PARENTING WITH STYLE:
ALTRUISM AND PATERNALISM IN INTERGENERATIONAL PREFERENCE TRANSMISSION

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ABSTRACT

We develop a theory of parent-child relations that rationalizes the choice between alternative parenting styles (as set out in Baumrind 1967). Parents maximize an objective function that combines Beckerian altruism and paternalism towards children. They can affect their children's choices via two channels: either by influencing children's preferences or by imposing direct restrictions on their choice sets. Different parenting styles (authoritarian, authoritative, and permissive) emerge as equilibrium outcomes and are affected both by parental preferences and by the socioeconomic environment. Parenting style, in turn, feeds back into the children's welfare and economic success. The theory is consistent with the decline of authoritarian parenting observed in industrialized countries and with the greater prevalence of more permissive parenting in countries characterized by low inequality.

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1 Introduction

From time immemorial, parents have been looking for advice on how to best raise their children. The Bible urges parents to be strict and to dispense generous corporal punishment.[1] Discipline and rigor are also advocated by John Locke in *Some Thoughts Concerning Education*.[2] In his celebrated *Émile*, Jean-Jacques Rousseau reverses the perspective and encourages parents to let children learn from experience and not to interfere with their freedom and happiness.[3] The pendulum has kept swinging between strict and lenient approaches ever since. If anti-authoritarian parenting and schooling practices became fashionable in the 1960s and the 1970s, the "Tiger Mom" has recently become the icon of a strict, rule-oriented parenting which is supposedly at the root of the success of many Asian children (see Chua 2011).

What drives these shifts in the doctrine and practice of child upbringing? In this article, we argue that child-rearing practices are shaped by economic incentives and constraints. We build a positive theory of parenting that accounts for broad changes in parenting styles in industrialized countries over time, and for variation in parenting styles across countries.

In our model, parents are driven by a combination of Beckerian altruism (i.e., a concern for the well-being of the child) and a paternalistic motive. Paternalism captures the extent to which parents disagree with their children's natural preferences and inclinations. Parents can affect their children's choices in two ways: either by molding children's preferences, or by imposing direct constraints on their choices. Echoing the classification of "parenting styles" in developmental psychology (see Baumrind 1967), we define as *permissive* a parenting style that allows children to make free choices according to their natural inclinations, in the spirit of Rousseau. We define as *authoritative* a parenting style where parents attempt to mold their children's preferences, with the aim of inducing choices that parents view as conducive to success in life. Finally, we define as *authoritarian* a style where parents restrict children's choices, i.e., the parent directly imposes her will on the child rather than taking the indirect route of molding the

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[1] "He who spares the rod hates his son, but he who loves him is careful to discipline him ..." (Proverbs 13:24); "Folly is bound up in the heart of a child, but the rod of discipline will drive it far from him" (Proverbs 22:15).

[2] "...liberty and indulgence can do no good to children; their want of judgment makes them stand in need of restraint and discipline ..." (Locke 1800, p. 40).

[3] "Zealous teachers, be simple, sensible, and reticent; be in no hurry to act unless to prevent the actions of others ...Children should never receive punishment merely as such; it should always come as the natural consequence of their fault" (Rousseau 1762, Book II).

child's preferences. The choice between these parenting styles hinges on the interaction between parental preferences and the characteristics of the socioeconomic environment.

Our theory can be applied to different aspects of potential disagreement between parents and children. We conjecture that disagreements about choices that have a bearing on human-capital investment and future economic success are a key factor for the choice of parenting styles and for the observed variation in the data. Accordingly, we focus on two preference traits that have been shown to be important for human capital and wealth accumulation (see, e.g., Doepke and Zilibotti 2008 and Dohmen et al. 2015), namely, time preference (patience) and risk aversion. In the case of patience, we identify paternalism as the innate tendency of parents to care more about their children's future-oriented investments than do the children themselves, as witnessed by the relentless struggle of many parents to push their reluctant children to study diligently for school. In the case of risk aversion, we consider paternalism to be the tendency of parents to protect children from risky activities that may have long-term costs.

Parents can deal with these conflicts by monitoring their children and forcing them to obey (authoritarian parenting). The downside of the authoritarian strategy is that it limits children's freedom, and this has its own costs in terms of human capital investment. For example, some independence and risk taking may be necessary for children to discover their true talents. Alternatively, parents can mold children's preferences so as to align them with their own (authoritative parenting), for instance, by emphasizing the virtue of hard work or the importance of avoiding certain types of risky behavior (drugs, unprotected sex, etc.). The downside of authoritative parenting is that it imposes a welfare cost on children, and may also require costly effort on part of the parents.

Building on these ideas, we can envision societies as being distinguished by the return to human capital investment and by the comparative advantage of parents in transmitting skills to their children (or conversely, the economic return to children's independence). In traditional societies with a strong incumbency advantage and low social and occupational mobility, children usually do well by adopting their parents' profession. In such societies, the returns to independence are low, and hence we would expect authoritarian parenting to dominate. In contrast, authoritative parenting should prevail in societies with a high economic value of making independent choices (for example, because of a high return to matching one's occupation with one's talents) and a high return to human capital. Finally, permissive parenting is attractive if the return to independence is high and the return to human capital investment is low.

The theory is consistent with historical trends in parenting styles in industrialized countries. Authoritarian parenting, as measured by practices such as corporal punishment, has been declining over time. In the 1960s and 1970s, anti-authoritarian (i.e., permissive) parenting gained in popularity. In recent decades, we observe a new trend towards more engaged and intrusive parenting. By and large, the nature of this new parenting style (which is commonly known as "helicopter parenting") is authoritative and shuns the coercive methods of yesteryear. Instead, helicopter parents aim to form responsible children who will "do the right thing" and become high achievers on their own accord.

We argue that the long-term decline in authoritarian parenting is driven by rising economic returns to independence. The continuous increase in the division of labor in industrialized societies has greatly increased the number of occupations, making it less likely that a child's talents are well matched with the occupation of the parent. In addition, even within professions the specialized knowledge of the parent may have less value when there is rapid technological change. These trends have increased parents' incentives to grant children more independence by letting them acquire general human capital through formal education. This erodes the direct control over children that is a precondition for an authoritarian parenting style.

We link the period of anti-authoritarian parenting to low inequality, a low return to education, and the increasing size of welfare state programs. In the 1960s and early 1970s, economic inequality reached a historic low, and there was little unemployment. In those days, the returns to pushing children to study hard were low relative to the value of granting them freedom and independence. For sure, the hippie movement that is often identified with the trend towards anti-authoritarian parenting also had other (e.g., political) motives, but our analysis suggests that broad economic trends played an important role in its success.

Regarding the rise of authoritative parenting in recent decades, our theory suggests that such a trend could be driven by an increase in the return to education. And indeed, the decades since the 1980s brought about a reversion in economic trends and an accompanying waning of the hippie values. Inequality has risen, in large part due to an increase in the returns to education and skill. The theory predicts that such a change should induce a shift towards more intensive parenting aimed at increasing children's drive for achievement while protecting them from various forms of juvenile risk that can harm their future prospects. In other words, the theory accounts for today's popularity of helicopter parenting.

A general implication of our theory is that permissive parenting is less attractive when the stakes are high, i.e., when adult-style behavior is especially important for children's future success. Thus, we should expect little permissive parenting in unequal societies where early effort can have a large effect on one's position later in life. In contrast, in more equal societies parents should be more inclined to grant children independence and room for self-discovery. We show that these predictions are in line with evidence on differences in parenting between countries with low inequality (such as Germany and the Scandinavian countries) and more unequal countries such as the United States.

In the next section, we relate our contribution to the existing literature. In Section 3, we present evidence on variation in parenting styles across countries and over time that motivates our theory. Our general model of parenting styles is introduced in Section 4, and in Sections 5 and 6 we consider applications emphasizing the role of patience and risk preferences to address the facts described in Section 3. Section 7 concludes. All proofs are contained in the mathematical appendix.

2   Related Literature

The concept of parenting style originates from developmental psychology. In her seminal contributions, Baumrind (1967) proposes the threefold classification of parenting styles into authoritarian, permissive, and authoritative that is still dominant today. Since then, many studies in psychology have attempted to identify the effects of parenting style on children's preferences, personalities, and outcomes (see, e.g., Aunola et al. 2000, Chan and Koo 2011, Darling and Steinberg 1993, Dornbush et al. 1987, Spera 2005, and Steinberg et al. 1991).

There exists a limited economic literature on parenting, influenced by the seminal contributions of Becker and Tomes (1979) and Mulligan (1997). Weinberg (2001) focuses on parents' influence on their children's behavior through pecuniary incentives. He argues that, due to the scarcity of means, low-income parents have limited access to such incentives, and therefore resort to authoritarian methods such as corporal punishment.

Lizzeri and Siniscalchi (2008) consider the decision problem of altruistic parents who have superior information about the consequences of certain actions. Parents can intervene to protect children from the consequences of ill-informed choices. However, this comes at the cost of reducing children's ability to learn from experience. The setting gives rise to alternative parenting strategies, depending on whether parents aim to shelter their children from the consequences of their actions, or instead wish to maximize

learning opportunities. In their model, parents do not have paternalistic motives. Instead, parenting strategies arise from limits on communication: parents are not able to directly share their knowledge, nor can they directly communicate to children which action they should take.[4] Information frictions are also emphasized in a recent empirical literature (Attanasio 2015, Attanasio et al. 2015, and Dizon-Ross 2016) arguing that parental investment in child rearing hinges not only on parents' objectives and resource constraints, but also on their possibly incorrect beliefs about the nature of the production function for human capital. These papers are complementary to ours: they postulate, as we do, that parenting practices are crucial in shaping child development, but focus on a different source of frictions (imperfect information).

Our paper is related more generally to the large literature on cultural transmission and norms and the effect of cultural factors on institutions and economic development, including Bisin and Verdier (2001, 2010), Gorodnichenko and Roland (2016), Hauk and Saez-Marti (2002), Saez-Marti and Zenou (2012), and Tabellini (2008). A common assumption in this literature is imperfect empathy, which corresponds to the paternalistic element in our theory: parents use their own preferences to evaluate children's choices. Imperfectly empathic parents always benefit when children adopt the parents' cultural traits. By considering a setting with both altruistic and paternalistic motives, our theory allows for richer implications and leads to a theory of parenting styles.

Interactions between parental transmission of preferences, labor supply, and occupational choice are also central to the analyses of Corneo and Jeanne (2010), Doepke and Zilibotti (2008), and Fernández (2013). Becker et al. (2016) show that it may be optimal for parents to invest resources in manipulating their children's preferences in order to "buy" their support in old age. Lundberg et al. (2009) and Romich et al. (2009) focus on the non-cooperative interaction between paternalistic parents and myopic children. In our model, authoritative parenting may instill a form of guilt that induces the child to behave responsibly and avoid choices that parents view as inappropriate. This feature links our work to Fernández-Villaverde et al. (2014), where altruistic parents choose how strongly to stigmatize sex, trading off the marginal gains from instilling a taboo against its costs.

Our theory relates to the recent literature on time-inconsistent decision making and temptation. Gul and Pesendorfer (2001) propose an axiomatic decision theory of a ratio-

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[4]Other recent studies involving a choice of parenting strategies include Cobb-Clark et al. (2016), Cosconati (2013), and Zhang and Ikeda (2016). None of these papers aim to explain variation in parenting styles over time and across countries.

nal agent who is subject to a temptation problem where the decision maker may benefit from restricting her choice set ex ante. In our model, similarly, a parent may find it optimal to restrict the choice set of the next member of the dynasty. Other related papers in this literature include Amador et al. (2006) and Bhatt and Ogaki (2012). Pavoni and Yazici (2016) study an optimal taxation problem where the inefficiency in decision making that arises from time-inconsistent preferences calls for a positive tax on parental transfers.

Our study is also motivated by a growing literature showing that preferences and non-cognitive skills can be molded from early childhood, and that these attributes play an important role for human and social capital accumulation. Heckman and Mosso (2014) show that the success of intervention programs targeting poor families with small children hinges on whether a program stimulates parental investments and improves parent-child interactions (see also Cunha 2015, Cunha et al. 2010, Heckman et al. 2013, and Segal 2013). Our analysis builds specifically on work emphasizing the importance of patience for human capital investment (see, e.g., Figlio et al. 2016, Heckman et al. 2006, Sutter et al. 2013).

3   Motivating Evidence

In this section, we lay out some novel motivating facts that a positive theory of parenting style ought to explain. We focus on variation in parenting styles across OECD countries, differential trends in parenting across social classes in the United States from the 1970s to the present, and the correlation between parenting style and children's performance in education.

3.1   Differences in Parenting Styles Across Countries

We start by documenting how the popularity of the three parenting styles varies across countries that differ in income inequality, return to education, and redistributive policies. Our theory suggests that these variables should be important determinants of parenting choices in advanced economies where the incumbency premium is low. Accordingly, our sample of countries consists of all OECD members before 1994.[5] We choose these countries because they are broadly similar in terms of the overall level of development (which correlates with incumbency premia) and other aspects of culture and

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[5]The sample includes: Australia, Canada, Finland, France, Germany, Great Britain, Italy, Japan, Netherlands, New Zealand, Norway, Spain, Sweden, Switzerland, Turkey, and the United States. Although Turkey is a poorer country than the rest of the group, its exclusion yields no changes in the results.

institutions that may also affect parenting choices (e.g., a former communist government).

Our measures of parenting styles are assembled using the World Value Survey (WVS), where people are asked the following question: "Here is a list of qualities that children can be encouraged to learn at home. Which, if any, do you consider to be especially important? Please choose up to five!"[6] We construct proxies of the three main parenting styles (authoritarian, authoritative, and permissive) by considering the four child qualities most directly related to them. The value most closely associated with an authoritarian parenting style is *obedience*. Therefore, we label as authoritarian any parent who lists obedience among the desired qualities. Next, we label as authoritative any parent who (i) is not authoritarian, and (ii) mentions *hard work* among the top five values. Finally, we label as permissive any parent who (i) is neither authoritarian nor authoritative, and (ii) lists either *independence* or *imagination* (or both) among the top five values. The three categories are mutually exclusive but not exhaustive: some parents may not be associated with any of the three parenting styles. However, this residual categories turns out to be small. In a total sample of 66,632 respondents, 27% are classified as authoritarian, 30% are as classified authoritative, 34% are classified as permissive, and 9% are not classified. In the analysis below, we exclude the non-classified group.[7]

The focal point of our analysis is the correlation between inequality and the choice of parenting style. In more unequal societies, success and failure are associated with larger income gaps; thus, we expect that parents might interfere more with their children's natural inclination to seize the day. Our first measure of inequality is the 90th-to-10th percentile ratio in the gross earnings of full-time dependent employees from the OECD. This measure is available for many years and is easily comparable across countries.

As a first-step analysis, we collapse the individual data at the country-wave level. The permissive parenting style is negatively correlated with inequality (correlation coefficient: -0.63), whereas the authoritarian (0.25) and, more pronouncedly, the authoritative

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[6]The values among which parents can choose are: independence, hard work, feeling of responsibility, imagination, tolerance and respect for others, thrift and saving money, determination and perseverance, religious faith, unselfishness, and obedience. We consider data from all the available waves: 1981–1984, 1989–1993, 1994–1998, 1999–2004, 2005–2009, 2010–2014.

[7]How to delineate permissive from authoritative parenting is not completely obvious; independence is a natural attribute of permissive parenting, but it may also be a goal for some authoritative parents. Hard work, however, is distinctively a value upon which permissive parents would not insist. Therefore, we classify all parents who mention hard work (but do not mention obedience, which is clearly associated with authoritarianism) as authoritative. Below, we discuss robustness results when the value of "determination and perseverance" is also associated with an authoritative parenting style.

Figure 3.1: Inequality, Returns to Tertiary Education, and Parenting Styles.
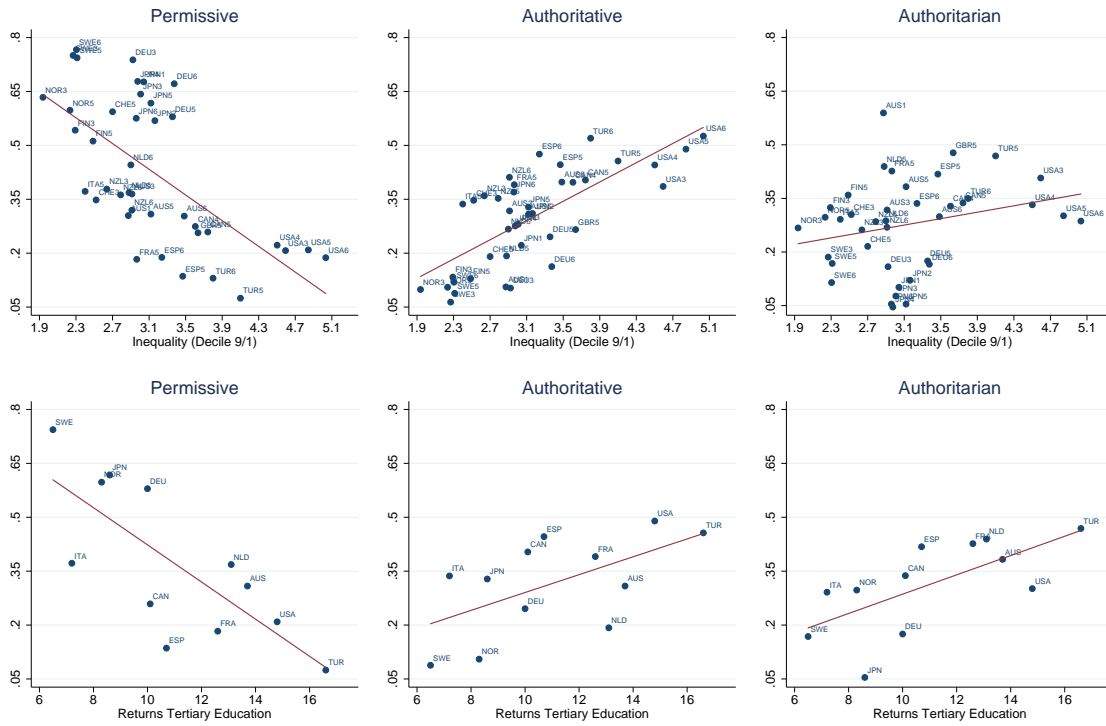
The upper panel shows correlations between the fraction of parents adopting a particular parenting style in each country-wave and income inequality (90-10 earnings ratio) in the year in which the WVS surveyed the country (or in closest available observation within a [-2,+1] year interval). The lower panel shows correlations between the fraction of parents adopting a particular parenting style in Wave 5 and the return to tertiary education from Montenegro and Patrinos (2014).

(0.72) parenting styles are positively correlated with inequality. Scatter plots of these relationships are displayed in the upper panel of Figure 3.1. The narrative for specific countries accords well with the general picture. Inequality is very low in Sweden and Norway, and these countries have very high shares of permissive parents. Conversely, in the much more unequal United States, parents are more authoritative and authoritarian.[8]

The same pattern of correlation emerges if we replace income inequality with the return

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[8]This pattern is confirmed by breaking down the analysis to the individual values. Consider Wave 5, which has the largest coverage of countries. Among Swedish parents, 78% and 57% mention independence and imagination among top five values, respectively. In contrast, only 10% mention hard work. The opposite is true in the United States, where only 53% and 31% mention independence and imagination among their top five values, respectively, while 62% mention hard work.

to tertiary education from Montenegro and Patrinos (2014). The main limitation here is the lack of comprehensive comparable international data with a panel dimension. Therefore, we use only the Wave 5 of the WVS, and take the closest available data for the return to schooling. The lower panel of Figure 3.1 shows a highly positive correlation between the return to education and the authoritative and authoritarian parenting styles.[9] The correlation with the permissive parenting style is instead negative. Interestingly, France and Spain are countries with medium inequality but a medium-high return to education. In these countries, parents tend to be less permissive.

While so far we have considered only country averages, it is informative to perform more formal regression analysis using the individual data from the WVS. This allows us to control for respondents' individual characteristics such as age and education. We focus on the 90-10 ratio inequality measure, since we do not have reliable panel variation in the return to education. Table 3.1 displays the relative risk ratios (RRRs) associated with inequality in multinomial logistic regressions (full regression tables are reported in the appendix). In all cases, the permissive parenting style is the reference category; thus, the first coefficient is the RRR for authoritative vs. permissive parenting, while the second coefficient is the RRR for authoritarian vs. permissive parenting. In all regressions, standard errors are clustered at the country level. Odd and even columns display the coefficients of regressions without and with country fixed effects, respectively. All specifications control for age, age squared, three classes of education (less than completed high school, completed high school, and some college or more), and wave fixed effects. We also control for the country's GDP per capita (expenditure side, from Penn World Table 9.0), although this does not affect any of the results.

Columns (1)–(2) are baseline regressions including all respondents, while columns (3)–(4) only include parents. The results are similar across the two specifications. Inequality is associated with a higher share of authoritative and authoritarian parents. The results along the authoritative-permissive margin hold up to the inclusion of country fixed effects. The effect of inequality (which we interpret as correlation) is quantitatively sizeable. The inequality measure ranges from 1.9 to 5, with a standard deviation of 0.8. In the United States, the inequality measure ranges between 4.5 and 5. Thus, a 2.5 RRR implies large effects, as suggested by Figure 3.1. Columns (5)–(6) control for a self-reported dummy for religiosity.[10] While religiosity is an important determinant of parenting style

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[9]We obtain similar results with the data for college premia in Krueger et al. (2010). However, their study only contains data for seven countries.

[10]Religiosity is based on the answer to the following question: "For each of the following, indicate

Table 3.1: Inequality and Parenting Styles

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Reference Category: Permissive							
	Authoritative							
Inequality	2.68***	2.39**	2.65***	2.58**	2.62***	2.42**	1.77***	2.12**
	(0.27)	(0.94)	(0.32)	(1.05)	(0.28)	(0.94)	(0.26)	(0.76)
	Authoritarian							
Inequality	2.30***	2.00**	2.41***	1.95*	2.04***	2.14**	2.22***	2.29***
	(0.34)	(0.68)	(0.43)	(0.72)	(0.27)	(0.73)	(0.36)	(0.73)
Country FE	NO	YES	NO	YES	NO	YES	NO	YES
N	45,482	45,482	31,331	31,331	44,505	44,505	47,488	47,488

Dependent variable: parenting style (indicator). The reference category is permissive. All the models are multinomial logistic models and the displayed coefficients are RRRs. Columns (1) and (2) are based on the whole sample, columns (3) and (4) only considers parents, columns (5) and (6) include control for religiosity, columns (7) and (8) consider an alternative classification of parenting style described in the text. All models include wave fixed effects and controls for gender, age, age squared, and GDP per capita (log). Inequality is defined as the ratio between the 90th and 10th percentile of gross earnings of full-time dependent employees. Standard errors (in parentheses) are clustered at the country level. *, **, *** indicate statistical significance at the 10%, 5%, and 1% level respectively.

at the individual level (see the full regression table in the appendix), it does not alter the significant RRR associated with inequality. Columns (7)–(8) are based on an alternative definition of parenting style, where we classify as authoritative all non-authoritarian parents who mention either hard work or *determination and perseverance* among top five values.[11] The results are robust to this definition.[12]

The effects of individual characteristics are interesting in their own right. Consider, first,

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how important it is in your life. Would you say religion is: Very Important, Rather Important, Not Very Important, Not At All Important." A respondent is classified as religious if (s)he chooses one of the first two answers.

[11]We find this alternative classification less compelling, since permissive parents may also value determination. With this alternative coding, 53% of parents are classified as authoritative, while only 15% and 27% are permissive and authoritarian, respectively. This contrasts with the balanced distribution obtained from our preferred classification.

[12]We also run the same regressions including the nine countries that became OECD members since 1994 (Chile, Czech Republic, Estonia, Hungary, Israel, Korea, Mexico, Poland, and Slovenia). The pooled regressions without country FE continue to indicate the same pattern as in the baseline regressions with highly significant coefficients. However, the regressions with country fixed effects now yield insignificant RRRs close to unity.

education. College-educated parents are far less authoritarian. Their RRR (relative to the reference group "below high school completed") ranges between 0.3 and 0.4; high-school graduates are in between, with RRRs in the 0.5-0.7 range. Religiosity also has a sizeable effect: religious people are significantly less permissive and more authoritarian than non-religious people. This finding is consistent with the hypothesis that parents prepare their children for the world in which they expect their children to live. Many religious parents believe that the world is regulated by a never-changing order, and that it is their duty to transmit to their children an immutable set of values and truths. For instance, Ellison et al. (1996) argue that conservative Protestants in the United States "…consider the Bible to be without error, providing reliable and sufficient insights to guide the conduct of all human affairs, including child rearing." In such a world, it is unnecessary and possibly inadvisable to foster children's independence and imagina-tion. According to Bartkowski and Ellison (1995), these parents do not emphasize self-confidence, self-discipline, creativity, and intellectual curiosity, but instead believe that "…to succeed in adult roles, children must be trained to embrace the divinely-ordained principles of authority and hierarchy" (p.25).

So far, we have considered a measure of pre-tax income inequality. If expectations re-garding children's economic outcomes and exposure to risk really drive the choice of parenting style, the extent of redistributive taxation and the availability of safety nets should also matter. To study this possibility, we consider (i) a measure of tax progres-sivity from the Andrew Young School of Policy Studies (2010) that has recently been used by Heathcote, Storesletten, and Violante (2016);[13] (ii) a measure of aggregate social expenditure as a percentage of GDP from the OECD Social Expenditure Database. In both cases, the within-country variation in the measure is very limited, and accordingly there is little within-country correlation with parenting. Across countries, in contrast, the results line up well with our findings for overall inequality. Figure 3.2 displays scat-ter plots of the tax progressivity and social expenditure measures and each of the three parenting styles. The correlations of permissive, authoritative, and authoritarian par-enting with tax progressivity are 0.62, -0.61, and -0.42, respectively, and the correlations with the social expenditure measure are 0.45, -0.53, and -0.19.[14]

The results are confirmed by multinomial logistic regressions based on individual data.

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[13]The measure captures the marginal rate progression up to an income level equivalent to four times a country's per capita GDP.

[14]All correlations are significant at the 1% level except for the one between social expenditure and the authoritarian style. The results are similar if one restricts attention to Wave 5 (which is the most comprehensive wave).

Figure 3.2: Tax Progressivity, Safety Nets, and Parenting Styles
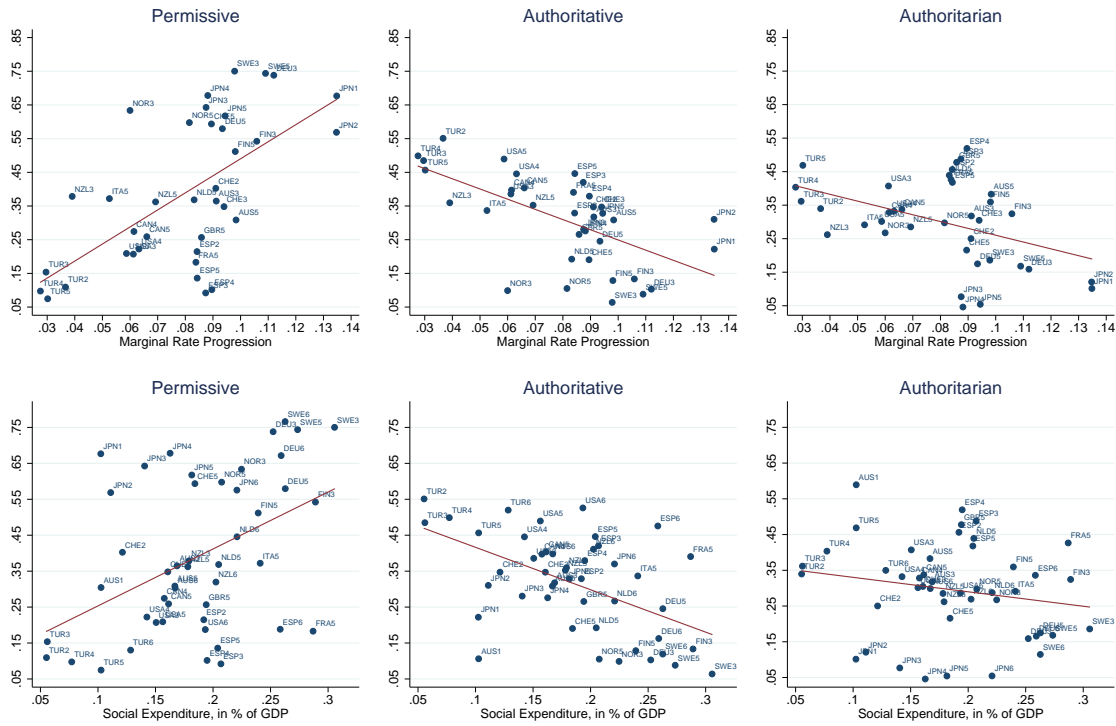
The upper panel shows correlations between the fraction of parents adopting a particular parenting style in each country-wave and tax progressivity in the year in which each country was surveyed. The lower panel shows analogous correlations with social expenditure as percentage of GDP.

Columns (1) and (2) of Table 3.2 display results for each measure individually. An increase in either social expenditure or progressive taxation is associated with a significant fall in the likelihood of the authoritative and authoritarian parenting styles relative to the permissive style. In short, more redistribution makes parents more permissive. In column (3), we include both measures as well as the 90-10 ratio inequality measure in the same regression.[15] The results are remarkably stable along the authoritative-permissive margin. The RRR of inequality is 1.9; tax progressivity has a negative and highly significant effect, while the effect of social expenditure is also negative but marginally insignificant. The results are similar for the authoritarian-permissive margin, although the coefficient of social expenditure is imprecisely estimated.[16]

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[15]We lose some observations since tax progressivity is not available in the period corresponding to Wave 6.

[16]To assess the quantitative effects, note that (i) tax progressivity ranges between 0.28 and 1.12, with a s.d. of 0.25; (ii) social expenditure ranges between 0.55 and 3.06, with a s.d. of 0.61. In both cases, the

Table 3.2: Tax Progressivity, Safety Nets, Inequality, and Parenting Styles

	(1)	(2)	(3)	(4)	(5)	(6)
	Reference Category: Permissive					
	Authoritative			*Authoritarian*		
Tax Progressivity	0.07***		0.25**	0.13**		0.24
	(0.07)		(0.16)	(0.12)		(0.22)
Social Expenditure		0.25***	0.54		0.35***	0.62
		(0.10)	(0.22)		(0.12)	(0.29)
Inequality			1.89***			1.59**
			(0.32)			(0.30)
N	41,079	54,365	32,196	41,079	54,365	32,196

Dependent variable: parenting style (indicator). The reference category is permissive. All models are multinomial logistic models and the displayed coefficients are RRRs. All models include wave fixed effects and controls for gender, age, age squared, and GDP per capita (log). Tax progressivity is from Andrew Young School of Policy Studies (2010). Safety nets are expressed as the aggregate social expenditure in percentage of GDP. Inequality is defined as the ratio between the 90th and 10th percentile of gross earnings of full-time dependent employees. GDP is the Expenditure-side real GDP at chained PPPs (Source: Penn World Table 9.0). Standard errors (in parentheses) are clustered at the country level. *, **, *** indicate statistical significance at the 10%, 5%, and 1% level respectively.

Beyond inequality, redistribution, and return to education, the institutional features of the education system may also affect parenting styles. In some countries, vertical teaching and the memorization of facts are emphasized in secondary schools, and access to the best universities is rationed by high-stakes university entrance exams. In such countries, parents have a stronger incentive to push their children towards hard work during adolescence. Depending on other factors, this could take the form of either authoritative or authoritarian parenting. In contrast, in other countries (such as the Scandinavian countries and Germany) secondary schooling is less intense, and access to higher education less competitive. Emphasizing values such as imagination and independence, which may pay off later on, should be more attractive in such places. This dimension might help explain, for example, the case of France (see Algan et al. 2013). Teaching in French schools is vertical, and access to the country's elite system of *grandes écoles* is restricted. Hence, parents emphasize hard work at the expense of independence and imagination, even though overall inequality is relatively low.

source variables have been multiplied by 10.

In conclusion, the WVS data indicate that low inequality, generous redistributive policies, and low stakes in education are associated with more permissive parents. In more unequal countries with low redistribution and high stakes in education, parents are more authoritative, and to some extent also more authoritarian.

3.2 The Historical Decline of Authoritarian Parenting

The second fact that we highlight is the secular decline of the authoritarian parenting style. While survey evidence of specific parenting practices is only available for the last few decades, historical evidence suggests that in the pre-industrial period authoritarian parenting was the norm, including the widespread use and approval of corporal punishment. Based on a sample of autobiographies and diaries, Pollock (1983) documents that in terms of the range of disciplinary techniques, "surprisingly little changed from 1500 to 1699" (p. 156). His findings are echoed by Plumb (1975), who notes that of "two hundred counsels of advice on child rearing prior to 1770, only three, Plutarch, Palmieri, and Sadoleto, failed to recommend that fathers beat their children" (p. 65). With regard to parenting style in North America, Kaestle and Vinovskis (1980) report that "the early Puritans had stressed that children were innately evil . . . The only proper response for parents was to watch their children closely and to discipline them at very young ages." Our theory can account for these observations given that traditional societies are characterized by high incumbency premia. Until the onset of industrialization, most people in the Western world were engaged in agriculture, a sector where children work with their parents and incumbency (e.g., through land ownership) is important. There was relatively more mobility among city dwellers working as artisans or craftsmen, but even there much of skill acquisition took place within the family, and incumbency advantage was often protected formally through guilds. These factors provided incentives for parents to exert direct control over their children.

With the rise of industrialization in Western Europe and North America in the nineteenth century, an increased division of labor brought about a rise in occupational specialization and occupational mobility. Moreover, from the middle of the nineteenth century education increasingly took place in schools and universities. These trends increased the importance of choosing an occupation based on talent rather than following in a parent's footsteps. Our theory predicts that these changes, over time, should make authoritarian parenting less attractive. And, indeed, social historians document a gradual change in attitudes towards children and parenting in these times. Pollock (1983)

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argues that some changes already began in the late eighteenth century, mostly in the middle and upper ranks of society. Influenced by Rousseau and subsequent reformers (e.g., Pestalozzi, Froebel, Montessori, and Dewey), the view of "children ... as innocent beings that had to be protected and nurtured," and of childhood as a "distinct phase of human development that required special attention and training" gained ground in the more progressive sectors of society (Kaestle and Vinovskis 1980, p. 192).[17]

The same trends continued in the twentieth century: the practice of corporal punishment slowly declined as close-knit patriarchal families were gradually replaced by a new model where children received formal education outside the home. The increase in mobility was fostered by the rise of pension programs and old-age health insurance, which made parents less dependent on their children's material and physical care in old age. As the employment share of agriculture declined, fewer and fewer children continued in their parents' occupation.[18] Even within occupations, the more rapid pace of technological change led to a faster depreciation of knowledge, which reduced the amount of useful knowledge that parents could teach to their own children (Galor and Tsiddon 1997, Hassler and Rodriguez Mora 2000). For example, a parent who works as an accountant may lack the computer skills necessary for new entrants in the occupation. The decline of authoritarian parenting accelerated in the 1960s with the rise of the anti-authoritarian "hippie" culture. At this time, inequality measures, which had been falling from the late nineteenth century, reached an all-time low (Piketty and Saez 2003). In addition, educational attainment was rising, but the college premium fell (Katz and Murphy 1992, Gottschalk 1997). According to our theory, the combination of an increasing return to independence, waning direct control of parents over children (due to education moving from the family to formal institutions), and a low return to human capital investment made permissive parenting attractive during this time.

Appendix Figure B.1 shows two cross-country correlations that accord with the historical change in advanced economies. The share of authoritarian parents in the World Value Survey is positively correlated with the employment share of agriculture, and negatively correlated with the gross enrollment ratio in tertiary education. As discussed

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[17]According to Guttormsson (2002), the influence of enlightened educators was stronger in the industrial areas of Northwestern Europe. There, among the urban middle-class families, "the mood was shifting away from beating as a routine punishment ... towards the application of moral and emotional pressures developing in children a capacity for self-government" (Guttormsson 2002, p. 267–268). In contrast, the authoritarian parenting style remained unquestioned within the working class.

[18]According to Long and Ferrie (2013), in the United States intergenerational mobility across broad categories (farmer, white collar etc.) actually fell going into the twentieth century. However, occupations also became more differentiated.

above, in agriculture incumbency premia are high, children's effort is easy to monitor, and the economic return to independence is low; all these conditions increase the appeal of an authoritarian parenting style. The opposite is true in societies where higher education is key for human capital accumulation.

3.3 The Rise of Helicopter Parenting

Next, we turn to changes that occurred during the last half century. Hsieh et al. (2013) document that since the 1970s, U.S. society has become significantly more fluid: there is more occupational mobility, there are fewer gender- and race-related barriers in the labor market, and the allocation of talent has improved. During the same period, wage dispersion across workers of a given education level started increasing. Marimon and Zilibotti (1999) and Violante (2002) interpret this fact as evidence of a growing importance of matching individual talent and occupation. Both the reduction in frictions in the labor market and the increased role of individual talent imply a lower relative importance of incumbency. In terms of the return to human capital, the earlier trend towards lower inequality has reversed. Since the 1980s, income inequality has increased, largely driven by increasing returns to education and within-group earning inequality, especially in the United States and the United Kingdom. This new trend has raised the stakes in parenting, in the sense that acquiring education and putting in high effort throughout one's career gained in importance for economic success.

In the data we also observe a new trend towards more involved parents. Ramey and Ramey (2010) show that in the United States, weekly hours spent on child care by mothers and fathers have increased markedly from the mid-1980s. [19] This rise in child care time corresponds to the widely discussed phenomenon of helicopter parenting, i.e., the observation that parents "hover" over their children at various activities to guide and protect them. At the same time, support for coercive methods and corporal punishment has continued to slide; instead, helicopter parenting is authoritative in nature.[20]

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[19]Ramey and Ramey (2010) suggest that this trend may be driven by increased competition for admission to top colleges (see also Sevilla and Borra 2015 for a study on the effect of competition for university places in the U.K.). We formalize a similar mechanism, although here the broad return to education matters, rather than competition for spots at the most elite institutions.

[20]The waning appeal of permissive parenting is also reflected in the debate on teaching practices. Over the last two decades, we observe a new shift of emphasis in school authorities towards tests and high achievement. Yet, this counterrevolution did not reinstate, for the most part, the coercive methods of the 1950s. Rather, the combination of motivational and learning goals resemble characteristics of authoritative parenting (see Darling 1994).

Figure 3.3: Time Spent on Child Care by Mothers and Fathers in the United States, by Education (Hours per Week)
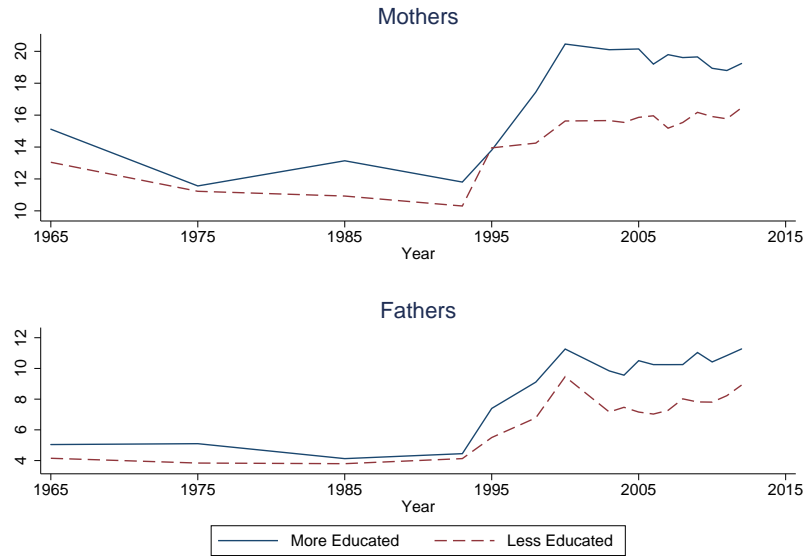
Data from American Time Use Survey. Child care time comprises the same categories used in Ramey and Ramey (2010). Average time use is computed by regressing individual time use on interacted dummy variables for gender, survey year, education category, and age category. "More Educated" corresponds to B.A. degree or higher, "Less Educated" to high school degree or less. Plotted results are average time use for parents in age group 25–34.

Figures 3.3 and 3.4 show that the trend towards more involved parenting (in terms of time use) and towards lower approval of corporal punishment are more pronounced among more educated parents. In the 1970s, there was little difference in these dimensions between parents with at most high school education and parents with a university degree. In the 2000s, educated parents spent significantly more effort on raising their children, and many fewer of them approved of the use of corporal punishment by parents.[21] The observed changes are quantitatively large. For example, in 1975 an average college-educated couple aged 25–34 spent 16.6 hours on child care per week (mother and father combined). By 2012, that same couple would have spent 30.5 hours, an in-

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[21]In a similar vein, Ramey and Ramey (2010) document that in neighboring Canada parenting time has increased much less than in the United States. Interestingly, the return to education also increased much less in Canada, which according to our theory could result in a more relaxed approach to parenting. Guryan et al. (2008) show that that highly educated mothers spend more time on child care than mothers with less education in 14 different industrialized countries, although they do not consider changes over time.

crease of more than 80 percent.[22] Meanwhile, spanking was met with almost universal approval in the late 1960s, whereas among the highly educated now almost half disapprove. In Appendix B.3, we discuss additional evidence from the General Social Survey showing that since the mid-1980s, many more parents emphasize the importance of children working hard while fewer say that it is important for children to obey, which is again consistent with a decline of authoritarian and a rise of authoritative parenting. The quantitative evidence accords well with the observations on class differences in parenting in Annette Lareau's book "Unequal Childhoods" (Lareau 2003). Lareau describes how upper middle-class parents engage in time-intensive "concerted cultivation" of their children, whereas working-class parents are less engaged, implying that their children forgo some opportunities but are also less pressured.

One interpretation of these trends is that in college-educated families the return to education is higher (due to inheritability of skill and oblique transmission in the family), making these families more responsive to the rise in the education premium. A complementary explanation is that there are differences across education groups in the technology of preference transmission. Specifically, a college education may improve parents' ability to motivate their own children and instill education-oriented values in them, i.e., educated parents may have a comparative advantage at authoritative parenting. This accords with a literature in developmental psychology showing that authoritative methods are used more frequently in educated families, whereas less educated parents are more prone to resort to authoritarian methods (Kohn 1977, Straus and Stewart 1999).

3.4 Parenting Style and Educational Outcomes

Our explanation for changes in parenting hinges on the notion that parenting style has an impact on children's performance in education and, ultimately, their future prospects. We conclude our discussion of motivating evidence by showing that in the United States, parenting style is indeed correlated with children's school performance. Here, we focus on documenting the empirical association between parenting and children's outcomes, without directly addressing causality (that is, we do not argue that variation in parenting style is exogenous).[23]

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[22]The change is even more dramatic if measured in per child terms; conditional on having at least one child, the average number of children in this group was 1.94 in 1975 and 1.85 in 2012. The decline in fertility may itself be related to the new trend in parenting style, since authoritative parenting is more demanding in terms of parental time.

[23]Assessing the causal effects of parenting style would a promising area for future research, as would be the use of large administrative data sets for examining long-run effects on a larger set of outcomes.

Figure 3.4: Approval of Corporal Punishment in the United States, by Education (Percent of Adult Population)
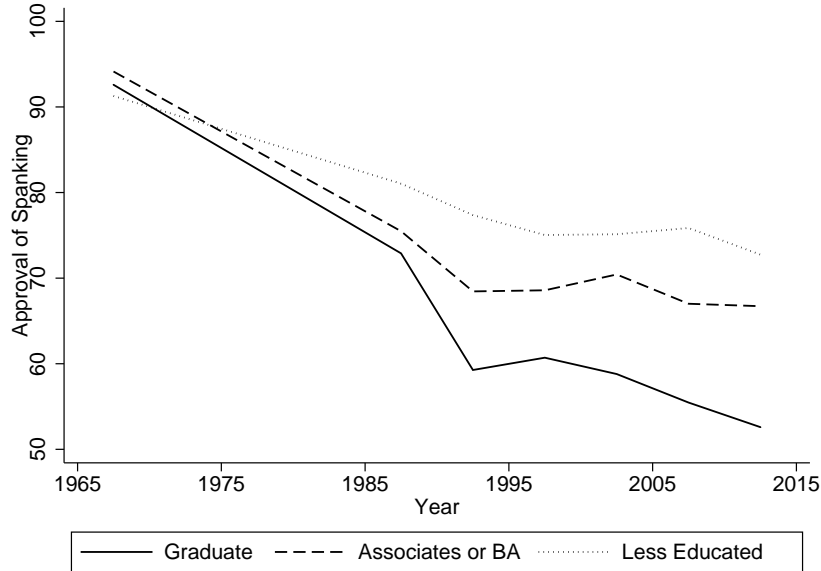
Data from General Social Survey (GSS, 1986–2014) and from "Study of Political Violence Attitudes, Personal Experiences with Violence, Emotional Reactions to Assassination and Violence in the Media, 1968" (ICPSR Study No. 7354). Displayed is fraction of adults who approve of the use of corporal punishment in a given year, averaged over five-year intervals. The survey question in the 1968 survey is: "Are there any situations that you can imagine in which you would approve of a parent spanking his or her child assuming the child is healthy and over a year old?" The survey question in the GSS is: "Do you strongly agree, agree, disagree, or strongly disagree that it is sometimes necessary to discipline a child with a good, hard spanking?" Approval is defined as sum of fraction of parents who strongly agree or agree.

We rely on data from the National Longitudinal Survey of Youths 1997 (NLSY).[24] The parenting style variables in the NLSY are constructed from two questions asking children whether their parents are (i) "supportive," and (ii) "strict/demanding." Following Maccoby and Martin (1983), we classify as permissive parents who are supportive but not strict, as authoritarian parents who are strict but not supportive, as authoritative parents who are both, and as neglecting parents who are neither. In Appendix B.4, we show how parenting styles vary with the socioeconomic characteristics of parents in the NLSY. An increase in parental education is associated with a lower propensity to be a neglecting or authoritarian parent, and with an increase in the propensity to be authori-

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[24]The NLSY is a nationally representative survey of ca. 9,000 youths who were 12 to 16 years old at the end of 1996. In 1997, both parents and children were interviewed, including a set of questions on parenting style. The youths are subsequently interviewed annually as they progress through adult life.

Table 3.3: Parenting Style and Educational Outcomes: GPA and Probability of Attaining at least BA Degree

	(1)	(2)	(3)	(4)	(5)	(6)
	Reference Category: Neglecting					
Outcome:	GPA			Bachelor's Degree		
Permissive Mother	0.05	0.08**	0.08**	0.07***	0.06***	0.06**
	(0.04)	(0.04)	(0.04)	(0.02)	(0.02)	(0.03)
Authoritarian Mother	-0.02	-0.01	-0.03	0.03	0.02	0.02
	(0.04)	(0.04)	(0.05)	(0.03)	(0.03)	(0.03)
Authoritative Mother	0.10***	0.14***	0.13***	0.09***	0.08***	0.06**
	(0.04)	(0.04)	(0.04)	(0.02)	(0.02)	(0.03)
Permissive Father	0.17***	0.13***	0.12***	0.10***	0.06***	0.08***
	(0.03)	(0.03)	(0.04)	(0.02)	(0.02)	(0.03)
Authoritarian Father	0.06	0.03	0.06	0.03	-0.01	0.01
	(0.03)	(0.03)	(0.04)	(0.02)	(0.02)	(0.03)
Authoritative Father	0.18***	0.15***	0.15***	0.10***	0.08***	0.09***
	(0.03)	(0.03)	(0.04)	(0.02)	(0.02)	(0.03)
Age Controls	YES	YES	YES	YES	YES	YES
Education and Race Controls	NO	YES	YES	NO	YES	YES
Income Controls	NO	NO	YES	NO	NO	YES
N	4,255	3,568	2,727	6,153	5,089	3,853

*Standard errors in parentheses. All regressions are OLS. *, **, *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.*

tative.

Today's environment is characterized by a high return to independence and a high return to education. Consequently, we expect that children's educational performance should benefit from having some freedom (i.e., a non-authoritarian parenting style), and some demands (i.e., an authoritative style is expected to lead to the best results). The evidence from the NLSY confirms this expectation. Columns (1) to (3) of Table 3.3 display results for OLS regressions of the child's high school grade point average (GPA) on both the mother's and the father's parenting style (which are observed separately, albeit highly correlated). The first column shows results for a basic specification where, in addition to parenting style, only age and age squared are included as control vari-

ables. The results show that authoritarian parenting has a significantly positive and quantitatively large association with the child's GPA; permissive parenting (in particular on part of the mother) is associated with slightly worse outcomes; and authoritarian and neglecting parenting (the omitted category) are linked to the lowest likelihood of educational success for the child.

The associations in column (1) may reflect omitted variables that correlate with both parenting and education outcomes, such as parents' skill and education (which can lead to a direct transmission of skills within the family) and socioeconomic background. Column (2) adds parental education (years of education for each parent), race and ethnicity controls, and a control for the gender of the child; column (3) includes, in addition, family income in 1997. These family characteristics have remarkably little effect on the parameter estimates for parenting styles; both in terms of magnitude and statistical significance, all columns give rise to similar basic results. Hence, parenting style is not merely a reflection of social class or parental education.

The NLSY also provides information on children's educational achievements beyond high school. Columns (4) to (6) of Table 3.3 present parallel results for the probability for the child to attain at least a bachelor's degree (i.e., four years of education beyond high school). The results are similar to those for GPA: permissive and authoritative parenting are associated with a substantially higher likelihood of success for the child compared to authoritarian and neglecting parenting, and authoritative parenting yields the highest chance of success overall (although in this case the difference to permissive parenting is small).

4 A Dynastic Model of Parenting Styles

In this section, we present a general model of parenting choices, which generates distinct "parenting styles" as equilibrium outcomes. In Sections 5–6, we specialize the model to a setting with a central role of human capital accumulation shaped by patience and risk preferences, and show that its predictions are in line with the empirical evidence discussed in Section 3.

4.1 The Decision Problems of Parents and Children

The model economy is populated by overlapping generations of people who live for two periods, childhood and parenthood. Each parent has one child. The period utility function is defined on a consumption vector c and a preference vector a. A child's

preferences can be influenced by the parent through child-rearing effort. The preference vector a is acquired during childhood and affects utility in both periods of life. Age also has an effect on preferences. For instance, a child may be intrinsically less patient or less risk averse than an adult. Thus, there are separate period utility functions for children $U^y(c|a)$ and for adults $U^o(c|a)$, where in general $U^y(c|a) \neq U^o(c|a)$.

A child makes economic decisions denoted by $x \in X$, where X is the set of feasible choices. A child's choices are affected by three state vectors: (i) her own preference vector a; (ii) a vector of economic state variables h such as human capital; (iii) the realization of a stochastic state variable s that captures the role of uncertainty, for example regarding luck in the labor market or the realization of an ability shock.

A parent makes two child-rearing choices. First, she molds her children's preferences by choosing the preference vector $a' \in A$, where A is a fixed set of feasible preferences. Second, she can take actions that restrict or expand the set $X \in \mathcal{X}(h, s)$ from which her child will be able to choose, where $\mathcal{X}(h, s)$ is the set of feasible choice sets, which may depend on the parent's state variables h and s. Child rearing entails an effort cost $e(X, a'|h, s)$, assumed to be separable from the adult's utility from consumption. We abstract for simplicity from adult economic decisions such as labor supply or retirement. Thus, consumption is pinned down directly by the state vector through the function $C^o(h, s)$, which captures budget and other constraints.

We formulate the parent's and child's decision problems recursively. The parent's value function is given by:

$$v^o(a, h, s) = \max_{c^o, a', X} \{U^o(c^o|a) - e(X, a'|h, s) + \delta w(X, a'|a)\}$$

subject to $c^o = C^o(h, s)$ and $X \in \mathcal{X}(h, s)$. Here, $w(X, a'|a)$ is utility the parent derives from the child's experience, and δ measures the overall degree of altruism.

The child's value function is given by:

$$v^y(X, a') = \max_{c^y, x, h'} \{E_{s'} [U^y(c^y|a') + \beta v^o(a', h', s')]\}$$

subject to $c^y = C^y(x, s')$, $h' = H(x, s')$, and $x \in X$.

Parenting choices hinge on how the child's choices enter the utility of the parent. If $w(X, a'|a) = v^y(X, a')$, this would be a standard altruistic-dynasty problem with investment in preferences (as in Doepke and Zilibotti 2008). However, here we allow for the

possibility that the parent evaluates the child's consumption sequence differently than does the child herself. We label such a difference as *paternalism*. Specifically, we postulate that the utility a parent derives from her child's experiences is given by:

$$w\left(X, a'|a\right) = E_{s'}\left[\left(1 - \lambda\right) U^y\left(c^y|a'\right) + \lambda U^o\left(c^y|a\right) + \beta v^o\left(a', h', s'\right)\right]. \tag{1}$$

When evaluating (1), the parent takes into account that the child's preferences a' and choice set X jointly determine the child's choice of x. More formally, c^y, x, and h' are given by a decision rule $(c^y, x, h'|X, a')$ arising from the child's optimization problem.

The function $w\left(X, a'|a\right)$ given in (1) comprises both an altruistic and a paternalistic component. Altruism is the standard enjoyment of the child's own utility as in Becker (1974), while paternalism is the evaluation of the child's actions through the lens of the parent's utility function. The altruistic and paternalistic components enter the parent's value function with weights $1 - \lambda$ and λ, respectively. Paternalism applies only to childhood, and not to the child's felicity when the child has grown up. Hence, the child's adult-age utility enters the parent's value function as $\beta\, v^o$, where β is the discount factor between the child and the adult period and v^o is the value function of the child when she turns into a parent. Restricting paternalistic motives to childhood is broadly realistic because preferences change with age, implying that there is more scope for conflict with an adolescent than with a grown-up child. The formulation also has the advantage that it implies a recursive representation of the choice problem, which is used widely in related dynastic settings.

4.2 Parenting Styles

We are now ready to introduce a formal definition of parenting styles, based on the Baumrind classification in developmental psychology.

Definition 1. *Consider a parent who makes the parenting choices $a' = a^*$ and $X = X^*$. We define the following four parenting styles:*

1. ***Authoritarian:*** *A parent is authoritarian if there exists an $\tilde{X} \in \mathcal{X}$ such that $v^y(X^*, a^*) < v^y(\tilde{X}, a^*)$ and $e\left(X^*, a^*|h, s\right) \geq e(\tilde{X}, a^*|h, s)$. That is, an authoritarian parent spends effort to constrain the child's choice for a purpose other than making the child happy.*

2. ***Authoritative:*** *A parent is authoritative if there exists an $\tilde{a}' \in \mathcal{A}$ such that $v^y(X^*, a^*) < v^y(X^*, \tilde{a}')$ and $e\left(X^*, a^*|h, s\right) \geq e(X^*, \tilde{a}'|h, s)$. That is, an authoritative parent spends effort to mold the child's preferences for a purpose other than making the child happy.*

3. **_Neglecting_**: _A parent is neglecting if for all_ $\tilde{X} \in \mathcal{X}$ _and_ $\tilde{a}' \in \mathcal{A}$, _we have_ $e\left(X^*, a^*|h, s\right) \leq e(\tilde{X}, \tilde{a}'|h, s)$, _with a strict inequality for at least one pair_ $\tilde{X}, \tilde{a}'$. _That is, a neglecting parent makes the parenting choices that minimize parenting effort._

4. **_Permissive_**: _A parent is permissive if she does not meet the definitions of any of the other parenting styles. That is, a permissive parents refrains from influencing the child's choice, but also does not simply minimize parenting effort._

If the choice sets X in the feasible set $\mathcal{X}(h, s)$ are nested, authoritarian parenting implies restricting the child's choice to a smaller set than the largest possible. Authoritarian and authoritative parents exert effort to affect their children's behavior, even at the cost of reducing their cardinal utility. These two styles are not mutually exclusive, as parents may exercise effort to both restrict the children's choice and change their preferences. We sometimes refer to parents who are either authoritarian or authoritative (or a combination of the two) as engaging in _intensive parenting_. Neglecting parents minimize parenting effort.[25] In contrast, permissive parents do spend effort on parenting, but they do so solely in order to increase the child's choice set and utility.

Our model articulates specific motives that induce parents to choose a particular parenting style among those in Definition 1. In the appendix, we state and prove (Propositions A.1–A.4) some general properties of the model. First, if parents are fully altruistic in a Beckerian sense (i.e., $\lambda = 0$), they have no motive for exercising effort in a way that lowers their children's utility. Thus, such parents are either permissive or neglecting. Second, if parents exercise some effort either to restrict their children's choice or to mold their preferences, they must do so in order to affect their behavior. Finally, if parents mold their children's preferences to the extent that there is no disagreement about what the children should do, there is no point to restricting their choice set. In the appendix, we also characterize the decision problem when the problem is differentiable.

5 Parenting Styles in a Model of Patience and Investment in Skills

Our model of parenting styles is sufficiently flexible to be applied to many kinds of choices children make and that their parents may disagree with. However, based on

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[25]The condition that there is at least one choice of $\tilde{X}, \tilde{a}'$ that would require higher effort in the definition of neglecting parenting is imposed to capture the case where there is no effort cost for molding the children's choices and preferences (an example of this kind will be given below). Without the requirement of at least one strict inequality, in such a case all parents would be neglecting by definition, which would not be a desirable feature of a model of parenting styles.

the discussion of the evidence in Section 3, we conjecture that the key dimension that accounts for much of the variation in parenting styles in the data consists of potential disagreements about future-oriented investments (such as education). Accordingly, in this section we specialize our model to a deliberately simple environment with a central role for human-capital investment and the transmission of time preferences (patience), and use this model to shed light on the socioeconomic determinants of parenting style.

The underlying friction in this setting is that children are innately less patient than their parents would like them to be. As a result, children may be unwilling to undertake investments, such as educational effort, at the level that their parents would consider optimal. Parents can increase their children's relative appreciation of future rewards by imbuing them with a sense of guilt about immediate gratification. This comes at the cost of lowering the child's utility. Alternatively, a parent can act in an authoritarian way, i.e., directly force her child to undertake the investment the parent desires. This option also comes at a cost: it stifles the child's independent discovery of her own talent and thus may diminish the child's success in the labor market. While specialized, we argue that this setting captures a key aspect of potential disagreement between parents and children, and can provide a plausible interpretation of the empirical observations on the variation in parenting styles described in Section 3.

5.1 Environment

We parameterize preferences by an isoelastic utility function. The parent's felicity is given by $U^o(c^o|a) = (c^o)^{1-\sigma} / (1-\sigma)$, where we assume $0 < \sigma < 1$, implying that utility is positive. The child's choice x is a two-dimensional vector comprising an occupational choice and an educational investment, which together imply a (stochastic) level of consumption. The child's felicity is given by:

$$U^y\left(c^y|a\right) = a\frac{\left(c^y\right)^{1-\sigma}}{1-\sigma}.$$

Here the parameter $a \in \mathcal{A} = [1, \bar{a}]$, where $\bar{a} > 1$ captures children's innate preference for instant gratification. The preference parameter a is chosen by the parent, and the possibility of choosing $a < \bar{a}$ captures the option for parents to stifle the child's enjoyment of young-age consumption. Although cardinal utility is maximized by setting $a = \bar{a}$, the parent may choose a lower a in order to make the child more patient.[26]

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[26]Note that in this application a affects only the young-age felicity. One could argue that patience additionally yields a better ability to enjoy future (old-age) consumption. Such a specification would give

The child's choice vector x has two components: an occupational choice x^μ and an effort choice $x^e \in [0, 1]$, where the latter can be interpreted as effort in formal education and as the acquisition of skills on the job. Both choices, together with the realization of an exogenous stochastic shock s', determine the accumulation of human capital, $h' = (x, s')$, where $x = [x^\mu, x^e]$. The return to education effort x^e is determined by a parameter R. The budget constraints and laws of motion for human capital are then given by:

$$c^y = C^y(x, s') = (1 - x^e)\, y(x^\mu, s'),$$
$$c^o = C^o(h, s') = h',$$
$$h' = h(x, s') = (1 + Rx^e)\, y(x^\mu, s').$$

The function $y(x^\mu, s')$ captures individual productivity, determined by the occupational choice and the individual realization of the shock. The microfoundation for the impact of the occupational choice on productivity is as follows. There are different occupations that a child can choose from. The productivity of an individual in a given occupation has two components: first, there is her individual talent for that occupation, which may be high (y_H) or low ($y_L < y_H$); second, there is a premium for working in the same profession as one's parent, denoted by $\mu \geq 1$. This incumbency premium reflects the acquisition of skills within the family as well as entry barriers (e.g., guilds or professional associations that protect incumbent families). There are two possible strategies for choosing an occupation, given by $x^\mu \in \{x^{HOME}, x^{SEARCH}\}$. First, the child could stay at home and follow in the parents' footsteps, $x^\mu = x^{HOME}$. In this case, the child benefits from the premium μ. However, this occupation may or may not be the best match with her talent, so that:

$$y\left(x^{HOME}, s\right) = \begin{cases} \mu y_H & \text{with probability } 0.5, \\ \mu y_L & \text{with probability } 0.5. \end{cases}$$

Alternatively, the child could leave home and independently search for her true calling. In this case, the child always finds an occupation for which she has talent, so that $y\left(x^{SEARCH}, s'\right) = y_H$, independently of s'.

Next, consider the parental choice of the child's choice set X. Here, we assume that when the child stays at home, the parent can perfectly monitor her effort choice x^e. In contrast, when the child leaves home, she can choose x^e independently. This implies

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similar results.

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that the set of feasible choice sets $\mathcal{X}$ comprises two subsets, $\mathcal{X} = \{X^{HOME}, X^{FREE}\}$. Here, X^{HOME} is the more restricted choice set for a child who stays at home. Since the parent retains control, it is optimal for the parent to assign the effort that is optimal from the parent's perspective, which we denote by $\bar{x}^e$. In addition, the child is forced to adopt the parent's occupation. We therefore have:[27]

$$X^{HOME} = \left\{ \left(\begin{array}{c} x^\mu \\ x^e \end{array} \right) \middle| x^\mu = x^{HOME}, x^e = \bar{x}^e \right\}.$$

X^{FREE} can be interpreted as granting the child independence. For example, a child born on a farm may be allowed to study in the city, so as to ultimately find the occupation that best suits her. Once the child has moved to the city, however, the parent loses control over her choices, and the child may decide to slack off rather than invest in her future success. Formally,

$$X^{FREE} = \left\{ \left(\begin{array}{c} x^\mu \\ x^e \end{array} \right) \middle| x^\mu \in \{x^{HOME}, x^{SEARCH}\}, 0 \leq x^e \leq 1 \right\}.$$

Note that $X^{HOME} \subset X^{FREE}$.

Since the parent's utility depends only on her human capital (the preference parameter a affects only young age utility, and the shock s affects future utility only through its impact on h), we can write $v^o(a, h, s) = v^o(h)$ and $w(X, a'|a) = w(X, a')$. The parent's value function can be written as:

$$v^o(h) = \frac{h^{1-\sigma}}{1-\sigma} + \max_{a' \in \mathcal{A}, X \in \mathcal{X}} \{-e(X, a'|h) + \delta w(X, a')\}.$$

To characterize the choices of a' and X, it is useful to first consider optimal choices conditional on being authoritarian, and then compare authoritarian parenting to the other possible styles. We first consider the case where parental effort is costless, $e(X, a'|h) = 0$.

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[27]In principle, another alternative would be for the parent to keep the child at home, but still let the child choose effort x^e freely. However, this choice set is (at least weakly) dominated from the parent's perspective.

5.2 Authoritarian Parenting

In this environment, a parent adopts an authoritarian parenting style if she chooses $X = X^{HOME}$. Since the choice set X of the child is now a singleton, the corollary of Proposition A.2 implies that the parent will choose $a' = \bar{a}$. Since the parent is uncertain about her child's productivity in the parent's occupation, the continuation utility involves expectations:

$$w\left(X^{HOME}, \bar{a}\right) = E_{s'}\left[(\lambda + (1-\lambda)\bar{a}) \frac{\left((1-\bar{x}^e)\, y\left(x^{HOME}, s'\right)\right)^{1-\sigma}}{1-\sigma} + \beta v^o(h\left(x, s'\right))\right]$$

$$= \tilde{w}\left(X^{HOME}, \bar{a}\right) + \beta\delta \max_{a'' \in \mathcal{A}, X \in \mathcal{X}} w\left(X, a''\right),$$

where

$$\tilde{w}\left(X^{HOME}, \bar{a}\right) = \frac{\mu^{1-\sigma}}{2}\left(y_H^{1-\sigma} + y_L^{1-\sigma}\right)\left((\lambda + (1-\lambda)\bar{a}) \frac{(1-\bar{x}^e)^{1-\sigma}}{1-\sigma} + \beta\frac{(1+R\bar{x}^e)^{1-\sigma}}{1-\sigma}\right),$$
(2)

and the optimal effort choice from the parent's perspective $\bar{x}^e$ is given by:

$$\bar{x}^e = \underset{x^e}{\operatorname{argmax}}\left\{(\lambda + (1-\lambda)\bar{a}) \frac{(1-x^e)^{1-\sigma}}{1-\sigma} + \beta\frac{(1+Rx^e)^{1-\sigma}}{1-\sigma}\right\}$$

$$= \frac{1 - \left(\frac{(\lambda + (1-\lambda)\bar{a})}{\beta R}\right)^{\frac{1}{\sigma}}}{1 + R\left(\frac{(\lambda + (1-\lambda)\bar{a})}{\beta R}\right)^{\frac{1}{\sigma}}}.$$
(3)

It is useful to note, for future reference, that $\bar{x}^e \to 1$ as $R \to \infty$. Thus, for large R, $\tilde{w}\left(X^{HOME}, \bar{a}\right)$ is determined entirely by adult-age felicity.[28] Conversely, we have $\bar{x}^e = 0$ if $R = 0$: there is no point in exerting effort if the return to effort is zero.

5.3 Non-Authoritarian Parenting

We now describe the choice of a parent who grants independence to the child by selecting the choice set X^{FREE}. Unless the incumbency premium μ is very large, the child moves to the city and chooses the occupation according to her comparative advantage, thus $y = y_H$. We assume that even if the child eventually chooses the same occupation

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[28]This result hinges on the assumption that $\sigma > 1$, implying that the substitution effect dominates over the income effect.

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as her parent, the incumbency premium μ is available only if the child stays at home. The parent's continuation utility can be broken down as follows:

$$w\left(X^{FREE}, a'\right) = \tilde{w}\left(X^{FREE}, a'\right) + \beta\delta \max_{a'' \in A, X \in \mathcal{X}} w\left(X, a''\right),$$

where

$$\tilde{w}\left(X^{FREE}, a'\right) = y_H^{1-\sigma}\left((\lambda + (1-\lambda)a')\frac{(1 - x^e\left(a'\right))^{1-\sigma}}{1-\sigma} + \beta\frac{(1 + Rx^e\left(a'\right))^{1-\sigma}}{1-\sigma}\right) \quad (4)$$

and the effort choice $x^e\left(a'\right)$ chosen by the child is:

$$x^e\left(a'\right) = \underset{x^e}{\operatorname{argmax}}\left\{a'\frac{(1 - x^e)^{1-\sigma}}{1-\sigma} + \beta\frac{(1 + Rx^e)^{1-\sigma}}{1-\sigma}\right\}$$

$$= \frac{1 - \left(\frac{a'}{\beta R}\right)^{\frac{1}{\sigma}}}{1 + R\left(\frac{a'}{\beta R}\right)^{\frac{1}{\sigma}}}. \quad (5)$$

Hence, while the parent cannot dictate a particular effort choice to the child, the parent can influence the choice through setting a'. We can now characterize the optimal choice of a', i.e., the degree to which the parent stifles the child's enjoyment of young-age consumption in order to induce more patience. It is convenient to define $c^y\left(x^e\left(a'\right)\right) = (1 - x^e\left(a'\right))y_H$.

Lemma 5.1. *Conditional on a non-authoritarian parenting style, the optimal choice of the child's preferences a' satisfies the following condition:*

$$0 \geq \underbrace{\lambda\left(a' - 1\right)c_{a'}^y\left(x^e\left(a'\right)\right)}_{\text{marginal benefit of decreasing } a'} - \underbrace{(1 - \lambda)\frac{c^y\left(x^e\left(a'\right)\right)}{1-\sigma}}_{\text{marginal cost of decreasing } a'} \quad (6)$$

or, alternatively:

$$0 \geq \lambda\left(a' - 1\right)\left(\frac{1}{\sigma}\frac{1}{a'}\frac{1}{1 + \left(\frac{a'}{\beta R^{1-\sigma}}\right)^{\frac{1}{\sigma}}}\right) - \frac{1 - \lambda}{1 - \sigma}, \quad (7)$$

where the strict inequality holds if and only if $a' = \bar{a}$.

The marginal benefit in (6) is positive since lowering a' causes an increase in the human

capital investment that the parent approves of (note that $c_{a'}^y > 0$). The marginal cost captures the utility loss suffered by the child from being brain-washed with adult-like values. How the parent weighs costs and benefits depends on the extent of paternalism. If $\lambda = 0$, the marginal benefit vanishes, and the optimal solution is a corner, $a' = \bar{a}$, corresponding to a permissive parenting style. By continuity, a permissive parenting style is also optimal for a range of low values for the paternalism parameter λ. In contrast, if $\lambda = 1$ the parent does not care about the utility loss inflicted on the child. In this case, it is optimal to set $a' = 1$, i.e., the parent adopts a purely authoritative style, inducing the child to take the same action that the parent would choose. The following lemma summarizes the discussion.

Lemma 5.2. *Let a^* denote the optimal choice of a', defined implicitly by (7). There exists $\underline{\lambda} > 0$ such that, for all $\lambda \le \underline{\lambda}$, $a^* = \bar{a}$ (permissive parenting style). For $\lambda = 1$, $a^* = 1$ (purely authoritative parenting style).*

We can now establish a key result regarding the role of the return to human capital investment R for the choice between permissive and authoritative parenting.

Proposition 5.1. *Suppose that $\lambda > \sigma \frac{\bar{a}}{\bar{a}-(1-\sigma)}$, and let $\bar{R} \equiv \left(\frac{\sigma \bar{a}(1-\lambda)}{\lambda(\bar{a}-(1-\sigma))-\sigma \bar{a}} \right)^{\frac{\sigma}{1-\sigma}} \left(\frac{\bar{a}}{\beta} \right)^{\frac{1}{1-\sigma}}$. The optimal a'^* is determined as follows:*

1. *If $R \le \bar{R}$, then $a^* = \bar{a}$.*

2. *If $R > \bar{R}$, then $a^* < \bar{a}$, and a^* is strictly decreasing in R, with a lower bound equal to $\bar{a}^* = \lim_{R \to \infty} a^* = \lambda \frac{1-\sigma}{\lambda-\sigma}$.*

Conversely, if $\lambda \le \sigma \frac{\bar{a}}{\bar{a}-(1-\sigma)}$, then $a^* = \bar{a}$ independently of R.

The parent prefers a permissive style if the return to human capital is low ($R < \bar{R}$), and an authoritative style if the return to human capital is high ($R \ge \bar{R}$). In the high range, the extent to which the parent molds the child's preferences is increasing in R.[29]

5.4 Equilibrium Parenting Style

We can now analyze the choice between authoritarian and non-authoritarian (i.e., either permissive or authoritative) parenting. This choice hinges on the return to incumbency

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[29]Note that $\lambda < 1 \Rightarrow \lambda \frac{1-\sigma}{\lambda-\sigma} > 1$, hence, $a^* > 1$. $a^* = 1$ is only attained if $\lambda = 1$.

Figure 5.1: Left: Equilibrium Parenting Style as a Function of Incumbency Premium μ, and Return to Human Capital R. Right: Evolution of Parenting Styles over Time.
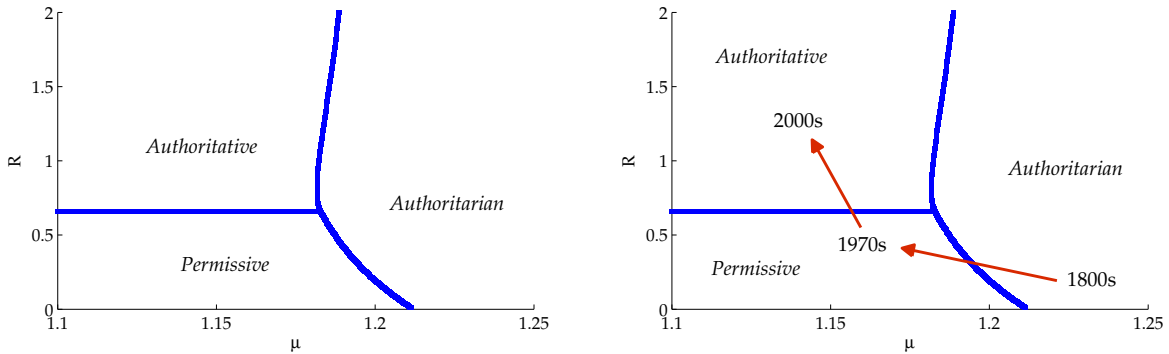
μ. In particular, for a fixed R, there exists a unique threshold $\hat{\mu}(R)$ such that for $\mu \geq \hat{\mu}(R)$ parents choose to be authoritarian.

The left panel of Figure 5.1 displays the optimal parenting style as a function of the return to human capital R and the incumbency premium μ, given parameters $\sigma = 0.5$, $\beta = 0.8$, $\lambda = 0.95$, $\bar{a} = 1.5$, and $y_H/y_L = 1.5$. The figure shows that the critical level $\hat{\mu}(R)$ above which parents are authoritarian is first decreasing and then increasing in R. The reason is that the threshold depends on the severity of the agency problem in choosing education effort. If $R = 0$, there is no disagreement, because parents and children agree that optimal effort is zero. Disagreement also vanishes as $R \to \infty$, since then both parents and children think that maximum effort should be devoted to education.[30] However, the agency problem bites for intermediate values of R. In this region, controlling the effort of the child becomes more attractive for the parent, and thus the threshold $\hat{\mu}(R)$ shifts downward (i.e., to the left in Figure 5.1).[31]

Consider the choice between authoritative and permissive parenting for $\mu < \hat{\mu}(R)$. As shown in Proposition 5.1, in this region there is a fixed threshold $\bar{R}$ such that for $R > \bar{R}$, parents are authoritative, and for $R \leq \bar{R}$ they are permissive. Proposition 5.1 implies that for sufficiently low λ, authoritative parenting is never optimal. That is, if we lower λ, the boundary between permissive and authoritative parenting in Figure 5.1 first shifts upward and then disappears altogether.

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[30]In this case, an authoritarian parenting style is chosen over a permissive parenting only if the incumbency premium exceeds the value of flexibility. This threshold is defined in Proposition 5.2.

[31]Interestingly, the $\hat{\mu}(R)$ function is constant (i.e., the boundary between authoritarian and the other parenting styles in Figure 5.1 is vertical) when either $\lambda = 0$ or when $\lambda = 1$. The reason is that in these extreme cases the agency problem is entirely resolved, either because the parent completely agrees with the child ($\lambda = 0$) or because the child is indoctrinated to completely agree with the parent ($\lambda = 1$).

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Proposition 5.2 summarizes our results.

Proposition 5.2. *There exists a function $\hat{\mu}(R)$ where $0 < \hat{\mu}(R) \leq \bar{\mu}$ such that:*

1) If $\lambda > \sigma \frac{\bar{a}}{\bar{a}-(1-\sigma)}$, then:

- *If $\mu > \hat{\mu}(R)$, parents choose an authoritarian style.*

- *If $\mu \leq \hat{\mu}(R)$ and $R > \bar{R}$, parents choose an authoritative style.*

- *If $\mu \leq \hat{\mu}(R)$ and $R \leq \bar{R}$, parents choose a permissive style.*

2) If $\lambda \leq \sigma \frac{\bar{a}}{\bar{a}-(1-\sigma)}$, then:

- *If $\mu > \hat{\mu}(R)$, parents choose an authoritarian style.*

- *If $\mu \leq \hat{\mu}(R)$, parents choose a permissive style.*

Here, $\bar{R}$ is the threshold characterized in Proposition 5.1, and $\bar{\mu}$ is the threshold where the incumbency premium exactly offsets the value of flexibility, given by:

$$\bar{\mu} \equiv \left(\left(2 y_H^{1-\sigma} \right) / \left(y_H^{1-\sigma} + y_L^{1-\sigma} \right) \right)^{\frac{1}{1-\sigma}} .$$

Moreover, $\mu(0) = \lim_{R \to \infty} \hat{\mu}(R) = \bar{\mu}$, and $\hat{\mu}(R) < \bar{\mu}$ for $0 < R < \infty$.

The parameter space can be broken down in three regions.[32] For a high incumbency premium, the authoritarian style is optimal. For a low incumbency premium and a low return to human capital, permissive parenting is adopted. Finally, for a low incumbency premium and a high return to human capital, parents choose to be authoritative.

The right panel of Figure 5.1 summarizes our interpretation of the historical evolution of parenting styles discussed in the introduction and in Section 3. We view pre-industrial economies as characterized by a high incumbency premium μ and a low return to human capital R. Hence, initially an authoritarian parenting style is adopted. Subsequently, industrialization brings about an erosion of incumbency advantage, an increase in occupational specialization, and a rising demand for human capital. These trends are represented by a fall in μ and a modest rise in R, moving the economy towards a higher

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[32]The neglecting parenting style does not apply here because the cost of parenting is set to zero.

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prevalence of permissive parenting. The most recent decades feature a further decline in the incumbency premium μ and a rise in the return to human capital R, leading to the current situation where authoritative parenting is dominant.[33]

As Proposition 5.2 shows, the qualitative characterization of equilibrium parenting style does not depend on specific parameter values, except that the authoritative style only emerges if parents are sufficiently paternalistic (which is the case for the illustrative parametrization underlying Figure 5.1). However, the sharp delineation between parenting styles obtained here does benefit from simplifying assumptions, in particular that there is a binary choice between being authoritarian and granting independence, with a discrete impact on expected future income. A richer model could allow for restricting children's choice in a more continuous way (we describe such a setting in the context of the general model in the appendix). The basic intuition for how the incumbency premium and the return to human capital affect parenting should carry over to such a setting, but a full discussion would necessitate going beyond discrete parenting styles and talking about degrees of employing authoritarian or authoritative strategies.

5.5   Heterogeneity in the Cost of Parenting

So far, we have abstracted from parental effort costs. In this section, we consider heterogeneity in the cost of parenting. There are two types of dynasties, distinguished by skill. For high-skill parents, molding their children's preferences is costless, as in the previous section. In contrast, low-skill parents who engage in authoritative parenting face a cost given by:

$$e^A(a'|h,s) = \begin{cases} 0 & \text{if} \quad a' = \bar{a}, \\ e^A & \text{if} \quad a' < \bar{a}. \end{cases}$$

This assumption is in line with the discussion in Section 3.2, where we argue that education improves parents' ability to motivate their children and mold their preferences.[34]

To start with, consider a society where the return to incumbency is low, and hence the

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[33]Figure 5.1 is drawn for a particular value of the paternalism parameter ($\lambda = 0.95$). We view the population as heterogeneous in λ, and to some extent the incumbency premium and the return to human capital investment may vary across families as well (see below). Thus, the evolution depicted in Figure 5.1 does not necessarily affect all families equally, but should be interpreted as broad trends that shift the distribution across the parenting styles in the population.

[34]Another source of heterogeneity could stem from the distinction between time and goods costs of parenting. If costs were in terms of goods, richer parents would face a lower effective cost of investing (due to higher consumption and lower marginal utility). However, given that time costs are arguably more important, we do not emphasize this aspect here.

relevant margin is between permissive and authoritative parenting (namely, all parents choose X^{FREE}). We can establish the following result.[35]

Proposition 5.3. *For given parameters, there exist thresholds for the degree of paternalism $\bar{\lambda}_H, \bar{\lambda}_L$ where $0 < \bar{\lambda}_H < \bar{\lambda}_L < 1$ such that: (i) no parents with $\lambda < \bar{\lambda}_H$ exert effort in molding their children's preferences; (ii) no low-skill parents with $\lambda \in [\bar{\lambda}_H, \bar{\lambda}_L]$ and all high-skill parents with $\lambda \in [\bar{\lambda}_H, \bar{\lambda}_L]$ exert effort in molding their children's preferences; (iii) all parents with $\lambda > \bar{\lambda}_L$ exert effort in molding their children's preferences.*

In this environment, we can consider again the effect of an increase in the return to education effort R. The incentive to exert child-rearing effort increases for all parents. Paternalistic parents with $\lambda \in (\bar{\lambda}_L, 1)$ will respond on the intensive margin by increasing their parental effort, and so will high-skill parents with $\lambda \in [\bar{\lambda}_H, \bar{\lambda}_L]$. In addition, there will be some response on the extensive margin for both types. The range of λ for which parents continue to be permissive and do not react to the change in R will be larger for low-skill parents. Although the average response hinges on the distribution of λ in the population, the fact that the range of inaction is larger for low-skill parents suggests that, as a group, high-skill parents will respond more strongly to an increase in R. The predictions of the theory are consistent with the evidence on parental time use by education discussed in Section 3.2 and with Putnam (2015), who argues that today American children are exposed to a much more unequal upbringing than a half century ago.

Next, consider in the same setting the case in which μ is sufficiently large so that authoritarian parenting is also a relevant choice. For simplicity, assume that e^A is sufficiently large that low-skill parents are never authoritative. The following proposition characterizes the parenting choices in this setting.

Proposition 5.4. *There exist functions $\hat{\mu}_L(R)$ and $\hat{\mu}(R)$ where $0 < \hat{\mu}_L(R) \leq \hat{\mu}(R) \leq \bar{\mu}$ such that:*

1) If $\lambda > \sigma \frac{\bar{a}}{\bar{a} - (1 - \sigma)}$, then:

- *If $\mu \geq \hat{\mu}(R)$, all parents choose an authoritarian style.*

- *If $\mu \in [\hat{\mu}_L(R), \hat{\mu}(R)]$ and $R > \bar{R}$, high-skill parents choose an authoritative style and low-skill parents choose an authoritarian style.*

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[35]The proof is an immediate extension of the proof of Proposition 5.2 and is omitted.

Figure 5.2: Equilibrium Parenting Style as a Function of Incumbency Premium μ, and Return to Human Capital R, with Two Types of Parents
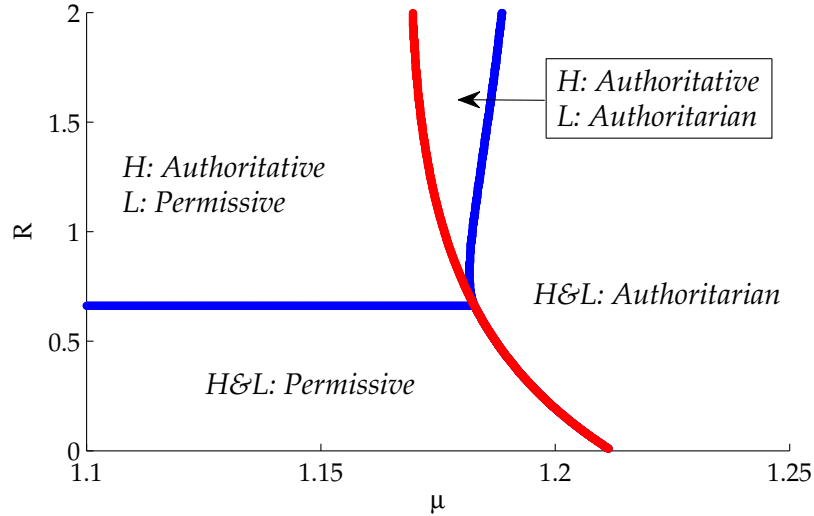
- *If $\mu \leq \hat{\mu}_L(R)$ and $R > \bar{R}$, high-skill parents choose an authoritative style and low-skill parents choose a permissive style.*

- *If $\mu \leq \hat{\mu}(R)$ and $R \leq \bar{R}$, then $\hat{\mu}_L(R) = \hat{\mu}(R)$ and all parents choose a permissive style.*

2) If $\lambda \leq \sigma \frac{\bar{a}}{\bar{a} - (1 - \sigma)}$, then $\hat{\mu}_L(R) = \hat{\mu}(R)$, and:

- *If $\mu \geq \hat{\mu}(R)$, parents choose an authoritarian style.*

- *If $\mu < \hat{\mu}(R)$, parents choose a permissive style.*

Here $\bar{R}$ and $\bar{\mu}$ are the same as in Proposition 5.2.

Likewise, $\mu(0) = \lim_{R \to \infty} \hat{\mu}_L(R) = \lim_{R \to \infty} \hat{\mu}(R) = \bar{\mu}$, and $\hat{\mu}_L(R) < \bar{\mu}$ for $0 < R < \infty$.

Figure 5.2 provides a numerical illustration of the result.[36] An interesting implication of the analysis is that from an initial condition in which all parents are authoritarian, a decline in the incumbency premium μ can induce diverging behavior between low- and high-skill parents: the former remain authoritarian, while the latter turn authoritative. Such a divergence is consistent with the observation that in the United States, the decline in the approval of corporal punishment in recent decades has been much

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[36]The parameter values are $\sigma = 0.5$, $\beta = 0.8$, $\lambda = 0.95$, $\bar{a} = 1.5$, and $y_H/y_L = 1.5$.

more pronounced among the educated (see Figure 3.4). Alternatively, if we start from a situation where all parents are permissive, an increase in R turns low-skill parents authoritarian, and high-skill parents authoritative. Overall, this pattern lines up with the observations that over the last decades parenting style has become more intensive and that the behavior of different socioeconomic groups has diverged.

The parenting cost considered in this section implies that it is costly (for some parents) to mold children's preferences away from the natural inclination. Another dimension of parenting cost is the possibility that the parent can spend effort to expand the child's choice set in a way that makes the child better off, for example by opening up additional educational opportunities. Such an extension would allow for all four parenting styles, where neglecting parents would be the ones who minimize parenting effort rather than making investments to benefit the children.

6   Parenting Styles in a Model of Risk Aversion and Protective Parents

The theory can also be applied to another important dimension of preferences, namely, the attitude towards risk. Risk aversion is known to increase with age (Morin and Fernandez Suarez 1983), leading to a natural conflict between parents and children regarding risky behavior. Risk aversion is also known to matter for important aspects of human behavior. For instance, Barsky et al. (1997) document that risk tolerance is associated with hazardous behaviors that tend to lower economic success, such as smoking and drinking, but also with a more aggressive investing style that yields higher average returns, such as holding stocks rather than bonds. Risk tolerance is also an important driver of entrepreneurship as shown, e.g., by Cramer et al. (2002) and Kan and Tsai (2006). Dohmen et al. (2012) document that trust and risk attitudes are strongly correlated between parents and children in the German Socioeconomic Panel. Using the same data set, Zumbuehl et al. (2013) find that parents who invest more in child-rearing efforts are more similar to their children in terms of attitudes towards risk. All these studies concur on the importance of the transmission of attitudes towards risk within families.

In line with the analysis in the previous sections, we focus on the relationship between income inequality and preference transmission. In Section 5, we emphasize the dimension of preferences that regulates the intertemporal trade-off in consumption, a key determinant of human capital investments. However, success in education and the labor market also hinges on young people avoiding hazardous behaviors that may tempt ado-

lescents: consumption of street drugs, unprotected sex, delinquency, etc. Parents typically disapprove of such activities, not least because they can harm their children's future prospects. For instance, adolescent risk taking is often associated with poor grades and school dropout. How consequential these choices are ultimately hinges on the extent of inequality. In countries where unemployment is low, the income distribution is equal, and where there exist social safety nets and second opportunities, the risk associated with making poor choices during adolescence is limited. In contrast, early mistakes tend to be more detrimental in societies where adult success hinges on being admitted to good schools, and where the return to education is high. While parents may try to counteract risk-taking behavior by making their children more forward-looking, another natural intervention is to increase the children's wariness of risk. Monitoring children to ensure they stay away from dangerous activities is another option.

6.1   Environment

To focus sharply on the risk dimension, we both extend and specialize the model of Section 5. In particular, we focus on juvenile risk, while abstracting from other dimensions of physical and human capital investment. As in the previous section, the income realization can be either high, y_H (success), or low, y_L (failure). To focus on risk preferences separately from time preferences, we consider lotteries that affect success in the first period only, whereas income in the adult period is exogenous. Allowing persistent effects would combine the effects analyzed in the previous section with the risk dimension that is the focus here. To simplify the analysis we also abstract from savings, and we continue to set the cost of parental investments to zero.

Preferences are parameterized by a von Neumann-Morgenstern expected utility function inducing a constant relative risk aversion (CRRA). The child's felicity is given by:

$$U^y\left(c|a\right) = E\left[\frac{c^{1-a} - 1}{1 - a}\right],$$

with the usual convention that $U^y\left(c|1\right) = \log\left(c\right)$. The child's risk aversion is endogenous and is given by $a = a' \in [0, \infty)$. Here, $\bar{a} = 0$, so that a higher a' implies a higher risk aversion, and at the bliss point preference $\bar{a}$ adolescents are risk neutral. Parents are risk averse, i.e., $a = \sigma > 0$.[37] Their higher innate risk aversion leads them to disagree with

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[37]Note that, contrary to the case of patience, parental preferences here affect incentives for preference transmission. More risk averse parents will worry more about the risk-taking of their children, and are

their children about the choice of lotteries. A useful property of CRRA utility is that, for any given c, $U^y(c|a)$ is decreasing in a. This conveniently captures the notion that risk aversion makes people fearful and less disposed to enjoy life. Therefore, altruistic parents will suffer a cost from making their children risk averse. If parents opt, nevertheless, to turn them risk averse, it is because of their paternalistic drive to distort their choice of lotteries (as shown in Proposition A.2).

The parent's value function can be written as:

$$v^o = \max_{a', X \in \mathcal{X}} \{u^o(c^o) + \delta w(X, a')\},$$

where

$$w(X, a') = E_{s'}[(1-\lambda) U^y(C^y(x, s')|a') + \lambda U^o(C^y(x, s')) + \beta v^o].$$

The exogenous consumption of parents c^o will be ignored below since it does not affect any parenting choice.

We assume that adolescents can choose between two lotteries: $x \in X^{FREE} = \{x_J, x_N\}$. The lottery x_N (no juvenile risk) yields a safe income y_H. The lottery x_J (juvenile risk) yields an additional utility that is assumed to be multiplicative in the consumption level. However, it is risky: youngsters engaging in juvenile risk are successful (y_H) with probability $p_J \in (0, 1)$, and unsuccessful (y_L) with probability $1 - p_J$.

6.2 Authoritative versus Permissive Parenting

We now consider the case where parents cannot monitor the choice of lotteries, but can influence risk aversion through an authoritative parenting style. The child's value function is given by:

$$v^y(a') = \max_{x \in \{x_J, x_N\}} \{E_{s'}[U^y(C^y(x, s')|a') + \beta v^o]\},$$

where

$$E_{s'}[U^y(C^y(x_J, s')|a')] = p_J \frac{(\psi y_H)^{1-a'} - 1}{1 - a'} + (1 - p_J) \frac{(\psi y_L)^{1-a'} - 1}{1 - a'},$$

$$E_{s'}[U^y(C^y(x_N, s')|a')] = \frac{y_H^{1-a'} - 1}{1 - a'}.$$

therefore more likely to mold their children as risk averse. If we assume that the preferences of the young persist, the theory can feature path dependence (see Doepke and Zilibotti 2013). Here, we abstract from this source of persistence by assuming, for simplicity, that the risk aversion of the old is exogenous.

Here, $\psi > 1$ captures the thrill associated with taking the risky juvenile lottery.

The optimal choice of x hinges on the endogenous risk aversion parameter a'. We assume parameters to be such that children rank the three possible outcomes as follows: first, success and juvenile activities; next, success and no juvenile activities (safe option); last, failure and juvenile activities. Choosing x_J yields a lottery between the most and the least desired outcome. The standard properties of von Neumann-Morgenstern utility imply that, for any risk aversion, there exists a value $p_J = P_J(a')$ for the probability of success that makes the decision maker indifferent between the juvenile and the safe lottery. The indifference condition between the two lotteries can be written as:

$$P_J(a') = 1 - \frac{\psi - \psi^{a'}}{\psi} \left(1 - \left(\frac{y_L}{y_H} \right)^{1-a'} \right)^{-1}. \tag{8}$$

We can establish the following intuitive property:

Lemma 6.1. $P_J(a')$ is an increasing function of risk aversion a'. Hence, there exists a range of probabilities p_J such that a more risk averse child chooses x_J over x_N, whereas a less risk averse child chooses x_N over x_J.

Since P_J is monotonic, it admits an inverse function, $P_J^{-1}(p_j) \equiv A(p_J, y_H/y_L)$, where A is increasing in p_J and decreasing in y_H/y_L. The function $A(p_J, y_H/y_L)$ gives the degree of risk aversion a' that makes the child indifferent between the two lotteries, and hence the minimum level of risk aversion the parent has to endow the child with to induce the child to take the safe choice. To focus on the interesting case, we restrict attention to parameter values p_J, y_H, and y_L that fulfill the inequality $0 < \hat{a} \equiv A(p_J, y_H/y_L) < \sigma$. This guarantees that parents prefer the safe lottery, while risk-neutral children would take the juvenile lottery.

Now consider the parent's choice between an authoritative and a permissive parenting style. An authoritative parent sets $a' = \hat{a}$, while a permissive parent sets $a' = 0$.[38] A parent chooses to be permissive if $w(X^{FREE}, 0) \geq w(X^{FREE}, \hat{a})$, and to be authoritative

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[38]To see why, recall that, with CRRA utility, a higher risk aversion reduces cardinal utility for any given choice. Thus, it would be sub-optimal to choose $a' > \hat{a}$. Likewise, no parent would choose $a' \in (0, \hat{a})$, as in this range the child would take the juvenile risk, in which case setting $a' = 0$ is always better.

if $w\left(X^{FREE},0\right) < w\left(X^{FREE},\hat{a}\right)$, where:[39]

$$w\left(X^{FREE},0\right) = (1-\lambda)\left(p_J\psi y_H + (1-p_J)\psi y_L\right)$$
$$+ \frac{\lambda}{1-\sigma}\left(p_J\left(\psi y_H\right)^{1-\sigma} + (1-p_J)\left(\psi y_L\right)^{1-\sigma} - 1\right) + \beta v^o,$$

$$w\left(X^{FREE},\hat{a}\right) = \frac{1-\lambda}{1-\hat{a}}\left((y_H)^{1-\hat{a}} - 1\right) + \frac{\lambda}{1-\sigma}\left((y_H)^{1-\sigma} - 1\right) + \beta v^o.$$

The choice of parenting style hinges on λ: higher paternalism induces a more intrusive parenting style. Moreover, the range of λ inducing a permissive parenting style shrinks as inequality increases. The following proposition formally states this result (the proof is omitted).[40]

Proposition 6.1. *There exists a $\lambda_J\left(p_J, y_H/y_L\right)$ such that all parents with $\lambda \geq \lambda_J\left(p_J, y_H/y_L\right)$ are authoritative while all parents with $\lambda \leq \lambda_J\left(p_J, y_H/y_L\right)$ are permissive. λ_J is increasing in p_J and decreasing in y_H/y_L.*

6.3 Helicopter Parents

So far, we have considered the margin between permissive and authoritative parenting. We now extend the analysis to authoritarian strategies. To this aim, suppose that there exists a second risky lottery (henceforth, the *small lottery*) denoted by $\tilde{x}_J$ that entails less risk but also delivers less fun than the juvenile lottery. This lottery is assumed to be a mean-preserving compression of the juvenile lottery, i.e., it delivers the same expected income with a lower variance. More formally, we denote by $\tilde{y}_H < y_H$ and $\tilde{y}_L > y_L$ the realizations of the small lottery, where we have:

$$\frac{y_H - \tilde{y}_H}{\tilde{y}_L - y_L} = \frac{1-p_J}{p_J}.$$

Here, p_J is the probability of success of both the juvenile and the small lottery (assumed, for simplicity, to be the same). The small lottery delivers an extra utility $\tilde{\psi} < \psi$ such that

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[39]Note that we assume that the thrill ψ enters the utility of both altruistic and paternalistic parents, being essentially part of consumption. This modeling strategy emphasizes that risk is the only source of disagreement. One could alternatively assume that ψ only enters the altruistic component of w. In this case, parents and children would also disagree on the evaluation of the thrill embedded in juvenile activities. This source of additional disagreement would strengthen our results.

[40]It is interesting to observe that, ceteris paribus, more inequality turns children themselves to be less prone to risk taking. Formally, $A\left(p_J, y_H/y_L\right)$ is decreasing in y_H/y_L, implying that parents' interventions can succeed even if they are less intensive. Arguably, this is in line with the casual observation that in today's more unequal societies the young generation tends to be more conservative and oriented towards individual success (although part of this observation can relate to parents' interventions).

$\psi y_H > \tilde{\psi}\tilde{y}_H > y_H > \tilde{\psi}\tilde{y}_L > \psi y_L$. We also assume that

$$\psi \left(p_J y_H + (1 - p_J) y_L \right) > \tilde{\psi} \left(p_J \tilde{y}_H + (1 - p_J)\tilde{y}_L \right) > y_H,$$

i.e., a risk neutral child prefers the juvenile over the small lottery, and the small over the safe lottery.

The new authoritarian element is that parents can prevent children from taking the small lottery by monitoring them at no cost. In contrast, parents cannot monitor the juvenile lottery. Hence, parents can choose between the choice sets $X^{FREE} = \{x_J, \tilde{x}_J, x_N\}$ and $X^{HELICOPTER} = \{x_J, x_N\}$. With this in mind, parenting boils down to choosing between three strategies:[41]

1. Allow children to take the juvenile lottery (permissive parenting style).

2. Induce children to decline the juvenile lottery but let children take the small lottery (authoritative parenting style).

3. Take no chance: mold the children's preferences so that they decline the juvenile lottery, and monitor that they reject the small lottery (helicopter parenting).

Figure 6.1 displays the optimal parenting style as function of paternalism and inequality (parameterized as proportional shift in the variances of both risky lotteries).[42] The range of λ for which parents are permissive is decreasing in inequality (or risk). For very low risk, all parents are permissive. For moderate risk, there is a threshold for λ such that parents with a degree of paternalism above the threshold are authoritative (i.e., they endow their children with sufficient risk aversion to avoid the juvenile lottery) but they still allow their children to take the small lottery. Next, for high risk, low-λ parents continue to be permissive, intermediate-λ parents are authoritative, and high-λ parents are helicopter parents, i.e., they forbid even small lotteries. Finally, for very

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[41]In order to avoid the small risk, parents could in principle choose X^{FREE} and increase the child's risk aversion so much that she declines both lotteries. However, under our assumptions this option is always dominated by setting $a' = \hat{a}$ and restricting the choice set to $X^{HELICOPTER}$, as this yields a larger utility while inducing the same choice of lotteries. Similarly, a parent could in principle be only authoritarian, but this is also a dominated strategy because the child would then choose the juvenile lottery.

[42]The parameter values are $\sigma = 2$, $\psi_J = 1.5$, $\tilde{\psi}_J = 1.33$, $p_J = 0.75$, and $E(x_J) = 1.75$. In Figure 6.1, inequality on the horizontal axis refers to the ratio y_H/y_L for the juvenile lottery. The relative riskiness of the small and juvenile lotteries is held constant as inequality varies, namely, $\tilde{y}_H/\tilde{y}_L = 0.4 y_H/y_L$.

Figure 6.1: Equilibrium Parenting Style as a Function of Paternalism, λ, and inequality, y_H/y_L
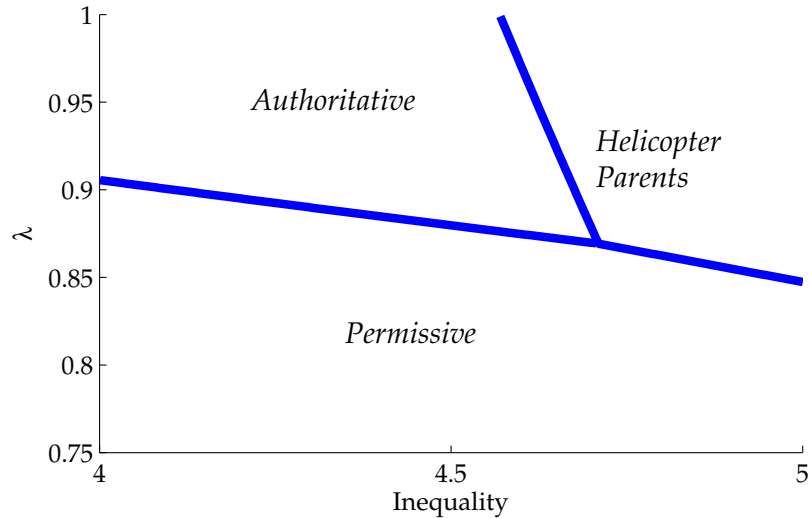
large risk, parents are either permissive or helicopter parents. The range of helicopter parents increases with inequality.

In summary, the theory yields predictions that are consistent with the recent rise in helicopter parenting, comprising both an increase in moral suasion aimed to deter children from taking gambles, and direct monitoring to avoid even small risks.[43]

7   Conclusions

In this paper, we construct a formal rational-choice theory that accounts for the emergence of different parenting styles as equilibrium outcomes driven by economic incentives. We apply our general model to the intergenerational transmission of patience and of risk aversion. The theory yields predictions for how the economic environment determines the prevalence of different parenting styles. In particular, it is consistent with historical evidence that authoritarian parenting declines as economic development advances. Moreover, it is consistent with evidence that in the industrialized world parents in low-inequality countries are more permissive and emphasize values such as independence and imagination, whereas in high-inequality countries parents place more stock in hard work, a value typically associated with an authoritative parenting style. Re-

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[43]In our example, the only cost of being a helicopter parent is merely a utility loss for the child. However, it is easy to extend the model and show that when children are turned more risk averse, they may also reject risky lotteries with an upper tail, like entrepreneurial activities, see Doepke and Zilibotti (2013).

turns to education and redistributive policies also affect the choice of parenting style in a way that lines up well with the evidence. Finally, the theory predicts that a combination of high inequality, weak safety nets, and strong paternalism can explain the rise of helicopter parents, a salient trend of parenting style in the United States in recent years.

The theory can be extended in a number of directions. For instance, one could allow for endogenous fertility decisions and study the interaction of family size and parenting; less time-intensive parenting styles should be more attractive when the number of children is large. The theory could also be applied to the transmission of social preferences. Parents' incentives to teach pro-social behavior should vary with the extent to which such behavior (and its opposite, i.e., opportunistic behavior) is rewarded in society. In addition, one could let the degree of paternalism result from an evolutionary process.[44] Our analysis suggests that there is no golden rule about the fitness of paternalistic preferences. In our application to patience, paternalism has high fitness, as it induces human capital accumulation, contributing to the economic success of paternalistic dynasties. In the application to risk preferences, parental paternalism reduces risk-taking and protects children from juvenile risk, but may also stifle entrepreneurship. Therefore, the success of paternalistic families depends on the preference trait, the economic environment, and the stage of economic development.

One could also consider self-reinforcing mechanisms that operate through general equilibrium effects. In earlier work, we study the interaction among preference transmission, innovation, and growth (see Doepke and Zilibotti 2013). In ongoing work with Giuseppe Sorrenti, we consider the two-way link between neighborhood characteristics and the choice of parenting style. One could go even further and study how parenting style feeds back into the determination of policies, institutions, and social norms. Finally, one could study how changes in parenting styles have contributed to magnify inequality in the recent half century. Such extensions are left to future research.

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[44]Studies of evolutionary forces shaping preference transmission and the growth process include Galor and Moav (2002), Galor and Michalopoulos (2012), and Galor and Özak (2016).

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A Technical Appendix

A.1 The General Model of Section 4

In this section, we formalize properties of the general model discussed in the text, and provide a characterization of the first-order conditions for the differentiable case.

A.1.1 Some General Properties

In this section, we formalize the discussion in the last paragraph of Section 4.2.

We introduce two simplifying assumptions. The first is a simple tie-break rule for the choice of X.

Assumption 1. *If the parent is indifferent between two or more choice sets, she chooses the largest possible one.*

Given that the child always prefers a larger choice set, this amounts to respecting the preference of the child if the parent is indifferent.

The second assumption is that there exists a particular preference vector $a = \bar{a}$ such that for given c, the period utility is maximized in a cardinal sense. Moreover, this is the least costly choice of a'. We interpret $\bar{a}$ as the children's *natural inclination*. Letting this inclination prevail is less costly for parents than molding their preferences.

Assumption 2. *There exists a unique $\bar{a} \in \mathcal{A}$ such that for all $a, a' \in \mathcal{A}$, $h \in \mathcal{H}$ and $s \in \mathcal{S}$, and for all feasible c:*

$$
\begin{aligned}
U^o\left(c|\bar{a}\right) &\geq U^o\left(c|a\right), \\
U^y\left(c|\bar{a}\right) &\geq U^y\left(c|a'\right), \\
e(X, \bar{a}|h, s) &\leq e(X, a'|h, s).
\end{aligned}
$$

In a more general model, parents may wish to mold their children's preferences in order to increase their cardinal utility (e.g., by increasing their overall appreciation of life). In part, Assumption 2 can be regarded as a normalization of utility, in the sense that utility and effort cost are defined relative to a point where mutually beneficial investments in improving cardinal utility have already been carried out. The assumption is restrictive in the sense that the same bliss point $\bar{a}$ is assumed to apply to utility in both young and old age and that young and old agree on this bliss point, which simplifies the analysis.

We can now state some general propositions.

1

Proposition A.1. *If $\lambda = 0$, then the parent is neither authoritarian nor authoritative.*

Proof Suppose, to derive a contradiction, that $a^* \neq \bar{a}$, i.e., the parent is authoritative. Then optimality of the choice of a^* implies that the following inequality should hold:

$$
-e\left(X^*, a^*|h, s\right) + \delta E_{s'}\Bigg[U^y\left(C^y(x\left(X^*, a^*\right), s')|a^*\right)
$$
$$
+ \beta\left(U^o\left(C^o(H(x\left(X^*, a^*\right), s'')|a^*\right) - e(X'', a''|H(x\left(X^*, a^*\right), s'), s') + \delta w(X'', a''^*)\right)\Bigg]
$$
$$
\geq -e\left(X^*, \bar{a}|h, s\right) + \delta E_{s'}\Bigg[U^y\left(C^y(x\left(X^*, a^*\right), s')|\bar{a}\right)
$$
$$
+ \beta\left(U^o\left(C^o(H(x\left(X^*, a^*\right), s'')|\bar{a}\right) - e(X'', a''|H(x\left(X^*, a^*\right), s'), s') + \delta w(X'', a''|\bar{a})\right)\Bigg],
$$

where X'' and a'' denote the optimal choices in the next period, given that $a' = a^*$ and X'^* are chosen today. Now notice that with $\lambda = 0$ we have $w(X'', a''|\bar{a}) = w(X'', a''^*)$, that is, the parent's preference parameter does not directly enter the utility derived from children. Canceling equal terms, we therefore have:

$$
-e\left(X^*, a^*|h, s\right) + \delta E_{s'}\Bigg[U^y\left(C^y(x\left(X^*, a^*\right), s')|a^*\right) + \beta U^o\left(C^o(H(x\left(X^*, a^*\right), s'')|a^*\right)\Bigg]
$$
$$
\geq -e\left(X^*, \bar{a}|h, s\right) + \delta E_{s'}\Bigg[U^y\left(C^y(x\left(X^*, a^*\right), s')|\bar{a}\right) + \beta U^o\left(C^o(H(x\left(X^*, a^*\right), s'')|\bar{a}\right)\Bigg].
$$

This inequality contradicts Assumption 2 which implies $\bar{a}$ is the unique preference parameter that maximizes the expression on the right-hand side. We therefore have obtained a contradiction, and must conclude that $a^* = \bar{a}$, so that parents cannot behave authoritatively. A similar argument establishes that purely altruistic parents do not behave in an authoritarian fashion. $\square$

Proposition A.2. *Suppose $\lambda \in (0, 1)$. If the parent is authoritarian and $\tilde{X}$ is a feasible choice set such that $X^* \subset \tilde{X}$ and $e(X^*, a^*|h, s) > e(\tilde{X}, a'|h, s)$, then we have $\left(c^y, x, h'|X^*, a^*\right) \neq \left(c^y, x, h'|\tilde{X}, a^*\right)$. Likewise, if the parent is authoritative and $e(X^*, a^*|h, s) \geq e(X^*, \bar{a}|h, s)$, then it must be the case that $\left(c^y, x, h'|X^*, a^*\right) \neq \left(c^y, x, h'|X^*, \bar{a}\right)$.*

Proof Note that

$$
v^o(a, h, s) = U^o\left(c^o|a\right) - e\left(X^*, a^*|h, s\right) + \delta v^y(X^*, a^*)
$$
$$
+ \delta\left(1 - \lambda\right) E_{s'}\left[U^o\left(C^y(x\left(X^*, a^*\right), s')|a\right) - U^y\left(C^y(x\left(X^*, a^*\right), s')|a^*\right)\right]. \quad (9)
$$

Consider the first part of the proposition. Note that, since (X^*, a^*) is the optimal choice, then:

$$- e\left(X^*, a^*|h, s\right) + \delta v^y(X^*, a^*)$$
$$+ \delta\left(1 - \lambda\right) E_{s'}\left[U^o\left(C^y(x\left(X^*, a^*\right), s')|a\right) - U^y\left(C^y(x\left(X^*, a^*\right), s')|a^*\right)\right]$$
$$\geq -e(\tilde{X}, a^*|h, s) + \delta v^y(\tilde{X}, a^*)$$
$$+ \delta\left(1 - \lambda\right) E_{s'}\left[U^o\left(C^y(x(\tilde{X}, a^*), s')|a\right) - U^y\left(C^y(x(\tilde{X}, a^*), s')|a^*\right)\right].$$

Suppose, to derive a contradiction, that $C^y(x(X^*, a^*), s') = C^y(x(\tilde{X}, a^*), s')$. Then, the expression above can be rewritten as:

$$e(\tilde{X}, a^*|h, s) - e(X^*, a^*|h, s) + \delta\left(v^y(X^*, a^*) - v^y(\tilde{X}, a^*)\right) \geq 0.$$

However, this is impossible since (i) $e(X^*, a^*|h, s) > e(\tilde{X}, a'|h, s)$ (by assumption), and because (ii) $v^y(X^*, a^*) \leq v^y(\tilde{X}, a^*)$ since we assume that $X^* \subset \tilde{X}$. A contradiction.

Consider the second part of the proposition. Note that, since a^* is the optimal choice, we have

$$- e\left(X^*, a^*|h, s\right) + \delta E_{s'}\left[\left(1 - \lambda\right) U^y\left(C^y(x\left(X^*, a^*\right)|a^*\right)\right.$$
$$+ \lambda U^o\left(C^y(x\left(X^*, a^*\right)|a\right) + \beta v^o\left(a^*, H(x(X^*, a^*), s'')\right)\right]$$
$$\geq -e\left(X^*, \bar{a}|h, s\right) + \delta E_{s'}\left[\left(1 - \lambda\right) U^y\left(C^y(x\left(X^*, \bar{a}\right)|\bar{a}\right)\right.$$
$$\left. + \lambda U^o\left(C^y(x\left(X^*, \bar{a}\right)|a\right) + \beta v^o\left(\bar{a}, H(x(X^*, \bar{a}), s'')\right)\right].$$

Now, to derive a contradiction, let $C^y(x\left(X^*, a^*\right) = C^y(x\left(X^*, \bar{a}\right)$ and $x(X^*, a^*), s') = x(X^*, \bar{a}), s')$. The expression can then be rewritten as:

$$e\left(X^*, \bar{a}|h, s\right) - e\left(X^*, a^*|h, s\right) + \delta(1 - \lambda) E_{s'}\left[U^y\left(C^y(x\left(X^*, a^*\right)|a^*\right) - U^y\left(C^y(x\left(X^*, \bar{a}\right)|\bar{a}\right)\right]$$
$$+ \lambda \beta E_{s'}\left[v^o\left(a^*, H(x(X^*, a^*), s'')\right) - v^o\left(\bar{a}, H(x(X^*, \bar{a}), s'')\right)\right] \geq 0.$$

However, given the condition stated in the proposition the first term is non-positive, and $\bar{a}$ is (by Assumption 2) the unique maximizer of U^y and U^o (which enters in v^o), so that the remaining expression is negative, giving a contradiction. □

Proposition A.3. *If the optimal X is a singleton, then the parent is not authoritative.*

Proof The result follows immediately from Proposition A.2 □

Proposition A.4. *If the optimal a' is such that $U^y\left(c|a'\right) = U^o\left(c|a\right)$, then the parent is not authoritarian.*

3

Proof If $U^y(c|a^*) = U^o(c|a)$, then equation (9) above simplifies to

$$v^o(a, h, s) = U^o(c^o|a) - e(X^*, a^*|h, s) + \delta v^y(X^*, a^*).$$

Suppose, to derive a contradiction, that the parent is authoritarian, i.e., there exists an $\tilde{X} \in \mathcal{X}$ such that $v^y(X^*, a^*) < v^y(\tilde{X}, a^*)$ and $e(X^*, a^*|h, s) \geq e(\tilde{X}, a^*|h, s)$. The optimality of X^*, a^* implies:

$$-e(X^*, a^*|h, s) + \delta v^y(X^*, a^*) \geq -e(\tilde{X}, a^*|h, s) + \delta v^y(\tilde{X}, a^*).$$

Since $v^y(X^*, a^*) < v^y(\tilde{X}, a^*)$, we get that:

$$e(X^*, a^*|h, s) < e(\tilde{X}, a^*|h, s).$$

However, this contradicts the condition $e(X^*, a^*|h, s) \geq e(\tilde{X}, a^*|h, s)$. □

A.1.2 The Differentiable Case

In this section, we provide characterization for the differentiable case. Suppose that U^o and U^y are continuous, twice differentiable, and concave in c. In addition, suppose that all choice and state variables are unidimensional, i.e., $[c, h, x, a] \in (R^+)^4$. We introduce the following assumptions.

Assumption 3. *The set $\mathcal{X}(h, s)$ can be expressed as $\mathcal{X}(h, s) = \{X(h, s, r) | r \in [0, 1]\}$, where for any $r, \tilde{r}$ such that $\tilde{r} > r$, $X(h, s, r) \subset X(h, s, \tilde{r})$.*

Assumption 4. *The function e is separable, namely, $e(X(h, s, r), a'|h, s) = e^r(r|h, s) + e^A(a'|h, s)$, where e^r and e^A are twice differentiable convex functions of r and a', respectively, with minima at $\bar{r}$ and $\bar{a}$.*

The decision problem of choosing a' and r can now be written as:

$$v^o(a, h, s) = \max_{a' \in \mathcal{A}, r \in [0,1]} \left\{ U^o(C^o(h, s)|a) - e^r(r|h, s) - e^A(a'|h, s) \right.$$
$$+ \delta E_{s'} \left[(1 - \lambda) U^y(C^y(x(r, a'), s')|a') + \lambda U^o(C^y(x(r, a'), s')|a) \right.$$
$$\left. \left. + \beta v^o(a', H(x(r, a'), s'), s') \right] \right\},$$

where

$$x(r, a') = \operatorname*{argmax}_{x \in X(h, s, r)} \left\{ E_{s'} \left[U^y(C^y(x, s')|a') + \beta v^o(a', H(x, s'), s') \right] \right\}.$$

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If the child's choice of x is interior, the first-order condition for her problem yields:

$$E_{s'}\left[U_{c^y}^y\left(C^y(x\left(r,a'\right),s')|a'\right)C_x^y(x\left(r,a'\right),s')\right.$$
$$\left.+\beta v_{h'}^o\left(a',H(x\left(r,a'\right),s'),s'\right)H_x(x\left(r,a'\right),s')\right]=0.$$

Consider now the parent's choice of a'. If the optimal choice of a' is interior and the function $x\left(r,a'\right)$ is differentiable at the optimum, the first-order condition yields:

$$e_{a'}^A\left(a'|h,s\right)=$$
$$\delta E_{s'}\left[(1-\lambda)\left(U_{c^y}^y\left(C^y(x\left(r,a'\right),s')|a'\right)C_x^y(x\left(r,a'\right),s')x_{a'}\left(r,a'\right)+U_{a'}^y\left(C^y(x\left(r,a'\right),s')|a'\right)\right)\right.$$
$$\left.+\lambda\left(U_{c^y}^o\left(C^y(x\left(r,a'\right),s')|a\right)C_x^y\left(x\left(r,a'\right),s'\right)x_{a'}\left(r,a'\right)\right)\right]$$
$$+\delta\beta E_{s'}\left[v_{a'}^o\left(a',H(x\left(r,a'\right),s'),s'\right)+v_{h'}^o\left(a',H(x\left(r,a'\right),s'),s'\right)H_x(x\left(r,a'\right),s')x_{a'}\left(r,a'\right)\right].$$

Two cases are possible here. First, if $x_{a'}\left(r,a'\right)=0$ at the optimal choice of a', the parent sets:

$$e_{a'}^A(a'|h,s)=\delta\left(1-\lambda\right)E_{s'}\left[U_{a'}^y\left(C^y(x\left(r,a'\right),s')|a'\right)\right]+\delta\beta E_{s'}\left[v_{a'}^o\left(a',H(x\left(r,a'\right),s'),s'\right)\right].\quad(10)$$

In this case, the optimal choice is to set $a'=\bar{a}$. To see why, note that Assumption 2 implies that (i) $e_{a'}^A(a'|h,s)$ is minimized at $\bar{a}$, and that (ii) $U^y\left(c^y,s'\right)|a')$ and $v^o\left(a',h''\right)$ are maximized at $\bar{a}$. The case of $x_{a'}\left(r,a'\right)=0$ covers the possibilities that $X\left(h,s,r\right)$ is a singleton and that the child's choice is at a corner.

The second case is when $x_{a'}\left(r,a'\right)\neq0$ at the optimal choice of a'. In this case, the first-order condition of the child holds with equality. Then, applying the envelope theorem yields:

$$e_{a'}^A(a'|h,s)=\delta E_{s'}\left[(1-\lambda)U_{a'}^y\left(C^y(x\left(r,a'\right),s')|a'\right)\right.$$
$$\left.+\lambda U_{c^y}^o\left(C^y(x\left(r,a'\right),s')|a\right)C_x^y\left(x\left(r,a'\right),s'\right)x_{a'}\left(r,a'\right)\right]$$
$$+\beta\delta E_{s'}\left[v_{a'}^o\left(a',H(x\left(r,a'\right),s'),s'\right)+\lambda v_{h'}^o\left(a',H(x\left(r,a'\right),s'),s'\right)H_x\left(x\left(r,a'\right),s'\right)x_{a'}\left(r,a'\right)\right].$$

Consider now some special cases. First, if $\lambda=0$ (pure altruism), then the solution is again given by equation (10), so that parents set $a'=\bar{a}$. If $\lambda=1$ (pure paternalism), setting $a'=\bar{a}$ is generally not optimal as long as $x_{a'}\left(r,a'\right)\neq0$. Purely paternalistic parents are especially prone to distort their children's choice, because they disregard the utility cost that children suffer when preferences are molded away from the natural inclination.

Consider, next, the choice of r. There are two possible cases. First, suppose that the optimal r does not bind the child's choice. Namely, there exists an interval $[r', r'']$ with $r' < r < r''$ such that $x(r, a)$ takes on the same value for any $r \in [r', r'']$. In this case the choice of x is independent of r in a neighborhood of the optimum, and the parent sets $r = \bar{r}$.[45] Second, suppose that r does constrain the child's choice, i.e., there does not exist an interval around the optimal r where the child's choice is constant. In this case (generically), the parent sets $r \neq \bar{r}$. If, in addition, the policy function $x(r, a')$ is differentiable at the optimum, then a necessary condition for optimality is:

$$
e_r^r(r|h, s) = \delta (1 - \lambda) E_{s'} \underbrace{\left[\begin{array}{c} U_{c^y}^y (C^y(x(r, a'), s')|a') C_x^y (x(r, a'), s') \\ + \beta v_{h'}^o (a', H(x(r, a'), s'), s') H_x(x(r, a'), s') \end{array} \right]}_{\leq 0} x_r (r, a')
$$

$$
+ \delta \lambda E_{s'} \underbrace{\left[\begin{array}{c} U_{c^y}^o (C^y(x(r, a'), s')|a) C_x^y (x(r, a'), s') \\ + \beta v_{h'}^o (a', H(x(r, a'), s'), s') H_x(x(r, a'), s') \end{array} \right]}_{?} x_r (r, a').
$$

The parent trades off the effort cost associated with choosing $r \neq \bar{r}$ with the benefits of expanding or restricting the choice set. Even though the lifetime utility of the child is decreasing in r, a paternalistic parent may still gain from restricting the child's choice set by increasing r. If $\lambda = 0$, the altruistic parent will never spend effort to restrict the choice set, as stated in Proposition A.1 above, but may choose to expand the child's choice set to increase her utility. Conversely, if $\lambda = 1$, the parent may choose to expand or restrict the choice set so as to better align the child's choice with the parent's preferences. An authoritarian behavior requires (i) that the parent be paternalistic and (ii) that actively restricting the child's choice set increases the utility the parent derives from the child's choices.

A.2 Proofs for Lemmas and Propositions

Proof of Lemma 5.1: First, note that

$$
c^y(x^e(a')) = \frac{y_H^{1-\sigma} (1 - x^e(a'))^{1-\sigma}}{1 - \sigma}.
$$

Next, differentiating $x^e(a')$ yields:

$$
\frac{dx^e(a')}{da'} = -\frac{1+R}{\sigma \beta R \left(1 + R \left(\frac{a'}{R\beta} \right)^{\frac{1}{\sigma}} \right)^2} \left(\frac{a'}{R\beta} \right)^{\frac{1-\sigma}{\sigma}}.
$$

---

[45]If, in addition, the parent chooses $a' = \bar{a}$, then she is a neglecting parent.

Thus, differentiating $c^y(x^e(a'))$ with respect to a' yields:

$$
\begin{aligned}
c^y_{a'}(x^e(a')) &= -y_H^{1-\sigma}\left(1 - x^e(a')\right)^{-\sigma}\frac{dx^e(a')}{da'}\\
&= \frac{y_H^{1-\sigma}(1+R)^{1-\sigma}}{\sigma\beta R\left(1 + R\left(\frac{a'}{R\beta}\right)^{\frac{1}{\sigma}}\right)^{2-\sigma}}\left(\frac{a'}{R\beta}\right)^{\frac{1-2\sigma}{\sigma}},
\end{aligned}
$$

where the last equality follows from replacing $x^e(a')$ by its expression in (5). Substituting $x^e(a')$, $c^y(x^e(a'))$, and $c^y_{a'}(x^e(a')$ into (6) and rearranging terms yields (7).

Notice that the lemma only states a necessary condition for an optimum. For a given interior solution satisfying (6) to be a local maximum, one must also check that the second-order condition holds. In particular, let:

$$
Q(a', R) = \lambda(a'-1)\left(\frac{1}{\sigma}\frac{1}{a'}\frac{1}{1 + \left(\frac{a'}{\beta R^{1-\sigma}}\right)^{\frac{1}{\sigma}}}\right).
$$

Then, the second-order conditions require that $\frac{\partial Q(a',R)}{\partial a'} < 0$ for the value of a' that satisfies (6) with equality. As long as $a' > 1$ the marginal benefit is decreasing in a' everywhere, and the local optimum is unique. In particular, the condition $\partial Q(a',R)/\partial a' < 0$ must be true at the global optimum. $\square$

Proof of Lemma 5.2: The right-hand side of (7) is negative for $\lambda = 0$, implying that $a' = \bar{a}$ for $\lambda = 0$ and, by continuity, also for a range of λ sufficiently close to zero. At $\lambda = 1$, the second term in (7) is zero, and the condition can be satisfied only by setting $a' = 1$, so that the first term is zero as well. $\square$

Proof of Proposition 5.1: First note that if $\lambda \leq \sigma\frac{\bar{a}}{\bar{a}-(1-\sigma)}$, the right-hand side of (7) is negative for any a' and R. Hence, the inequality is strict and we must have $a' = \bar{a}$. For the case $\lambda > \sigma\frac{\bar{a}}{\bar{a}-(1-\sigma)}$, the threshold $\bar{R}$ results from setting $a' = \bar{a}$ and then equating the right-hand side of (7) to zero. Hence, if $R = \bar{R}$ condition (7) holds as an equality at $a' = \bar{a}$, so that $a' = \bar{a}$ is optimal. For $R < \bar{R}$, at $a' = \bar{a}$ the right-hand side of (7) is negative, so that we are at the corner solution and $a' = \bar{a}$ is optimal as well. For $R > \bar{R}$, notice that the right-hand side of (7) is strictly decreasing in R, which implies that the optimal a is strictly decreasing in R also in this range. Finally, when R goes to infinity, the right-hand side of (7) converges to $\lambda(a'-1)/\sigma a' - (1-\lambda)/(1-\sigma)$. Setting this expression equal to zero implies that $\bar{a}^* = \lim_{R\to\infty} a^* = \lambda(1-\sigma)/(\lambda-\sigma)$. $\square$

Proof of Proposition 5.2: The results for the choice between authoritative and permissive parenting in the region $\mu \leq \hat{\mu}(R)$ follow from Proposition 5.1. Here we need to establish that there

exists a function $\hat{\mu}(R)$ that satisfies $0 < \hat{\mu}(R) \le \bar{\mu}$ and such that authoritarian parenting is optimal for $\mu \ge \hat{\mu}(R)$. Consider the case $\mu = \bar{\mu}$. We have:

$$\tilde{w}\left(X^{HOME}, \bar{a}\right) = \frac{y_H^{1-\sigma}}{1-\sigma}\left((\lambda + (1-\lambda)\bar{a})\frac{(1-\bar{x}^e)^{1-\sigma}}{1-\sigma} + \beta\frac{(1+R\bar{x}^e)^{1-\sigma}}{1-\sigma}\right),$$

$$\tilde{w}\left(X^{FREE}, a^*\right) = \frac{y_H^{1-\sigma}}{1-\sigma}$$
$$\left((\lambda + (1-\lambda)a^*)\frac{(1-x^e(a^*))^{1-\sigma}}{1-\sigma} + \beta\frac{(1+Rx^e(a^*))^{1-\sigma}}{1-\sigma}\right).$$

Since under an authoritarian style the choices of a' and $\bar{x}$ are optimal from the parent's perspective, we have:

$$\tilde{w}\left(X^{HOME}, \bar{a}\right) \ge \tilde{w}\left(X^{FREE}, a^*\right).$$

Now consider the case $\lambda = 0$. Then, the argument in the text implies that $a^* = \bar{a}$ and $x^e(\bar{a}) = \bar{x}^e$. Hence, we have:

$$\tilde{w}\left(X^{HOME}, \bar{a}\right) = \frac{y_H^{1-\sigma}}{1-\sigma}\left(\bar{a}\frac{(1-\bar{x}^e)^{1-\sigma}}{1-\sigma} + \beta\frac{(1+R\bar{x}^e)^{1-\sigma}}{1-\sigma}\right) = \tilde{w}\left(X^{FREE}, \bar{a}\right).$$

Thus, the parent is indifferent between being authoritarian and granting freedom to the child, so that $\hat{\mu}(R) = \bar{\mu}$ for all R when $\lambda = 0$. Similarly, consider the case $\lambda = 1$. Then, the argument in the text implies that $a^* = 1$ and $e(1) = \bar{x}^e$, so that we have:

$$\tilde{w}\left(X^{HOME}, 1\right) = \frac{y_H^{1-\sigma}}{1-\sigma}\left(\frac{(1-\bar{x}^e)^{1-\sigma}}{1-\sigma} + \beta\frac{(1+R\bar{x}^e)^{1-\sigma}}{1-\sigma}\right) = \tilde{w}\left(X^{FREE}, 1\right).$$

Thus, for $\lambda = 1$ we have $\hat{\mu}(R) = \bar{\mu}$ for all R as well. Finally, consider interior levels of paternalism, $\lambda \in (0, 1)$. Then, $x^e(a^*) = \bar{x}^e$, implying that $\tilde{w}\left(X^{HOME}, \bar{a}\right) > \tilde{w}\left(X^{FREE}, a^*\right)$, since $\bar{x}^e$ is chosen optimally, whereas $x^e(a^*)$ is distorted from the parent's perspective. In particular, if the parent is permissive, as long as $R > 0$ we have:

$$\tilde{w}\left(X^{HOME}, \bar{a}\right) = \frac{y_H^{1-\sigma}}{1-\sigma}\left((\lambda + (1-\lambda)\bar{a})\frac{(1-\bar{x}^e)^{1-\sigma}}{1-\sigma} + \beta\frac{(1+R\bar{x}^e)^{1-\sigma}}{1-\sigma}\right)$$
$$> \frac{y_H^{1-\sigma}}{1-\sigma}\left((\lambda + (1-\lambda)\bar{a})\frac{(1-x^e(\bar{a}))^{1-\sigma}}{1-\sigma} + \beta\frac{(1+Rx^e(\bar{a}))^{1-\sigma}}{1-\sigma}\right)$$
$$= \tilde{w}\left(X^{FREE}, \bar{a}\right),$$

since $x^e(\bar{a}) < \bar{x}^e$, and $\bar{x}^e$ is by definition optimal. A similar argument applies if the parent is authoritative (in this case the cost for the parent has two components: the child's lower effort and

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the child's lower felicity. To summarize, when $\lambda \in (0,1)$, the parents prefer to be authoritarian at $\mu = \bar{\mu}$, so that we must have $\hat{\mu}(R) < \bar{\mu}$. In the case $R = 0$, we have $a^* = \bar{a}$ and $x^e(\bar{a}) = \bar{x}^e = 0$, thus $\tilde{w}\left(X^{HOME}, \bar{a}\right) = \tilde{w}\left(X^{FREE}, \bar{a}\right)$. For the case $\lambda \in (0,1)$ and $R > 0$, the existence of a $\hat{\mu}(R) \in (0, \bar{\mu})$ that yields indifference between authoritarian parenting and granting freedom to the child follows because the utility of granting freedom is positive and independent of μ, whereas the utility of being authoritarian is strictly increasing in μ and converges to zero as μ approaches zero. Moreover, for $\mu > \hat{\mu}$, the proof implies *a fortiori* that authoritarian parenting is strictly optimal for all $\lambda \in [0,1]$. $\qquad \square$

Proof of Proposition 5.4: For high-skill parents, the argument of Proposition 5.2 applies (note, in particular, that $\hat{\mu}(R)$ is the same). For low-skill parents, the only margin is permissive vs. authoritarian. If either $\mu \leq \hat{\mu}(R)$ and $R \leq \bar{R}$, or $\lambda \leq \sigma \bar{a}/(\bar{a} - (1 - \sigma))$ (or both), then $\hat{\mu}(R) = \hat{\mu}_L(R)$ since authoritative parenting is an irrelevant alternative even for high-skill parents. Thus, along the relevant margin high- and low-skill parents face the same problem. Next, we establish that, in the range where $\lambda > \sigma \bar{a}/(\bar{a} - (1 - \sigma))$ and $R > \bar{R}$, there exists a $\hat{\mu}_L(R)$ function such that $0 < \hat{\mu}_L(R) \leq \hat{\mu}(R)$, and such that low-skill parents prefer authoritarian parenting for $\mu \geq \hat{\mu}_L(R)$ and permissive parenting otherwise. Suppose, first that $\mu = \hat{\mu}(R)$. Then, by the definition of $\hat{\mu}(R)$, parents are indifferent between an authoritative and an authoritarian parenting style. Moreover, since $R > \bar{R}$, parents strictly prefer to be authoritative than permissive. Thus, at $\mu = \hat{\mu}(R)$, parents (including low-skill ones) strictly prefer being authoritarian than permissive. Hence, low-skill parents choose to be authoritarian in this range. Second, if $\mu = 0$, parents strictly prefer being permissive than authoritarian. Hence, low-skill parents choose to be authoritarian for a range of low μ. Continuity establishes, then, that there there exists $\hat{\mu}_L(R) \in [0, \hat{\mu}(R)]$ such that low-skill parents prefer authoritarian parenting for $\mu \geq \hat{\mu}_L(R)$ and permissive parenting otherwise. $\qquad \square$

Proof of Lemma 6.1: We note first that, for all $z > 0$, the function

$$F(z) = \frac{\ln z}{z^\xi - 1} \qquad (11)$$

has the following properties: $F(z) > 0$ if $\xi > 0$, $F(z) < 0$ if $\xi < 0$, $F'(z) < 0$ for all $\xi \neq 0$. To see why $F'(z) < 0$, note that

$$F'(z) = \frac{z^\xi \left(1 - \ln z^\xi\right) - 1}{z \left(z^\xi - 1\right)^2}, \qquad (12)$$

where $z^\xi \left(1 - \ln z^\xi\right) < 1$ for all $z < 1$ and $z^\xi \left(1 - \ln z^\xi\right) = 1$ for $z = 1$. The denominator is positive for all $z \neq 1$. The numerator is always negative for $z \neq 1$ and equal to zero at $z = 1$. Since as $z \to 1$ both the numerator and the denominator tend to zero, we apply the L'Hôpital Theorem

and obtain:

$$\lim_{x \to 1} \frac{z^{\xi} \left(1 - \ln z^{\xi}\right) - 1}{z \left(z^{\xi} - 1\right)^2} = -\frac{1}{2}.$$

This establishes that $F'(z) < 0$ for all $z > 0$.

Next, observe that:

$$P'_J = \frac{1 - \psi^{a-1}}{1 - \left(\frac{y_L}{y_H}\right)^{1-a}} \left(\frac{\ln \frac{y_H}{y_L}}{1 - \left(\frac{y_H}{y_L}\right)^{1-a}} - \frac{\ln \psi}{1 - \psi^{1-a}}\right).$$

We therefore need to prove that

$$\frac{\ln \frac{y_H}{y_L}}{\left(\frac{y_H}{y_L}\right)^{1-a} - 1} < \frac{\ln \psi}{\psi^{1-a} - 1},$$

where both $\dfrac{\ln \frac{y_H}{y_L}}{\left(\frac{y_H}{y_L}\right)^{1-a} - 1}$ and $\dfrac{\ln \psi}{\psi^{1-a} - 1}$ are of the form F as in (11).

We break down the analysis into two cases. First, suppose that $a < 1$. Then, both terms are negative. Turn the two terms positive by pre-multiplying by minus one:

$$\frac{\ln \psi}{\psi^{1-a} - 1} > \frac{\ln \left(\frac{y_H}{y_L}\right)}{\left(\frac{y_H}{y_L}\right)^{1-\alpha} - 1},$$

where, recall, $\psi < \frac{y_H}{y_L}$. The inequality follows then from the properties of the function F in (11), and specifically $F' < 0$.

Next, suppose $a > 1$. Then, both terms are positive. In this case, we must show that

$$\frac{\ln \frac{y_H}{y_L}}{1 - \left(\frac{y_H}{y_L}\right)^{1-a}} > \frac{\ln \psi}{1 - \psi^{1-a}} \Leftrightarrow$$

$$\frac{\ln \frac{y_H}{y_L}}{\left(\frac{y_H}{y_L}\right)^{1-a} - 1} < \frac{\ln \psi}{\psi^{1-a} - 1}.$$

The last inequality follows again from the properties of the function F in (11). □

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Figure B.1: Share of Authoritarian Parents, Employment Share of Agriculture, and Tertiary Enrollment Rate
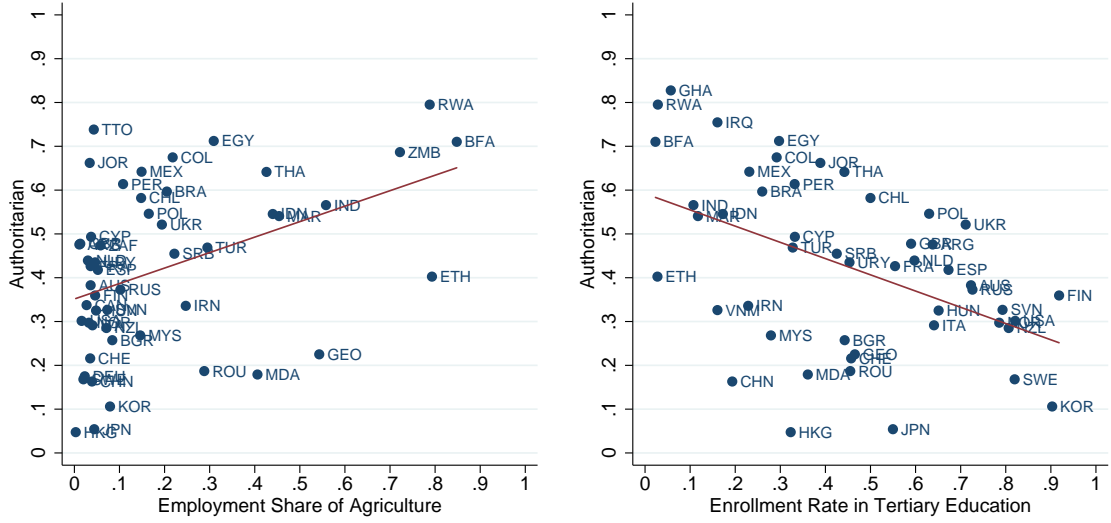
The left panel shows correlation between the fraction of authoritarian parents in the Wave 5 of the WVS and the employment in agriculture in 2005 expressed as percentage of total employment. The right panel shows the correlation between the fraction of authoritarian parents in Wave 5 and the gross enrollment ratio in tertiary education in 2005. The data about employment in agriculture and tertiary education are from the World Bank (World Development Indicators).

B   Additional Figures and Tables

B.1   World Value Survey Estimates: Complete Tables

Tables B.1 and B.2 reproduce the results of Tables 3.1 and 3.2, respectively, while also displaying the estimates for the control variables.

B.2   Authoritarian Parenting and Economic Development

Figure B.1 displays the cross-country correlation between authoritarian parenting (data from the WVS, as defined in the text) and (i) the employment share of agriculture; (ii) the enrollment rate in tertiary education.

B.3   Parenting Values in the General Social Survey

The General Social Survey (GSS) includes a set of questions that are comparable to the parenting questions in the WVS. Specifically, respondents are asked the following question: "If you had to choose, which thing on this list would you pick as the most important for a child to learn to

Table B.1: Inequality and Parenting Styles Including Control Variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	**Reference Category: Permissive**							
	*Authoritative*							
Inequality	2.68***	2.39**	2.65***	2.58**	2.62***	2.42**	1.77***	2.12**
	(0.27)	(0.94)	(0.32)	(1.05)	(0.28)	(0.94)	(0.26)	(0.76)
College	0.67***	0.62***	0.64***	0.61***	0.67***	0.62***	0.97	0.95
	(0.09)	(0.06)	(0.09)	(0.07)	(0.09)	(0.06)	(0.07)	(0.06)
Comp. HS	0.73***	0.82***	0.73***	0.82***	0.74***	0.82***	1.10	1.00
	(0.05)	(0.03)	(0.06)	(0.03)	(0.06)	(0.03)	(0.11)	(0.04)
Age	0.98***	0.98**	1.01	1.01	0.98***	0.98***	1.00	1.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Age sq.	1.00***	1.00***	1.00	1.00	1.00***	1.00***	1.00	1.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Female	0.67***	0.64***	0.71***	0.67***	0.65***	0.63***	0.75***	0.74***
	(0.03)	(0.03)	(0.03)	(0.04)	(0.03)	(0.03)	(0.03)	(0.04)
GDP	0.26***	0.30	0.24***	0.18*	0.26***	0.29	0.36***	0.42
	(0.08)	(0.27)	(0.08)	(0.18)	(0.08)	(0.27)	(0.11)	(0.34)
Religiosity					1.19***	1.10**		
					(0.08)	(0.05)		
	*Authoritarian*							
Inequality	2.30***	2.00**	2.41***	1.95*	2.04***	2.14**	2.22***	2.29***
	(0.34)	(0.68)	(0.43)	(0.72)	(0.27)	(0.73)	(0.36)	(0.73)
College	0.35***	0.33***	0.32***	0.31***	0.35***	0.33***	0.41***	0.41***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.04)	(0.06)	(0.05)
Comp. HS	0.54***	0.66***	0.51***	0.66***	0.55***	0.67***	0.67***	0.73***
	(0.07)	(0.03)	(0.07)	(0.03)	(0.07)	(0.03)	(0.08)	(0.03)
Age	0.96***	0.96***	0.94***	0.94***	0.96***	0.96***	0.97***	0.97***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Age sq.	1.00***	1.00***	1.00***	1.00***	1.00***	1.00***	1.00***	1.00***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Female	0.77***	0.75***	0.79***	0.76***	0.73***	0.72***	0.75***	0.75***
	(0.03)	(0.03)	(0.03)	(0.04)	(0.03)	(0.03)	(0.02)	(0.03)
GDP	0.35**	0.44	0.39*	0.49	0.40**	0.43	0.34***	0.33*
	(0.16)	(0.36)	(0.21)	(0.33)	(0.16)	(0.35)	(0.12)	(0.19)
Religiosity					1.82***	1.58***		
					(0.18)	(0.12)		
CFE	NO	YES	NO	YES	NO	YES	NO	YES
N	45,482	45,482	31,331	31,331	44,505	44,505	47,488	47,488

Dependent variable: parenting style (indicator). The reference category is permissive. All the models are multinomial logistic models and the displayed coefficients are RRRs. Columns (1) and (2) are based on the whole sample, columns (3) and (4) only considers parents, columns (5) and (6) include a control for religiosity, columns (7) and (8) consider an alternative classification of parenting style described in the text. All models include wave fixed effects and controls for gender, age, age squared, and GDP per capita (log). Inequality is defined as the ratio between the 90th and 10th percentile of gross earnings of full-time dependent employees. Standard errors (in parentheses) are clustered at the country level. *, **, *** indicate statistical significance at the 10%, 5%, and 1% level respectively.

Table B.2: Tax Progressivity, Safety Nets, Inequality, and Parenting Styles

	(1)	(2)	(3)	(4)	(5)	(6)
	Reference Category: Permissive					
	Authoritative			*Authoritarian*		
Tax Progressivity	0.07***		0.25**	0.13**		0.24
	(0.07)		(0.16)	(0.12)		(0.22)
Social Expenditure		0.25***	0.54		0.35***	0.62
		(0.10)	(0.22)		(0.12)	(0.29)
Inequality			1.89***			1.59**
			(0.32)			(0.30)
College	0.52***	0.56***	0.56***	0.28***	0.29***	0.30***
	(0.06)	(0.05)	(0.05)	(0.04)	(0.04)	(0.04)
Compl. HS	0.64***	0.61***	0.68***	0.49***	0.46***	0.53***
	(0.08)	(0.07)	(0.06)	(0.08)	(0.08)	(0.07)
Age	0.98***	0.98***	0.98***	0.96***	0.96***	0.95***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Age sq.	1.00***	1.00***	1.00***	1.00***	1.00***	1.00***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Female	0.69***	0.70***	0.63***	0.79***	0.80***	0.74***
	(0.04)	(0.04)	(0.03)	(0.03)	(0.03)	(0.03)
GDP	0.58	0.52	0.46*	0.55	0.50	0.56
	(0.32)	(0.29)	(0.21)	(0.26)	(0.24)	(0.29)
N	41,079	54,365	32,196	41,079	54,365	32,196

Dependent variable: parenting style (indicator). The reference category is permissive. All models are multinomial logistic models and the displayed coefficients are RRRs. All models include wave fixed effects and controls for gender, age, age squared, and GDP per capita (log). Tax progressivity is from Andrew Young School of Policy Studies (2010). Safety nets are expressed as the aggregate social expenditure in percentage of GDP. Inequality is defined as the ratio between the 90th and 10th percentile of gross earnings of full-time dependent employees. GDP is the Expenditure-side real GDP at chained PPPs (Source: Penn World Table 9.0). Standard errors (in parentheses) are clustered at the country level. *, **, *** indicate statistical significance at the 10%, 5%, and 1% level respectively.
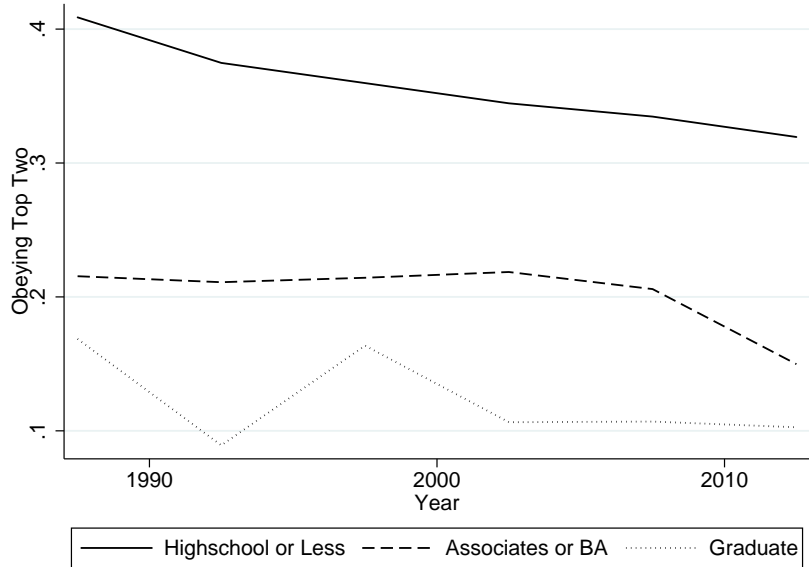
Figure B.2: U.S. Parents listing "To Obey" among Top Two Desirable Child Qualities, by Education (Percent of Adult Population)
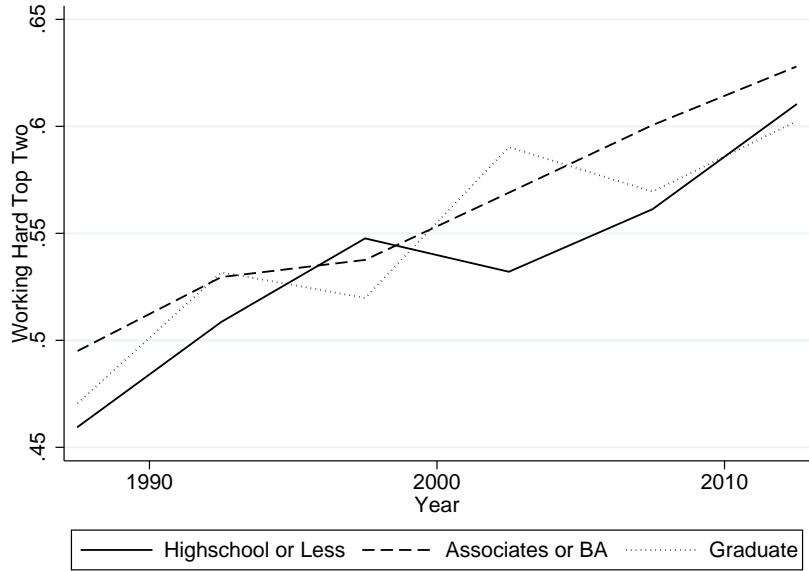

Data from General Social Survey (GSS, 1986–2014). The figure displays the fraction of adults who list "to obey" among the top two values that are important for children to learn, from a list that includes "to obey," "to be popular and well liked," "to think for oneself," "to work hard," and "to help others." Answers are averaged over five-year intervals.

prepare him or her for life?" The respondents are also asked for their second, third, and fourth priority on the list. The possible answers include "to obey," "to be popular and well liked," "to think for oneself," "to work hard," and "to help others." In line with our classification of the parenting questions in the WVS, we can identify the quality "to obey" with an authoritarian parenting style, and "to work hard" with an authoritative parenting style.

Figure B.2 and Figure B.3 display the fraction of respondents listing "to obey" and "to work hard" among the top two desired child qualities. The data cover the period 1986 to 2014 and are broken down by the education of the respondent. The results are consistent with the trends documented in the main text. Obedience is valued more highly by respondents with less education, and across education group this value is met with declining approval over time, corresponding to a decline in authoritarian parenting. At the same time, there is a strong upward trend (in all education groups) in the emphasis on "hard work," consistent with a rise in authoritative or "helicopter" parenting.

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Figure B.3: U.S. Parents listing "To Work Hard" among Top Two Desirable Child Qualities, by Education (Percent of Adult Population)

Data from General Social Survey (GSS, 1986–2014). The figure displays the fraction of adults who list "to work hard" among the top two values that are important for children to learn, from a list that includes "to obey," "to be popular and well liked," "to think for oneself," "to work hard," and "to help others." Answers are averaged over five-year intervals.

B.4   Class Differences in Parenting Style in the NLSY

The NLSY 1997 data discussed in Section 3.4 can also be used to examine class differences in parenting style. In Section 3.3, we have already established (using time use data and GSS data on the approval of corporal punishment) that in recent decades in the United States, the authoritarian style (proxied by approval of corporal punishment) is more prevalent among individuals with less education, whereas the authoritative style (proxied by time-intensive parenting) is more prevalent among those with more education. The NLSY data leads to the same conclusions. Table B.3 provides a breakdown of mothers' and father's parenting styles by education of the parent, based on 1998 data on parenting style of residential parents.[46] We find that for both mothers and fathers, authoritarian and neglecting parenting is most prevalent for those with the lowest education level (up to high school), and authoritative parenting is most common among parents with advanced degrees (master, Ph.D., or professional degree).

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[46]We use the 1998 parenting style here because data on degrees earned by the parents are not available for 1997. However, combining the parenting style measured in 1997 with degree information in 1998 leads to similar results.

Table B.3: Breakdown of Parenting Style by Education of the Parent (in Percent) in NLSY 1997

	Neglecting	Permissive	Authoritarian	Authoritative
	Mother's Parenting Style			
Up to High School	16.33	30.54	17.33	35.79
Bachelor or Some College	13.35	31.99	13.71	40.95
Advanced Degree	7.43	33.14	14.41	45.02
Total	14.61	31.12	16.44	37.83
	Father's Parenting Style			
Up to High School	18.25	24.99	24.03	32.73
Bachelor or Some College	14.35	28.27	21.94	35.41
Advanced Degree	7.23	27.48	19.48	45.81
Total	15.30	25.83	22.78	36.09

Based on 1998 parenting style of residential parents in NLSY 1997 data set (no. of observations: 4,422 for mothers, 3,209 for fathers). The table shows the proportion of parents adopting each of the four parenting style in 1998, broken down by the education level of parents.

Table B.4 and B.5 provide results for multinomial logit regressions that also control for the parent's age, age squared, and race and ethnicity controls. Even after introducing additional controls, parents with completed higher education (bachelor's degree or higher) have a substantially lower likelihood of being neglecting parents, and correspondingly large and highly significant RRRs for the other three parenting styles (neglecting is the reference category). Moreover, the strongest impact is that of having an advanced degree on the RRR of authoritative relative to neglecting parenting, with values in excess of 5.0 for both mothers and fathers.

B.5   NLSY Estimates of Success in Education: Complete Tables

Table B.6 reproduces the results of Table 3.3 also displaying the coefficients of all control variables.

Table B.4: Mothers' Parenting Style and Education in NLSY 1997: Multinomial Logistic Regressions

	Reference Category: Neglecting		
	Mothers		
	Permissive	Authoritarian	Authoritative
High School Diploma/GED	1.59***	1.01	1.65***
	(0.21)	(0.15)	(0.21)
Some College	1.72***	1.07	2.03***
	(0.34)	(0.24)	(0.39)
Bachelor's	2.84***	1.68**	3.53***
	(0.59)	(0.39)	(0.71)
Graduate Degree	3.57***	2.83***	5.28***
	(1.16)	(0.99)	(1.66)
Age	1.04	1.08	1.24*
	(0.12)	(0.14)	(0.14)
Age Squared	1.00	1.00	1.00*
	(0.00)	(0.00)	(0.00)
Black	1.17	1.54***	1.73***
	(0.15)	(0.22)	(0.21)
Asian	0.71	1.65	1.16
	(0.29)	(0.68)	(0.44)
Other	0.97	0.81	0.97
	(0.19)	(0.18)	(0.19)
Hispanic	1.07	1.46**	1.23
	(0.18)	(0.27)	(0.20)

*Based on 1998 parenting style of residential parents in NLSY 1997 data set (no. of observations: 4,285). Dependent variable: Mother's parenting style (indicator). The reference category is neglecting. Omitted category is less than high school for education and white, non-Hispanic for race/ethnicity. All the models are multinomial logistic models. Standard errors in parentheses. The displayed coefficients are RRRs. *, **, *** indicate statistical significance at the 10%, 5%, and 1% level respectively.*

Table B.5: Fathers' Parenting Style and Education in NLSY 1997: Multinomial Logistic Regressions

| | Reference Category: Neglecting | | |
| | Fathers | | |
	Permissive	Authoritarian	Authoritative
High School Diploma/GED	1.44**	1.58***	1.39**
	(0.23)	(0.25)	(0.20)
Some College	1.88**	1.79**	1.85**
	(0.48)	(0.47)	(0.45)
Bachelor's	3.42***	3.06***	4.44***
	(0.81)	(0.74)	(0.99)
Graduate Degree	3.81***	3.20***	5.08***
	(1.12)	(0.98)	(1.43)
Age	1.11	1.03	1.11
	(0.09)	(0.09)	(0.09)
Age Squared	1.00	1.00	1.00
	(0.00)	(0.00)	(0.00)
Black	0.98	1.15	1.24
	(0.16)	(0.19)	(0.19)
Asian	0.70	1.87	0.99
	(0.32)	(0.76)	(0.41)
Other	0.89	1.07	1.06
	(0.22)	(0.25)	(0.24)
Hispanic	1.13	1.58**	1.10
	(0.22)	(0.31)	(0.21)

*Based on 1998 parenting style of residential parents in NLSY 1997 data set (no. of observations: 3,135). Dependent variable: Father's parenting style (indicator). The reference category is neglecting. Omitted category is less than high school for education and white, non-Hispanic for race/ethnicity. All the models are multinomial logistic models. Standard errors in parentheses. The displayed coefficients are RRRs. *, **, *** indicate statistical significance at the 10%, 5%, and 1% level respectively.*

Table B.6: Parenting Style and Educational Outcomes: Full Results

	(1)	(2)	(3)	(4)	(5)	(6)
	Reference Category: Neglecting					
Outcome:	GPA			Bachelor's Degree		
Permissive Mother	0.05	0.08**	0.08**	0.07***	0.06***	0.06**
	(0.04)	(0.04)	(0.04)	(0.02)	(0.02)	(0.03)
Authoritarian Mother	-0.02	-0.01	-0.03	0.03	0.02	0.02
	(0.04)	(0.04)	(0.05)	(0.03)	(0.03)	(0.03)
Authoritative Mother	0.10***	0.14***	0.13***	0.09***	0.08***	0.06**
	(0.04)	(0.04)	(0.04)	(0.02)	(0.02)	(0.03)
Permissive Father	0.17***	0.13***	0.12***	0.10***	0.06***	0.08***
	(0.03)	(0.03)	(0.04)	(0.02)	(0.02)	(0.03)
Authoritarian Father	0.06	0.03	0.06	0.03	-0.01	0.01
	(0.03)	(0.03)	(0.04)	(0.02)	(0.02)	(0.03)
Authoritative Father	0.18***	0.15***	0.15***	0.10***	0.08***	0.09***
	(0.03)	(0.03)	(0.04)	(0.02)	(0.02)	(0.03)
Age	0.34	0.18	0.18	0.24	0.31	0.42*
	(0.33)	(0.33)	(0.38)	(0.21)	(0.22)	(0.25)
Age squared	-0.01	-0.00	-0.00	-0.00	-0.00	-0.01*
	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)
Education Mother		0.02***	0.03***		0.03***	0.02***
		(0.00)	(0.00)		(0.00)	(0.00)
Education Father		0.03***	0.03***		0.03***	0.03***
		(0.00)	(0.00)		(0.00)	(0.00)
Black		-0.23***	-0.21***		-0.07***	-0.03*
		(0.03)	(0.03)		(0.02)	(0.02)
Native American		-0.22*	-0.10		-0.13	-0.04
		(0.12)	(0.14)		(0.08)	(0.10)
Asian		0.16**	0.10		0.22***	0.25***
		(0.07)	(0.08)		(0.04)	(0.05)
Other		-0.04	-0.07		0.03	0.04
		(0.04)	(0.04)		(0.02)	(0.03)
Hispanic		-0.01	-0.02		0.01	-0.00
		(0.03)	(0.04)		(0.02)	(0.02)
Female		0.26***	0.26***		0.12***	0.12***
		(0.02)	(0.02)		(0.01)	(0.01)
Household Income 1997			0.26			1.01***
			(0.27)			(0.18)
Age Controls	YES	YES	YES	YES	YES	YES
Education and Race Controls	NO	YES	YES	NO	YES	YES
Income Controls	NO	NO	YES	NO	NO	YES
N	4,255	3,568	2,727	6,153	5,089	3,853

*Standard errors in parentheses. All regressions are OLS. *, **, *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.*