mind is that some neighborhood characteristics are historical data and thus may have changed over time. Yet, Chetty et al. (2018) document that these characteristics are relatively stable over time and good predictors of today's conditions.

Table B.9: Relevance of perceived returns for neighborhood quality

	(A) Subjective NQ			(B) NQ 1	(C) NQ 2
	(1)	(2)	(3)	(4)	(5)
	Expected earnings	Expected Life Satis.	ORIV	ORIV	ORIV
$R_{neighb.,i}$	0.043** (0.019)	-0.005 (0.019)	0.058 (0.043)	0.062 (0.045)	-0.161*** (0.038)
Controls	Yes	Yes	Yes	Yes	Yes
Observations	2104	2104	4208	4164	4164
Individuals	2104	2104	2104	2082	2082
R^2	.11	.11	.104	.135	.113

This table examines associations of perceived returns and measures of the actual neighborhood quality. Columns (1) to (3) present the results for respondents' subjective assessments of the quality of their neighborhood. The outcome variable is a factor constructed from agreement to the three statements (i) "My neighborhood is a good place to raise children", (ii) "I feel safe in my neighborhood", and (iii) "My child attends a school of good quality". Columns (1) and (2) use returns in the expected earnings and expected life satisfaction domains, while column (3) implements the obviously related instrumental variables estimator (ORIV, Gillen, Snowberg, and Yariv, 2019) to correct for measurement error in perceived returns using the two return measures as instruments for each other. Columns (4) and (5) present corresponding results for objective measures of a neighborhood's quality based on respondents' zip-codes using ORIVs. NQ 1 refers to a factor capturing economic conditions in an area, while NQ 2 is related to measures of segregation and urbanization. All specifications include controls for socio-demographic characteristics. Robust standard errors in columns (1) and (2) or bootstrapped standard errors in columns (3) to (5) in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% level.