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Matthias Doepke
Fabrizio Zilibotti

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Parenting with Style: Altruism and Paternalism in Intergenerational Preference Transmission

Matthias Doepke, Northwestern University

Fabrizio Zilibotti, University of Zurich

Abstract

We develop a theory of intergenerational transmission of preferences 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.

Contacts: Matthias Doepke, Department of Economics, Northwestern University, 2001 Sheridan Road, Evanston, IL 60208 (email: doepke@northwestern.edu).
Fabrizio Zilibotti, Department of Economics, University of Zurich, Schönberggasse 1, CH 8001 Zurich, Switzerland (e-mail: fabrizio.zilibotti@econ.uzh.ch)

I. Introduction

The debate about child-rearing practices has a long history. The Bible recommends strict parenting, including generous use of corporal punishment.[1] Discipline and rigor are advocated also by John Locke in *Some Thoughts Concerning Education*.[2] Well-being during childhood is of little concern to the British philosopher, who views child-rearing as an instrumental process that should elevate children out of immaturity, forging a strong adult personality early on. This perspective is reversed by Jean-Jacques Rousseau in *Émile* (Rousseau (1762)). Rousseau regards childhood as an important phase of human existence in its own right, rather than as mere preparation for adulthood. In his view, educators should refrain from interfering with children's freedom and happiness. Instead, they should accommodate children's different preferences and inclinations, and let children learn from experience at the speed and in the form that fits them.[3] In Rousseau's world there is no scope for external discipline: "Children should never receive punishment merely as such; it should always come as the natural consequence of their fault" (Rousseau (1762), Book II). Rousseau's views influenced generations of educational reformers, including Pestalozzi, Froebel, Montessori, and Dewey. In recent decades, the debate has continued with unrelenting intensity. If radical anti-authoritarian parenting and schooling practices became fashionable in the 1960s and the 1970s, the "Tiger Mom" (Amy Chua) has recently become the icon of a strict, rule-oriented parenting style which is supposedly at the root of the success of many Asian children.[4]

Until recently, parenting style has remained outside the domain of mainstream economics. However, a growing literature shows that preferences and non-cognitive skills can be molded by parents and educators from early childhood (see, e.g., Heckman, Stixrud and Urzua (2006)), and that these attributes play an important role for human and social capital accumulation. Motivated by these findings, our paper proposes an economic theory of preference formation that casts light on the determinants and effects of parenting style. In our theory, parenting styles are equilibrium outcomes that are shaped by economic conditions. We use our theory to account for broad changes in parenting styles in industrialized countries over time, and for variation in parenting styles across countries. To our knowledge, our paper is the first to develop a positive theory of parenting style for this purpose.

We construct a dynamic model of parenting where parents' child-rearing choices are driven by a combination of Beckerian altruism (i.e., a concern for the well-being of the child) and of a paternalistic drive. 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 prefer-

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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] Locke argues, however, that children should be gradually treated as reasoning beings as they grow up: "If you would have him stand in awe of you, imprint it in his infancy; ... For liberty and indulgence can do no good to children; their want of judgment makes them stand in need of restraint and discipline; and on the contrary, imperiousness and severity is but an ill way of treating men, who have reason of their own to guide them ..." (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. Again and again I say, reject, if it may be, a good lesson for fear of giving a bad one. Beware of playing the tempter in this world, which nature intended as an earthly paradise for men, and do not attempt to give the innocent child the knowledge of good and evil; since you cannot prevent the child learning by what he sees outside himself, restrict your own efforts to impressing those examples on his mind in the form best suited for him" (Rousseau (1762), Book II).

[4] Chua presents her argument in "Battle Hymn of the Tiger Mother," Penguin Press, 2011.

ences or by imposing direct constraints on their choices. Echoing the classification of parenting styles in developmental psychology,[5] we define as *permissive* a parenting style that allows children to make free choices according to their natural inclinations, in the spirit of Rousseau.[6] 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 future 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 child's preferences. The choice of parenting style in our theory hinges on the interaction between parental preferences and the characteristics of the socioeconomic environment.

We apply our theory to the transmission of time preference (patience), a preference trait that has been shown to be important for human capital and wealth accumulation (see, e.g., Doepke and Zilibotti (2008)). Here we identify paternalism as the innate tendency of parents to care relatively 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. From the parent's standpoint, the child has a natural tendency to shirk in educational effort. Parents can deal with this moral hazard issue by monitoring their children and coercing them to work hard (authoritarian parenting). The downside of the authoritarian strategy is that it limits the child's freedom, and this has its own costs in terms of human capital investment. For example, some independence may be necessary for the child to discover her true talents. Alternatively, parents can mold their children's preferences so as to align them with their own (authoritative parenting). The downside of authoritative parenting is that it imposes an immediate welfare cost on the child. Permissive parenting avoids these costs, but does not resolve the moral hazard problem.

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 its opposite, the economic return to 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, 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 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, permissive practices (anti-authoritarian parenting) gained in popularity. In recent decades, we observe a new trend towards more engaged and intrusive parenting (especially among the well educated) aimed to foster children's achievements in education and other endeavors. For instance, time use surveys show a marked increase in the time parents spend on educating their children, despite the fact that parents also work more (Ramey

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[5] In her seminal contributions, Baumrind (1967, 1971, 1978) proposes a threefold classification of parenting styles into authoritarian, permissive, and authoritative; see Section VI.

[6] In recent times, the term "permissive" has acquired a negative connotation. Here, we refer to the original notion in Baumrind. Permissive parents do not neglect their children, but they are lenient and refrain from imposing strict supervision and discipline.

and Ramey (2010)). However, the nature of this new form of intensive parenting is authoritative and shuns the coercive methods of yesteryear.

We argue that the 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, as emphasized by Galor and Tsiddon (1997) and Hassler and Rodriguez Mora (2000), even within professions the specialized knowledge of the parent may have less value when there is rapid technological change. For example, in agriculture long-held practices and techniques became less valuable when agriculture was mechanized with the spread of the tractor. Similarly, the knowledge acquired by a clerical worker before the information-technology revolution is of little use to their children entering similar occupations today. These trends imply that parents have incentives to grant their 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.

Regarding the rise of authoritative parenting in recent decades, our theory suggests that this trend is tied to an increase in the return to education and effort. In the 1960s and early 1970s, economic inequality had reached a historic low, and there was little unemployment. In those days, the returns to pushing children to exert effort were moderate 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.[7]

The decades since the 1980s have brought 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. Our theory predicts that this change should induce a shift towards more intrusive parenting aimed at increasing children's drive for education and achievement. Consistent with this prediction, we observe a decline in anti-authoritarian parenting and the arrival of a new model of intensive parenting that is often referred to as "helicopter parenting." While comprising some elements of prohibition, helicopter parenting is predominantly authoritative in nature, as its goal is to form responsible children who will "do the right thing" and become high achievers on their own accord.

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 test this prediction using data from the World Value Surveys, which provide information on which attitudes or values parents emphasize in child rearing. We document that, in accordance with the predictions, in countries with low inequality (such as Germany and the Scandinavian countries), parents emphasize values such as "independence" and "imagination" over "importance of hard work" or "obedience." The opposite pattern is observed in more unequal countries such as the United States and China.

In the following section, we develop our general framework of preference transmis-

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[7] This cultural tendency is well captured by Pink Floyd: "We don't need no education; we don't need no self-control; no dark sarcasm in the classroom; teacher, leave the kids alone!"

sion in a dynastic model. In Section III, we apply the model to the transmission of time preferences across generations, and in Section IV we confront the predictions of this theory with evidence on variation in parenting styles over time and across countries. Section V discusses extensions. In Section VI, we relate our paper to the existing literature in economics and psychology. Section VII concludes. All proofs are contained in the mathematical appendix.

II.   A Dynastic Model of Preference Transmission

A.   *The Decision Problems of Parents and Children*

The model economy is populated by overlapping generations of two-period lived people. Each old agent (parent) has one child. The period utility functions depend on a preference vector, $a \in A$, and on vectors of economic choices in young age, x^y, and in old age, x. Children's preferences can be influenced by parents. The preference vector a is acquired in young age and remains constant throughout an individual's lifetime. However, age has also an independent effect on preferences and choice. For instance, the young may be intrinsically less patient or less risk averse than the old. Thus, there are separate period utility functions for the young $U^y(x^y, a)$ and for the old $U^o(x, a)$, and in general $U^y(x, a) \neq U^o(x, a)$.

The young only make economic decisions, $x^y \in X^y$, where X^y is the choice set of the young. The choice set captures all restrictions to which the young are subject, including budget constraints but potentially also additional restrictions imposed on them by their parents. When old, people turn into parents and make three sets of decisions. First, they make a second round of economic choices, $x \in X$, where X is the choice set of the old. Second, they mold their children's preferences, $a' \in A$. Third, they may impose restrictions on the choice set from which their children will be able to choose, $X^y \in \mathcal{X}^y$, where $\mathcal{X}^y$ is the set of feasible choice sets. Parents can always choose to leave their children unconstrained, in the sense of not imposing additional restrictions over and above the restrictions implied by budget constraints. More formally, $X^{FREE} \in \mathcal{X}^y$, where X^{FREE} is the unrestricted choice set defined by $X^{FREE} = \{\cup X^y | X^y \in \mathcal{X}^y\}$. As we shall see, paternalistic preferences provide a motive for parents to influence their children's choices by either restricting their choice set or by molding their preferences. We abstract from direct costs that parents may incur when investing in their children's preferences or restricting the children's choice set. This simplifies the analysis without changing the key implications, because the parents are still affected by the costs (and benefits) that these choices impose on their children.

We formulate the decision problems of the young and the old recursively, using the preference vector a as the state variable. The value function of an old adult, $v(a)$, is given by:

$$v(a) = \max_{a' \in A, x \in X, X^y \in \mathcal{X}^y} \left\{ U^o(x, a) + zw(X^y, a, a') \right\}.$$

Here $w(X^y, a, a')$ is utility parents derive from their child's experience, and z measures the overall degree of altruism. The utility derived from children is given by:

(1) $w(X^y, a, a') = (1 - \lambda) U^y(x^y, a') + \lambda U^o(x^y, a) + \beta v(a').$

When evaluating (1), parents anticipate how their child's choice of x^y hinges on

the child's preferences a' and choice set X^y, so that x^y is given by a decision rule $x^y = x^y (a', X^y)$. The function $w (X^y, a, a')$ comprises both an altruistic and a paternalistic component. Altruism is the standard enjoyment of the child's own utility as in Becker (1974). Paternalism, in contrast, is represented as evaluating the child's actions through the lens of the parent's utility function.[8] For the first period of the child's life, the altruistic component enters with weight $1 - \lambda$ (first term), and the relative weight on paternalism is given by λ (second term). Paternalism applies only to the young, and not to the old felicity of the child. Hence, the child's old-age utility enters as $\beta v(a')$ (third term), where β is the discount factor between the young and the old period and $v(a')$ is the value function of the child in old age. Restricting paternalistic motives to the young period is broadly realistic because preferences change with age, implying that there is more scope for conflict with an adolescent 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 (such as the endogenous fertility model of Barro and Becker (1989)). The decision rule $x^y (a', X^y)$ is determined by the utility maximization of the young child, given her own preferences and the choice set imposed on her by the parent:

$$(2) \qquad x^y \left(a', X^y \right) = \underset{x^y \in X^y}{\operatorname{argmax}} \left\{ U^y \left(x^y, a' \right) + \beta v \left(a' \right) \right\}.$$

To simplify the exposition, we introduce the assumption that there exists a particular preference vector $a = \underline{a}$ such that for given x^y, x, the period utility is maximized in a cardinal sense:

ASSUMPTION 1: *There exists $\underline{a} \in A$ such that for all $a \in A$ and for all feasible x, x^y:*

$$\begin{aligned} U^o \left(x, \underline{a} \right) &\geq U^o \left(x, a \right), \\ U^y \left(x^y, \underline{a} \right) &\geq U^y \left(x^y, a \right). \end{aligned}$$

Under this assumption, perfectly altruistic parents (i.e., $\lambda = 0$) would always set $a = \underline{a}$ irrespective of their own preference vector. While the assumption is not essential for our results, it is useful to sharpen the contrast between altruistic and paternalistic behavior.[9]

B. Incentives for Preference Transmission and Choice Restrictions

We now examine parents' incentives for influencing their children through preference transmission and through choice restrictions. Let a^* denote the optimal choice of $a' \in A$ from the parent's perspective. Given (1), a^* satisfies:

$$(3) \quad \lambda U^o \left(x^y \left(a^*, X^y \right), a \right) + (1 - \lambda) U^y \left(x^y \left(a^*, X^y \right), a^* \right) + \beta v \left(a^* \right)$$
$$\geq \lambda U^o \left(x^y \left(a', X^y \right), a \right) + (1 - \lambda) U^y \left(x^y \left(a', X^y \right), a' \right) + \beta v \left(a' \right)$$

for all $a' \in A$. Consider, first, the case in which $x^y (a', X^y)$ is independent of a'. In particular, this is always the case when the choice set X^y is a singleton.

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[8] Note that, contrary to the literature on imperfect empathy, we do not assume that parents have an intrinsic drive to reproduce their own preferences. Even a perfectly paternalistic parent could desire her child to have different preferences from her own.

[9] In more general environments $\underline{a}$ could be state dependent, as in our previous work (Doepke and Zilibotti (2008)).

LEMMA 1:   *Suppose x^y is independent of a'. Then, $a^* = \underline{a}$.*

Intuitively, if the child's preferences do not affect her choices in young age, the parent has no reason to deviate from the preferences that maximize the child's happiness ($a' = \underline{a}$).

Consider, next, the general case in which x^y does depend on a'. Now, the parent may wish to distort the child's preferences away from $\underline{a}$ in order to manipulate the child's choice. To achieve this goal, a paternalistic parent is willing to inflict a utility loss on the child. In the extreme case where $\lambda = 1$ and $\beta = 0$, the parent would impose her own preferences on the child, namely, she would choose a' to maximize $U^o\left(x^y\left(a', X^y\right), a\right)$. In general, the parent faces a tradeoff between the child's happiness and the parent's desire to see the child behave in a particular way.

To cast light on this tradeoff, suppose that the child's choice of x^y is continuous, that the objective function is differentiable with respect to x^y, and that the optimal choice is interior. Then, the first-order condition of the child's problem, (2), yields:

$$(4) \qquad\qquad\qquad U^y_{x^y}\left(x^y, a'\right) = 0,$$

where $x^y \in X^y$. Moving backwards to the parent's choice of a', if the objective is differentiable and the optimal choice for a' is interior, the following first-order condition with respect to a' has to be met:

$$\lambda x^y_{a'}\left(a', X^y\right)\, U^o_{x^y}\left(x^y, a\right)$$
$$+ \left(1 - \lambda\right)\left(U^y_{a'}\left(x^y\left(a', X^y\right), a'\right) + U^y_{x^y}\left(a', X^y\right) x^y_{a'}\left(a', X^y\right)\right) + \beta v_{a'}\left(a'\right) = 0.$$

Using (4) (i.e., applying the envelope theorem), the first-order condition simplifies to:

$$\lambda x^y_{a'}\left(a', X^y\right)\, U^o_{x^y}\left(x^y, a\right) + \left(1 - \lambda\right) U^y_{a'}\left(x^y\left(a', X^y\right), a'\right) + \beta v_{a'}\left(a'\right) = 0.$$

The first term reflects the paternalistic motive to distort preferences. The other terms reflect the altruistic motive to maximize the child's utility. Note that whenever either $\lambda = 0$ (no paternalism) or $x^y_{a'} = 0$ (preferences do not affect the child's choice), the first term vanishes, and hence the parent sets $a' = \underline{a}$.

Next, consider the parent's choice of the child's choice set:

$$X^y = \underset{X^y \in \mathcal{X}^y}{\arg\max} \, w\left(X^y, a, a'\right).$$

Let $\{x^y\}$ denote the singleton set consisting only of x^y. Moreover, let

$$x^{y*} = \underset{x^y}{\arg\max} \, w\left(\{x^y\}, a, \underline{a}\right)$$

be the parent's wish for what the child should choose. If $\{x^{y*}\} \in \mathcal{X}^y$, then the solution to the parent's problem is straightforward: the parent restricts the child's choice to $X^y = \{x^{y*}\}$, i.e., the child is forced to do exactly what the parent would like her to do. Given that the child has no independent choice, it is then also optimal to set $a' = \underline{a}$.

In general, however, the parent may be unable to impose her preferred choice on the child, i.e., we may have $\{x^{y*}\} \notin \mathcal{X}^y$. In particular, this will be the case if there is a tradeoff between the degree of autonomy that a child has (i.e., the size of the choice

set X^y) and the specific choices that are available. In this case, it may be optimal for the parent both to mold the child's preferences and to impose restrictions on the child's choice set, but without removing all autonomy.

C. Parenting Styles

We can now define parenting styles within our theory (cf. Baumrind (1967)), depending on whether, and how, the parent chooses to influence the child.

DEFINITION 1: *We distinguish among three parenting styles:*

1) *A parent is said to be authoritarian if she restricts the child's choice ($X^y \neq X^{FREE}$). A parent is said to be purely authoritarian if she restricts the child's choice set to a singleton, implying that the child has no independent choice.*

2) *A parent is said to be authoritative if she chooses $a' \neq \underline{a}$. A parent is said to be purely authoritative if, in addition, she allows the largest possible choice set, $X^y = X^{FREE}$.*

3) *A parent is said to be permissive if she chooses $a' = \underline{a}$ and gives the child access to the largest possible choice set, $X^y = X^{FREE}$.*

Our results above imply that for extreme values of the extent of paternalism λ only one parenting style is possible. Specifically, when $\lambda = 0$, the parent has full empathy with the child's preferences, and adopts a permissive parenting style by setting $a' = \underline{a}$ and $X^y = X^{FREE}$. Conversely, when $\lambda = 1$ and when the preference vector only affects utility in young age, the parent disregards the young child's desires, and adopts a purely authoritative style. For interior values of paternalism ($0 < \lambda < 1$), different combinations of authoritative and authoritarian elements are possible. The case for restricting the child's choice set is stronger when the parent decides not to shape the child's preferences, and yet disagrees with the choices the child would make independently. Both the parent's desire to influence the child and her ability to do so (in terms of which choice sets are available) generally depend on economic conditions.

D. Economic State Variables

In many applications, the dynastic choice problem will have additional state variables, such as human capital or savings. Incorporating such economic state variables is straightforward. Foreshadowing the application to patience below, we focus on the case where the decision x^y when young feeds back into economic opportunities when old. Let s denote the parent's vector of economic state variables. The state s affects the parent through its impact on the choice set X, i.e., we have $X = X(s)$. For example, if s corresponds to human capital, a higher value for s will increase the parent's earnings and thus lead to larger consumption possibilities. The child's state vector s' is a function of the young-age choice x^y:

$$(5) \qquad\qquad s' = g\left(x^y\right).$$

With these modifications to the setup, the value function for an old adult, $v(s, a)$, is given by:

$$v(s, a) = \max_{a' \in A, x \in X(s), X^y \in \mathcal{X}^y} \left\{ U^o\left(x, a\right) + z w\left(X^y, a, a'\right) \right\},$$

where, as before:

$$w\left(X^y, a, a'\right) = \lambda U^o\left(x^y, a\right) + (1 - \lambda) U^y\left(x^y, a'\right) + \beta v\left(g(x^y), a'\right).$$

The child's decision rule $x^y\left(a', X^y\right)$ is given by:

$$(6) \qquad x^y\left(a', X^y\right) = \operatorname*{argmax}_{x^y \in X^y} \left\{U^y\left(x^y, a'\right) + \beta v\left(s', a'\right)\right\},$$

where the maximization is subject to the law of motion (5). Including such economic state variables leaves the definition of parenting styles, and the analysis of the trade-offs between permissive, authoritative, and authoritarian parenting, unchanged.

III. Patience and Investment in Skills

To shed light on the socio-economic determinants of parenting style, in this section we apply the general model to a salient dimension of individual preferences: patience. The underlying friction is that children innately are less patient than their parents would like them to be. As a result, children may be unwilling to make future-oriented investments, such as educational effort, at the level that their parents would consider optimal. We believe that since future-oriented choices are a key area of disagreement between parents and children, applying the model to patience can help uncover broad determinants of parenting style.

We assume that parents who are concerned about lack of patience can increase the children's relative appreciation of future rewards by imbuing them with a sense of guilt about immediate gratification. A more patient child will be more willing to undertake future-oriented investments; however, this comes at a cost of lower utility for the child. Alternatively, parents can be authoritarian, i.e., directly force their child to undertake the investment that the parent considers optimal. But this option also has costs, because it interferes with the child's occupational choice. Being authoritarian is possible only if the child can be monitored, which requires keeping the child at home. Staying at home, in turn, also implies that the child will have to enter the same occupation as the parent, which may not be the child's comparative advantage. Thus, there is some benefit of granting the child independence. For example, a child born on a farm may be allowed to study in the city, so as to ultimately enter the occupation that best suits the child. 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 make the necessary investment for her future success.[10] Given these tradeoffs, we will see that parenting choices depend on the relative importance of human-capital investment, skill transmission within the family, and the importance of matching talent with occupation for future success.

A. The Decision Problem with Endogenous Patience

We parameterize preferences by a utility function that induces a constant intertemporal elasticity of substitution. For adults, the economic choice x consists solely of

[10] Our parable is consistent with the recent findings of Bursztyn and Coffman (2012). They document in an experimental study that parents prefer transfers conditional on their children attending schools to larger unconditional transfers, while the result is reversed if they are offered a text message notification whenever their children miss school. They interpret the finding as evidence of an intergenerational conflict in schooling decisions, with lack of monitoring creating an agency problem similar to that captured by our theory.

old-age consumption c^o, i.e., $x = c^o$. The adult felicity is given by:

$$U^o(x,a) = u^o(c^o) = \frac{(c^o)^{1-\sigma}}{1-\sigma},$$

where c^o is a scalar denoting old-age consumption. We assume $0 < \sigma < 1$, implying that utility is positive. The young-age choice x^y is a vector consisting of an occupational choice and an educational investment, which together imply a (possibly state-contingent) level of young-age consumption c^y. The young-age felicity is given by:

$$U^y(x^y, a) = \mathrm{E}(u^y(c^y, a)) = \mathrm{E}\left((\psi - a)\frac{(c^y)^{1-\sigma}}{1-\sigma}\right).$$

Here the parameter $\psi > 1$ captures the preference for instant gratification of the young. The preference parameter $a \in A = [0, \psi - 1]$ is chosen by the parent, and captures the extent to which the parent stifles the child's enjoyment of young age. Young-age felicity is maximized when the parent sets $a = \underline{a} = 0$; however, by choosing a higher a the parent can render the child more patient.[11]

There are many occupations indexed by $i \in I$. The productivity of an individual in occupation i has two components: first, there is her individual talent for that occupation, which is high (y_H) or low ($y_L < y_H$) with equal probability; second, there is a premium for working in the same profession as one's parent, denoted by $\mu \geq 1$. This premium reflects the acquisition of skills within the family as well as entry barriers (e.g., guilds or professional associations that protect incumbent families). An individual's earnings also depend on the human capital investment effort e in young age. This effort can be interpreted both as effort in formal education and as the acquisition of skills on the job. Effort e is measured in terms of young-age labor, and bears return R in terms of increasing old-age earnings.[12] The return R is related to the return to human capital accumulation. For an individual with productivity $y \in \{y_H, y_L\}$ and effort $e \in [0, 1]$, the lifetime consumption profile is:

$$
\begin{aligned}
c^y &= y(1 - e), \\
c^o &= y(1 + Re).
\end{aligned}
$$

The choice of occupation interacts with the choice of location. If the child stays at home, the child enters the parent's profession, and the parent retains control over the child's effort choice. Thus, the child makes no independent choice in young age. The decision to keep the child at home is made before the parent knows the child's talent for this occupation. In contrast, if the child leaves home and becomes independent, the parent has no control over the child's effort, and the child chooses the occupation that best suits her talent. Thus, talent will always be high ($y = y_H$) in the chosen profession. From the parent's standpoint, there are two aspects to the tradeoff between the two locations. First, on the skill side, keeping the child at home adds the incumbency premium, but forgoes the opportunity for the child to find her true calling. Second, on the preference side, keeping the child at home

---

[11] Note that in this application a affects only the young-age felicity. One could alternatively argue that patience also yields a better ability to enjoy future consumption. This could be captured by assuming that $U^o(x,a) = f(a)\frac{c^{1-\sigma}}{1-\sigma}$, where f is an increasing function. This specification would give similar results. Our specification implies the convenient normalization that $\underline{a} = 0$, entailing no loss of generality.

[12] In our formulation, e reduces young-age consumption. However, the mechanism would also work if e caused a direct utility loss (say, through lower enjoyment of leisure).

allows the parent to monitor effort. Since the child is impatient, she will exercise more effort if monitored at home than if she is independent. For any positive level of paternalism $\lambda > 0$, the independent child's low effort causes a utility loss for the parent.

The young-age choice x^y is a vector composed of the child's educational effort e' and occupational choice i'. The previous discussion implies that the set of feasible choice sets $\mathcal{X}^y$ comprises two subsets, $\mathcal{X}^y = \{X^{HOME}, X^{FREE}\}$. Here X^{HOME} is the choice set for a child that 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 $\bar{e}$. In addition, the child is forced to adopt the parent's occupation. We therefore have:

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

Alternatively, the parent may grant independence to the child, in which case the child can freely choose from the full range of feasible effort and occupation choices:

$$X^{FREE} = \left\{ \left(\begin{array}{c} e' \\ i' \end{array} \right) \middle| 0 \le e' \le 1, i' \in I \right\}.$$

The utility of the old does not depend on a, but only on the economic state vector $s = \{y, e\}$. The value function of the old can be written as:

$$v(y, e) = \frac{(y(1 + Re))^{1-\sigma}}{1 - \sigma} + z \max_{a' \in A, X^y \in \mathcal{X}^y} w(X^y, a').$$

We can now analyze the optimal parenting choices of $a' \in A$ and $X^y \in \mathcal{X}^y$.

B. Decision Problem of Authoritarian Parent

Consider, first, an authoritarian parent who keeps the child at home and monitors effort (i.e., the choice set X^{HOME} is imposed). In this case, Lemma 1 implies that the parent will choose $a' = 0$. Since the parent is uncertain about her child's productivity in the home profession, her continuation utility involves expectations:

$$
\begin{aligned}
w(X^{HOME}, 0) &= E_y \left[(\lambda + (1 - \lambda)\psi) \frac{(y'(1 - \bar{e}))^{1-\sigma}}{1 - \sigma} + \beta v(y', \bar{e}) \right] \\
&= \tilde{w}(X^{HOME}, 0) + z \max_{a'' \in A, X^y \in \mathcal{X}^y} w(X^y, a''),
\end{aligned}
$$

where

$$(7) \quad \tilde{w}(X^{HOME}, 0) = \frac{\mu^{1-\sigma}}{2} \left(y_H^{1-\sigma} + y_L^{1-\sigma} \right)$$

$$\left((\lambda + (1 - \lambda)\psi) \frac{(1 - \bar{e})^{1-\sigma}}{1 - \sigma} + \beta \frac{(1 + R\bar{e})^{1-\sigma}}{1 - \sigma} \right)$$

and:

$$\bar{e} = \underset{e'}{\operatorname{argmax}} \left(\lambda + (1-\lambda)\psi\right) \frac{\left(y'\left(1-e'\right)\right)^{1-\sigma}}{1-\sigma} + \beta \frac{\left(y'\left(1+Re'\right)\right)^{1-\sigma}}{1-\sigma}$$

$$(8) \qquad = \frac{1 - \left(\frac{(\lambda+(1-\lambda)\psi)}{\beta R}\right)^{\frac{1}{\sigma}}}{1 + R\left(\frac{(\lambda+(1-\lambda)\psi)}{\beta R}\right)^{\frac{1}{\sigma}}}.$$

It is useful to note, for future reference, that $\bar{e} \to 1$ as $R \to \infty$. Thus, for large R, $\tilde{w}\left(X^{HOME}, 0\right)$ is determined entirely by the old-age felicity.[13] Conversely, we have $\bar{e} = 0$ if $R = 0$: There is no point in exerting effort if the return to effort is zero.

C. Decision Problem of Non-Authoritarian Parents

Consider, next, 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 $y = y_H$.[14] The parent's continuation utility can be broken down as follows:

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

where

$$(9) \quad \tilde{w}\left(X^{FREE}, a'\right) = y_H^{1-\sigma}$$

$$\left(\left(\lambda + (1-\lambda)\left(\psi - a'\right)\right) \frac{\left(1 - e\left(a'\right)\right)^{1-\sigma}}{1-\sigma} + \beta \frac{\left(1 + Re\right)^{1-\sigma}}{1-\sigma}\right)$$

and:

$$e\left(a'\right) = \underset{e'}{\operatorname{arg\,max}} \left(\psi - a'\right) \frac{\left(y_H\left(1-e'\right)\right)^{1-\sigma}}{1-\sigma} + \beta \frac{\left(y_H\left(1+Re'\right)\right)^{1-\sigma}}{1-\sigma}$$

$$(10) \qquad = \frac{1 - \left(\frac{\psi-a'}{\beta R}\right)^{\frac{1}{\sigma}}}{1 + R\left(\frac{\psi-a'}{\beta R}\right)^{\frac{1}{\sigma}}}.$$

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 in order to induce more patience.

LEMMA 2: *Conditional on a non-authoritarian parenting style, the optimal choice of the child's preferences a' satisfies the following condition:*

$$(11) \qquad 0 \geq \underbrace{-\lambda\left(\psi - a' - 1\right)c_{a'}^y\left(e\left(a'\right)\right)}_{\text{marginal benefit of increasing } a'} - \underbrace{(1-\lambda)\frac{c^y\left(e\left(a'\right)\right)}{1-\sigma}}_{\text{marginal cost of increasing } a'}$$

---

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

[14] We assume that even if the child eventually chooses the same occupation as her parent, the incumbency premium μ is available only if the child stays at home.

or:

$$(12) \qquad 0 \geq \lambda \left(\psi - a' - 1 \right) \left(\frac{1}{\sigma} \frac{1}{\psi - a'} \frac{1}{1 + \left(\frac{\psi - a'}{\beta R^{1-\sigma}} \right)^{\frac{1}{\sigma}}} \right) - \frac{1 - \lambda}{1 - \sigma},$$

where the strict inequality holds if and only if $a' = 0$.

The marginal benefit in (11) is positive since increasing the child's patience causes a fall of the child's consumption $(c_{a'}^y < 0)$, and thus an increase in the human capital investment that the parent approves of. The marginal cost captures the utility loss suffered by the child from being "brain-washed" with responsible, adult-like values. How the parent weighs costs and benefits depends on the extent of paternalism λ. If $\lambda = 0$, the marginal benefit vanishes, and the optimal solution is a corner, $a' = 0$, corresponding to a permissive parenting style. By continuity, a permissive parenting style is also optimal for a range of low λ's. 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 $a' = \psi - 1$, i.e., the parent adopts a purely authoritative style, inducing the child to take the same action as an authoritarian parent would prescribe. The following lemma summarizes this discussion.

LEMMA 3: *Let a^* denote the optimal choice of a', defined implicitly by (12). There exists $\underline{\lambda} > 0$ such that, for all $\lambda \leq \underline{\lambda}$, $a^* = 0$ (permissive parenting style). For $\lambda = 1$, $a^* = \psi - 1$ (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 1 (Choice Between Permissive and Authoritative Parenting): *Suppose that $\lambda > \sigma \frac{\psi}{\psi - (1-\sigma)}$, and let $\bar{R} \equiv \left(\frac{\sigma \psi (1-\lambda)}{\lambda(\psi - (1-\sigma)) - \sigma \psi} \right)^{\frac{\sigma}{1-\sigma}} \left(\frac{\psi}{\beta} \right)^{\frac{1}{1-\sigma}}$. The optimal a'^* is determined as follows:*

1) If $R \leq \bar{R}$, then $a^* = 0$.

2) If $R > \bar{R}$, then $a^* > 0$ and a^* is strictly increasing in R, with an upper bound equal to $\bar{a}^* = \lim_{R \to \infty} a^* = \psi - \lambda \frac{1-\sigma}{\lambda - \sigma}$.

Conversely, if $\lambda \leq \sigma \frac{\psi}{\psi - (1-\sigma)}$, then $a^* = 0$ independently of R.

Conditional on granting the child independence, the parent adopts 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 $(R \geq \bar{R})$. In the high range, the extent to which the parent molds the child's preferences is increasing in R.[15]

D. 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 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.

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[15] Note that the condition $\lambda > \sigma \frac{\psi}{\psi - (1-\sigma)}$ implies that, if $\lambda < 1$, then $\psi - \lambda \frac{1-\sigma}{\lambda - \sigma} < \psi - 1$. Hence, $\bar{a}^* < \psi - 1$ for $\lambda < 1$. $\psi - 1$ is only attained by fully paternalistic parents.
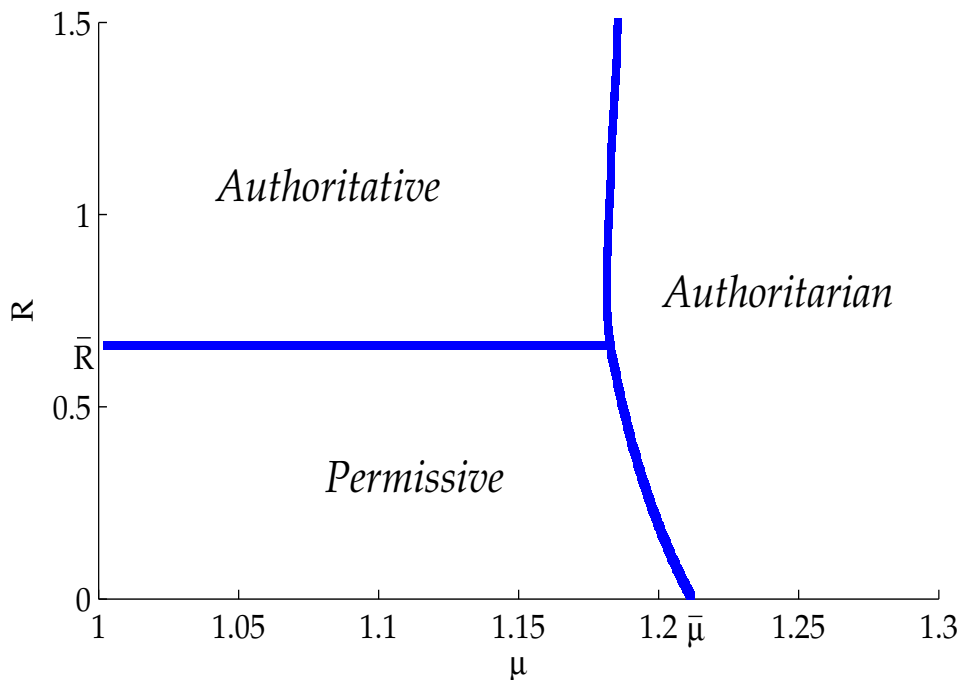
Figure 1: Equilibrium Parenting Style for $\lambda = 0.95$ as a Function of Incumbency Premium μ and Return to Human Capital R .

Figure 1 displays the optimal parenting style as a function of the return to human capital R and the incumbency premium μ for $\lambda = 0.95$. 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. Nor is there any agency problem if $R \to \infty$, since then parents and children agree that maximum effort should be devoted to education.[16] Thus, the agency problem is more severe 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 1). Interestingly, the $\hat{\mu}(R)$ function is constant (i.e., the boundary between authoritarian and the other parenting styles in Figure 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 ($\lambda = 1$).

Now consider the choice between authoritative and permissive parenting for $\mu < \hat{\mu}(R)$. As shown in Proposition 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 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 1 first shifts upward and then disappears entirely.

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[16] In this case, an authoritarian parenting style is chosen over permissive parenting only if the incumbency premium exceeds the value of flexibility. This threshold is denoted as $\bar{\mu}$ in Figure 1 and defined in Proposition 2.

Our results for the optimal choice of parenting style are summarized in the following proposition.

PROPOSITION 2 (Equilibrium Parenting Style): *Suppose that* $\lambda > \sigma \frac{\psi}{\psi - (1 - \sigma)}$. *Then, there exists a function* $\hat{\mu}(R)$ *where* $0 < \hat{\mu}(R) \leq \bar{\mu}$ *such that:*

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

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

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

  Conversely, if $\lambda \leq \sigma \frac{\psi}{\psi - (1 - \sigma)}$, *then:*

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

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

  Here $\bar{R}$ *is the threshold characterized in Proposition 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, we have $\mu(0) = \lim_{R \to \infty} \hat{\mu}(R) = \bar{\mu}$, *and* $\hat{\mu}(R) < \bar{\mu}$ *for* $0 < R < \infty$.

Hence, there are three regions of the parameter space corresponding to each of the parenting styles. 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.

IV. Historical Trends: From the Demise of Authoritarianism to the Rise of Helicopter Parenting

In this section, we confront the predictions of Proposition 2 with the data. We first consider the historical evolution of parenting styles in the Western world, focusing in particular on evidence from the United States and the United Kingdom. Next, we consider implications for the variation in parenting styles across countries today.

A. The Historical Evolution of Parenting in Western World

Traditional societies are characterized by high incumbency premia, little formal human capital investment, and a relatively small range of possible occupational choices. 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. Our theory predicts that in such a setting, the authoritarian parenting style should dominate. Given that parents and children lived and worked together, parents could control their children directly and did not need to mold their preferences. Similarly, a permissive parenting style had

severe downsides in a setting where children had few opportunities outside their own family's occupation, and the consequences of failure could be serious.

The prediction of our theory accords well with historical evidence for the pre-industrial period of widespread use and approval of corporal punishment, which is a key attribute of authoritarian parenting.[17] 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). Her 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."

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. Moreover, the monopoly power of guilds was eroded over time, and from the middle of the nineteenth century education increasingly took place in schools and universities. These trends reduced the advantage of incumbency and 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) 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, 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).[18]

The same trends continued in the twentieth century: the practice of corporal punishment declined progressively as close-knit patriarchal families gradually were replaced by a new model where children received formal education outside the home, and only few children continued in their parent's occupation.[19] 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.[20] The decline of authoritarian parenting accelerated in the

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[17] The association of corporal punishment with an auhoritarian parenting style is well documented. For instance, Hyman (1997) writes: "Truly authoritarian societies emphasize unquestioning loyalty to leaders, reflexive obedience to authority, and the foolishness of dissent. Children are taught at home and school that they must not question requests by authorities, including parents, and that punishment will invariably follow disobedience" (p. 6).

[18] Yet, the change was slow, and significant differences in parenting styles across geographical areas and social groups emerged during the nineteenth century. According to Guttormsson (2002), the influence of enlightened educators was stronger in the industrial areas of northwestern Europe, where changes in parent-child relations were intimately related to the development of urban, middle-class families. Among these groups, "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, often accompanied by abuses related to widespread drunkenness.

[19] Long and Ferrie (2013) report that in the United States, which had exceptionally high occupational mobility already in the nineteenth century, intergenerational mobility across broad categories (farmer, white collar etc.) actually fell going into the twentieth century. However, occupations also became more differentiated, so that parental experience was less likely to be relevant even for children who stayed within the parent's broad category.

[20] For example, a parent who works as an accountant may lack the computer skills necessary for new

1960s with the rise of the anti-authoritarian "hippie" culture.[21] At this time, inequality measures, which had been falling from the late nineteenth century, reached an all-time low (see 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 a low incumbency premium and a low return to human capital investment made permissive parenting attractive during this time.

The move away from authoritarian parenting within families was also reflected in changes at the level of societies. In 1979, Sweden became the first country to ban corporal punishment. Finland, Norway, and Austria followed suit in the 1980s, and since then a large number of industrialized countries introduced similar measures.[22] Teaching practices in schools also evolved. Darling (1994) contrasts primary education in Great Britain during the 1950s, when pupils were expected to keep quiet, listen, and obey the teacher, with the situation at post-1960s schools, where "there are audible signs of activity and discussions ...prohibition is inappropriate and seems, at least for much of the time, unnecessary" (p. 1). A Scottish primary school memorandum cited by Darling (1994) states: "Many teachers have proved that in the permissive yet controlled atmosphere of the classroom where there is a flexible organisation ...all can achieve success at appropriate levels. In addition, self-reliance and initiative are developed, and the pupils have opportunities of pursuing individual enthusiasms ..." (p. 42). Similarly, when asked by the Schools Council Investigation of 1972 what they hoped to achieve with children by the time they left primary school, teachers in England gave the following preferred answers (from a list of seventy-two suggested aims): (i) "children should be happy, cheerful and well-balanced;" (ii) they should "enjoy school work and find satisfaction in their achievements;" (iii) "individuals should be encouraged to develop in their own ways" (Darling (1994), p. 48). According to Darling, this shift in attitudes was favored by the economic conditions. During the 1960s, Britain enjoyed widespread prosperity, low unemployment, and little inequality, implying that "parents had every reason to assume that when their children left school they would be able to get jobs without much difficulty" (Darling (1994), p. 50).

Since the 1970s, evidence suggest that the premium to incumbency has fallen even more. Hsieh et al. (2013) document that over the last few decades society in the United States has become significantly more fluid, namely, there is more occupational mobility, lower gender- and race-related barriers in the labor market, and an improved allocation of talent. In addition, since the 1970s wage inequality 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, however, the trend towards lower inequality has reversed since the 1970s. Since the 1980s income inequality has

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entrants in the occupation; see Hassler and Rodriguez Mora (2000) and Galor and Tsiddon (1997).

[21] Note that another interpretation of our model is that talent is about the intrinsic appreciation of some professional activity (e.g., becoming a painter or an artist). In a period of a falling incumbency premium, this type of appreciation for choosing one's own path would be accentuated.

[22] The decline of corporal punishment is also reflected in survey data. A longitudinal study of German parents between 1996 and 2008 shows a sharp increase in the proportion of parents opposed to any form of corporal punishment (see Bussmann and Schroth (2009)). In 2007, only four percent of Swedish parents and about 17 percent of Austrian and German parents reported spanking their children. The same study documents significantly higher tolerance for corporal punishment in France and Spain.

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 raises the stakes in parenting, in the sense that acquiring education and putting in high effort throughout one's career gain in importance for economic success.

In our model, this change is captured by a higher return R to human capital investment, which increases the benefit of authoritative relative to permissive parenting. And indeed, in the data we observe a new trend towards more involved parenting. Ramey and Ramey (2010) show that in the United States, weekly hours spent in childcare by mothers and fathers have increased markedly from the mid-1980s.[23] This rise in childcare has given rise 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, the support for coercive methods and corporal punishment has continued to slide; instead, the modern parenting style is authoritative in nature.[24]

Ramey and Ramey also discuss additional features of the data that line up well with our theory. First, they document that in neighboring Canada parenting time increased much less than in the United States. This is consistent with the observation that the return to education also increased much less in Canada, leading to lower stakes in parenting and thus less intensive parental involvement. Ramey and Ramey also show that within the United States, the increase in parenting time is concentrated among college-educated parents. One interpretation of this fact is that in college-educated families the return to education is higher (due to inheritability of skill and oblique transmission in the family), so that these families were more strongly affected by 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.[25] 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 and respond less to the rising skill premium in their parenting choices (Kohn (1977), Straus and Stewart (1999)).[26]

Figure 2 summarizes our interpretation of the historical evolution of parenting styles. 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 brought about an erosion of incumbency advantage, an increase in occupational specialization, and a rising

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[23]Ramey and Ramey (2010) suggest that this trend may be driven by increased competition for admission to top colleges. We formalize a similar mechanism, although here the broad return to education matters, rather than competition for spots at the most elite institutions.

[24] 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)).

[25] Suppose, for instance, that there are high- and low-skill parents, and that low-skill parents can only choose their children's preferences in the range $a \in [0, \tilde{a}]$, where $\tilde{a} < \psi - 1$. In this case, paternalistic low-skill parents would resort to authoritarian methods, whereas high-skill parents endowed with the same degree of paternalism would achieve their goals by influencing their children's preferences.

[26] A complementary argument is put forward by Weinberg (2001), who argues that poorer parents have limited ability to affect their children through pecuniary incentives.
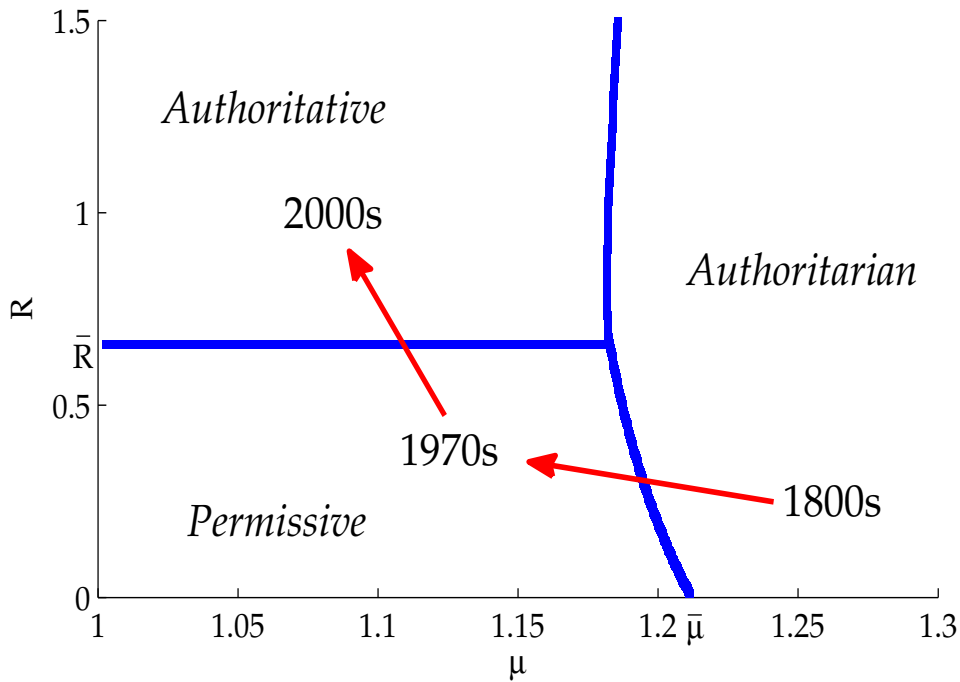
Figure 2: Evolution of Parenting Styles Over Time, Driven by Shifts in Incumbency Premium μ and Return to Human Capital R.

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 prevalence of permissive parenting. The most recent historical period has been characterized by a further decline in the incumbency premium μ and a sharp rise in the return to human capital R, leading to the current situation where authoritative parenting is dominant.[27]

B.   Parenting Across Countries

The theory also bears predictions for parenting styles across countries. The discussion in Section IV.A suggests that as a country develops, the return to incumbency μ falls, triggering a decline of authoritarian parenting. Thus, one should expect a negative relationship between GDP per capita (a standard measure of economic development) and the authoritarian parenting style. Our model also predicts that, among advanced economies where authoritarian parenting has already declined, one should find a positive correlation between inequality and parental effort devoted to an authoritative parenting style. In Figure 2, two countries with the same μ but with different R's could lie, respectively in the SW region (dominated by permissive parenting style) and in the NW region (dominated by authoritative parenting style). Even if one compares economies within the NW region, in an economy characterized by greater inequality (i.e., higher R) parents will adopt, *ceteris paribus*, a more proactive authoritative parenting style, i.e., they will choose a higher a'.

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[27] Figure 2 is drawn for a particular value of the paternalism parameter λ. 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. Thus, the evolution depicted in Figure 2 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.

To test these implications we consider data from the World Value Survey, where people are asked which attitudes or values they find most important in child rearing.[28] The value most closely associated with an authoritarian parenting style is "obedience." In addition, "independence" in children should be negatively correlated with authoritarian parenting. "Hard work" and "thrift and saving money" are typical features of an authoritative style. Finally, emphasizing the values of "imagination" and "independence" represents a more permissive (or less intrusive) parenting style.[29]

Consider first the margin between authoritarian and non-authoritarian parenting style. The correlation between the fraction of parents emphasizing obedience and GDP per capita is -0.52, and for independence the correlation is 0.42.[30] These correlations are what our theory predicts, provided that, realistically, poorer countries are characterized by a higher incumbency advantage, less occupational differentiation, and less formal schooling. The likely path of development would lead to the demise of authoritarian parenting as countries develop.

Next, consider the margin between the authoritative and permissive styles. We are interested in particular in whether parents are more authoritative in unequal societies, as predicted by the theory. We restrict attention to OECD countries, since our theory predicts that for countries with a large return to incumbency (which is typical for poorer countries) an increase in R has no effect on parenting style. Inequality is measured by the income Gini coefficient in 2005.[31] Confirming the predictions of the theory, we find that hard work is positively related to inequality (correlation coefficient of 0.80), whereas the correlation with inequality is negative for independence (-0.55) and imagination (-0.56). All these correlation are highly significant. Scatter plots of these relationships are displayed in Figure 3. The results are robust to several checks: (i) excluding Turkey, a poorer country than the rest of the OECD; (ii) controlling for GDP per capita; (iii) including the countries that joined the OECD after 1994 (although here the correlation between hard work and Gini turns insignificant).[32] The correlation between the inequality measure and thrift is positive but low and insignificant.

The patterns for specific countries accord well with the general picture. Sweden and Norway have low inequality, and they have among the highest shares of respondents valuing imagination and independence in child rearing. The situation is similar in Germany and Switzerland. Scandinavians, Germans, and the Swiss also attach the least importance to transmitting the value of hard work to their children. In the much more unequal United States, parents place more emphasis on the

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[28] The data is from the 5th wave of the World Value Survey (corresponding to survey years 2005–2007). Parents can choose up to five of the following values: "independence;" "hard work;" "feeling of responsibility;" "imagination;" "tolerance and respect for others;" "thrift and saving money;" "determination and perseverance;" "religious faith;" "unselfishness;" and "obedience."

[29] The values of "feeling of responsibility" and "determination" are not clearly identified with one of the parenting styles; in particular, these values may be emphasized by authoritative parents, but are also related to independent thinking and thus the permissive parenting style. We therefore omit these values from the main analysis, and show later that our results are robust to including them.

[30] The data on GDP per capita is for the year 2005 from the Penn World Tables 7.1. Both correlations remain highly significant after controlling for religious faith, which could be argued to be a cultural determinant of parenting attitudes.

[31] Data on Gini coefficients are from the OECD. We restrict the baseline sample to countries that were OECD members before 1994. This leaves us data for sixteen OECD countries: Australia, Canada, Finland, France, Germany, Great Britain, Italy, Japan, Netherlands, New Zealand, Norway, Spain, Sweden, Switzerland, Turkey, and the United States. We also report the results when five countries that became members since 1994 (Chile, Korea, Mexico, Poland and Slovenia) are added.

[32] Chile and Mexico are outliers, displaying large inequality but a low emphasis on hard work. The relationship is stable across the other recent OECD members.
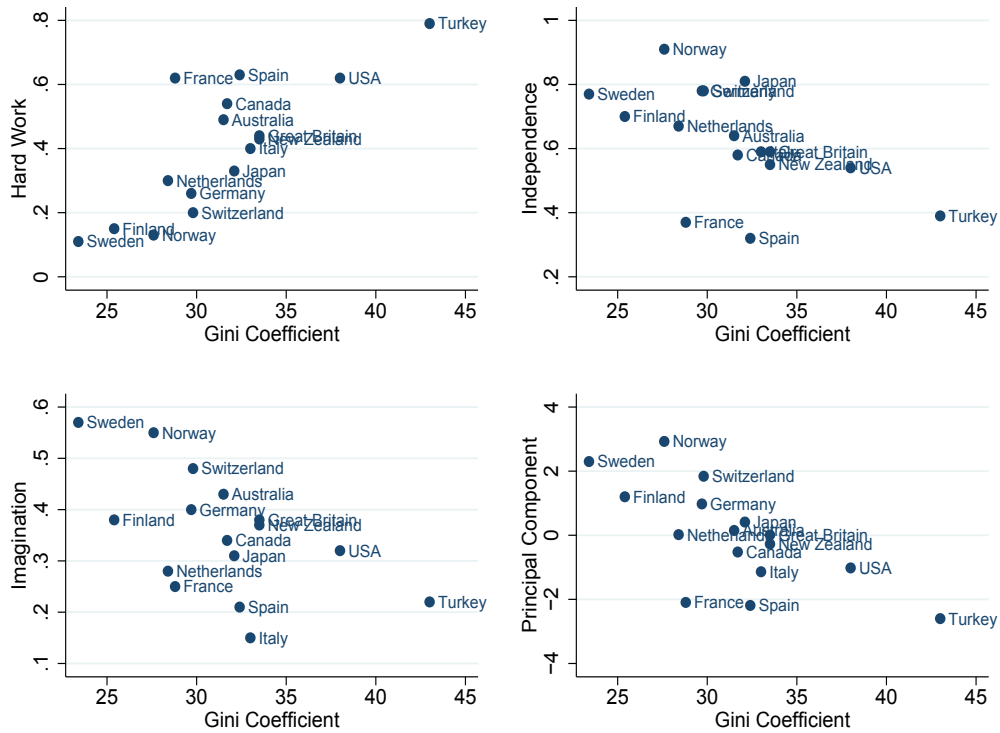
Figure 3: Parenting Values and Inequality across OECD Countries. Notes: Parenting values are measured by fraction of parents that consider a given "quality that children can be encouraged to learn at home" especially important, from 5th wave the World Value Surveys, 2005–2007. Income inequality is measured by Gini coefficient in 2005, from OECD.

value of hard work and less on that of independence. Imagination is also valued less by American parents. The main outlier from the general pattern is France, where inequality is at a medium level, but parents endorse authoritative values. Outside of the OECD, China has among the most extreme parenting values: the score of imagination is very low, whereas the value of hard work is emphasized by 90 percent of the respondents (compared to 62 percent in the United States and only 11 percent in Sweden). This is once again consistent with our theory, as China exhibits high inequality and underwent a dramatic increase in the return to education over the two last decades (see Ge and Yang (2014)).

To summarize the data, we run a principal component analysis among the four values of interest. The first principal component, accounting for 64 percent of the variation in the data, loads positively on independence and imagination, and negatively on hard work and thrift (see Table 1). This component thus indicates a more permissive and less authoritative parenting style. We find that, consistent with the theoretical predictions, the first component is negatively correlated with income inequality, with a correlation coefficient of -0.69.[33] The scatter plot for inequality and the first principal component is displayed in the bottom-right panel of Figure 3. The second component already explains much less of the variance, and loads mostly

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[33] The results again are robust to excluding Turkey, controlling for GDP per capita, and including the countries that became OECD members after 1994.

Principal Component	1	2	3	4
Loading on Independence	0.55	-0.19	0.79	-0.17
Loading on Imagination	0.58	0.24	-0.18	0.75
Loading on Hard Work	-0.58	-0.15	0.51	0.62
Loading on Thrift	-0.13	0.94	0.28	-0.13
Percent of Variance Explained	0.64	0.26	0.07	0.03
Correlation with Gini Coefficent	-0.69	-0.07	0.17	0.52

Table 1: Principal Component Analysis for Values that Parents can Emphasize in Raising Children among 16 OECD Countries. Notes: Data from 5th wave of World Value Surveys, 2005–2007.

on thrift. This component is uncorrelated with the Gini coefficient, suggesting that additional factors drive the transmission of this value.

Our results are robust to including additional variables that are less clearly identified with a particular parenting style. The values of "determination" and "responsibility" could equally be linked to the permissive and authoritative parenting styles. In the case of "obedience," one might suspect that this value proxies for an authoritative style in countries where the authoritarian parenting style is obsolete.[34] Adding these values to the principal component analysis does not significantly change the results. The first principal component (which now explains 56 percent of the variance) loads negatively on hard work and obedience, and positively on the other variables (with the score of thrift being close to zero). The first principal component is still strongly correlated with inequality (with a correlation of -0.66).

In summary, the analysis of the World Value Survey data indicates that our predictions are borne out empirically. In countries with low inequality (such as Germany, Netherlands, and the Scandinavian countries), parents emphasize values such as "independence" and "imagination" over "importance of hard work". The opposite pattern is observed in more unequal countries such as the United States and China.

Beyond inequality, there are additional factors that our theory would predict to determine parenting style. Institutional features of the education system are an important example. 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. Teaching in French schools is vertical, and access to the country's elite system of *grandes écoles* highly restricted. Hence,

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[34] In practice, the distinction between authoritative and authoritarian parenting is less clear-cut than in the theory. A proactive and engaged parenting style aiming at induce high achievements is often intertwined with some prohibitions. For instance Amy Chua, the "Tiger Mom" and icon of helicopter parenting, writes (Wall Street Journal, January 8, 2011): "A lot of people wonder how Chinese parents raise such stereotypically successful kids. ...Well, I can tell them, because I've done it. Here are some things my daughters, Sophia and Louisa, were never allowed to do: attend a sleepover; have a playdate; be in a school play; complain about not being in a school play; watch TV or play computer games; choose their own extracurricular activities; get any grade less than an A; not be the No. 1 student in every subject except gym and drama; play any instrument other than the piano or violin; not play the piano or violin."

parents emphasize hard work at the expense of independence and imagination, even though overall inequality is relatively low.[35]

V. Additional Applications of the Theory

The general framework we develop above can be applied to other dimensions of preferences, and additional state variables can be introduced to examine interactions with other economic decisions. In this section, we outline some key implications of such extensions.

A. Endogenous Patience with Transfers to Children

Besides influencing children's preferences and choices, parents typically make other economic decisions that affect their children's well-being. In the working paper version Doepke and Zilibotti (2012), we extend the model of Section II to allow for the possibility of additional economic state variables affecting the child, such as monetary transfers, health, and the transmission of specific skills. We include economic state variables also in the analysis in Section III, but there only old-age opportunities depend on these. The analysis of such decisions is related to the large literature—stretching back to Becker's rotten kid theorem (Becker (1974) and (1981))—that studies the strategic relationship between parents and children when there is an incentive for the child to deviate, ex post, from the behavior prescribed by her parent. However, in the existing literature preferences are exogenous, and parents cannot affect their children's behavior through preference manipulation.

As an example, consider an environment where parents affect their children's patience and, in addition, make inter-vivos transfers to them. Returning to the parable of the child who leaves the farm to study in the city, we can envision parents providing financial resources to support the child's expenses. A new agency problem arises from disagreement between parent and child on how the transfer should be used, i.e., saved for the future or consumed immediately. If the child stays on the farm (authoritarian parenting style), the parent controls the savings decision, and the agency problem is averted. If the parent chooses a strong form of authoritative parenting, such that $a' = \psi - 1$, then the child can be fully trusted and, again, the agency problem is resolved. However, a paternalistic parent who chooses not to exercise full control over the child (i.e., $a' < \psi - 1$) ends up disagreeing with the child's consumption-savings choice. Such parents react to the disagreement by reducing their inter-vivos transfer. Hence, disagreement between parent and child can lead to persistent effects on wealth accumulation within dynasties.

B. Risk Aversion

The theory can be applied to another important dimension of preferences, namely, risk aversion. Risk aversion is known to increase with age (Morin and Suarez (1983), Pålsson (1996)), leading to a natural possibility of conflict between parents and children regarding risk-taking by children. Risk aversion is also known to matter for different 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

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[35] The importance of teaching practices for the accumulation of social capital is emphasized by and Algan, Cahuc and Shleifer (2013).

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, among others, by van Praag and Cramer (2001), 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 Socio-Economic Panel. Using the same data set, Zumbuehl, Dohmen and Pfann (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.

We discuss the case of risk aversion in detail in the working paper version of this paper Doepke and Zilibotti (2012). Here we provide a sketch of the key trade-offs. Preferences are parameterized by a von Neumann-Morgenstern expected utility function inducing a constant relative risk aversion (CRRA). The endogenous part of risk aversion is denoted by $a \in [0, \bar{a}]$, where higher a implies a higher risk aversion. The old-age felicity is given by:

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

where c is a function of the choice x, which is interpreted as a lottery, i.e., a risky choice. In this application, it is natural to think of the child as an "adolescent". The adolescent felicity is given by:

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

We assume that $\psi > 0$, so that for a given underlying preference parameter a, adolescents are less risk averse than are adults. The lower risk aversion of children can lead to disagreement between parents and children about the appropriate degree of risk taking.

In every period, parents and children choose from a choice set that consists of lotteries over consumption. We interpret these lotteries broadly to include juvenile risky choices such as smoking, taking drugs, or riding motorcycles, as well as old-age decisions such as occupational choices that entail varying degrees of income uncertainty (related, for example, to the returns to entrepreneurship). Paternalistic parents may disagree with their children's choices and hence may wish to either restrict the lotteries available to the child (authoritarian parenting) or instill more risk aversion in their children (authoritative parenting).

In this setting, the choice of parenting styles hinges on the interaction among paternalism, the riskiness of the surrounding environment, and the availability of entrepreneurial opportunities. On the one hand, parents would like their children to avoid juvenile risks (such as gangs or street drugs). On the other hand, parents would like them to be capable, later in life, to seize entrepreneurial opportunities. Since preference traits are formed in childhood and persist throughout adult age, parents face a tradeoff. The crux is the exposure to juvenile risk. If juvenile risk is pervasive (as, for instance, in crime-ridden urban neighborhoods), parents may opt to instill into their children a strong risk aversion, in order to avoid trouble, even if greater safety comes at the expense of economic returns later in life. In safer environments (e.g., wealthy suburbs), parents would instead encourage risk tolerance and an entrepreneurial attitude.

An important distinction is that between exogenous and endogenous risk. If juvenile risk is unavoidable (e.g., because the family lives in a country plagued by war and terrorism), then risk tolerance is valuable, since it helps the child to cope with an uncertain life.[36] On the other hand, if juvenile risk-taking is endogenous in the sense of being controlled by the child (e.g., she can choose whether or not to get involved with street gangs), then altruistic parents would emphasize the value of playing it safe. Private and public institutions affecting the return and risk of entrepreneurial activities also affect the distribution of parenting styles in equilibrium.

Unlike in the application to patience, in the case of risk aversion parental preferences affect incentives for preference transmission. More risk averse parents will worry more about the risk-taking of their children, and are therefore more likely to mold their children as risk averse. This feature leads to persistence of preferences and occupational choices within dynasties, and potentially to macroeconomic path dependence (see Doepke and Zilibotti 2012, 2013).

C. Social Preferences

Our theory can be applied also to the transmission of social preferences. Pro-social preferences such as trust, other-regarding preferences, and interpersonal skills are correlated with better economic outcomes at the individual and social levels, see, e.g., Camerer and Fehr (2006). Upbringing and socialization are important determinants of such preferences (Fehr and Hoff (2011), Heckman, Pinto and Savelyev (2013)). Social behavior is often a source of disagreement between parents and children, with parents typically discouraging the natural tendencies of their children to behave in an aggressive or anti-social manner. The incentive for altruistic parents to teach social behavior varies with the extent to which such behavior is rewarded in society. For instance, in societies where aggression and abuse are the norm, teaching children other-regarding preferences may be dangerous. The opposite is true in societies where aggressive and opportunistic behaviors are penalized by social norms or law enforcement.

While the formation of social preferences has been analyzed in the cultural transmission literature (see, e.g., Hauk and Saez-Marti (2002)), our theory is the first that links these explicitly to parenting styles: Authoritative parents aim to instill social preferences into their children, whereas permissive and authoritarian parents do not interfere with children's natural inclinations (although authoritarian parents might sanction anti-social behavior). The theory has two main implications. First, there may be path dependence in the accumulation of social preferences. Pro-social parents may attach more value to the social skills of their children, and they may also be more effective at transmitting such skills. This leads to persistence of social preferences within dynasties. In addition, externalities can induce self-reinforcing mechanisms and multiple equilibria: in a society where authoritative parenting is pervasive, social norms that sanction deviating behavior may emerge. Second, the formation of social preferences may interact with other dimensions of parenting. For example, if parents adopt an authoritarian parenting style with respect to time preference (as in our main application above), this may spill over to the transmission of social preferences. More specifically, children in authoritarian families may interact less with others and be subjected to coercive methods, both of which may work

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[36] This is consistent with the findings in Bchir and Willinger (2013), who document that people living close to an active Peruvian volcano are more risk-tolerant than people living in safer areas.

against the formation of pro-social skills and feed parochialism. Consistent with these predictions, Alesina and Giuliano (2013) document that strong family ties are negatively correlated with generalized trust, while Alesina and Giuliano (2011) find that they are conducive to lower political participation.

VI.   Related Literature

The concept of parenting style originates from developmental psychology. In her seminal contributions, Baumrind (1967, 1971, 1978) 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 causal effects of parenting style on children's preferences, personalities, and outcomes (see, e.g., Aunola, Stattin and Nurmi (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. Such authoritarian methods, in turn, are at the root of the lower success of their children, and perpetuate the initial inequality. Our theory focuses on a broader set of parenting choices, and ignores, for simplicity, pecuniary costs of parenting.[37] Lizzeri and Siniscalchi (2008) assume that altruistic parents are better informed than their children about the consequences of certain actions. Parents can then 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 paper focuses on a different dimension (information accumulation) of parenting practices, and is therefore complementary to ours.[38] Bhatt and Ogaki (2012) construct a model of tough love in which parents evaluate the child's lifetime utility with a constant high discount factor, whereas the child's patience is assumed to be inversely related to consumption. In this environment, parental transfers are distorted strategically to affect the child's discount factor. Different from our paper, these authors postulate a direct relationship between preferences and consumption. Cosconati (2009) estimates a two-period model of parenting style in which children differ in their predisposition to human capital accumulation, and argues that this affects the optimal choice of parenting style. None of these papers develops a theory that encompasses all three main parenting styles emphasized in the psychology literature, or uses the theory to explain variation in parenting styles over time and across countries.

Our paper is related more generally to the large literature on cultural transmission and norms, including Bisin and Verdier (2001), Bisin and Verdier (2010), Hauk and Saez-Marti (2002), Saez-Marti and Zenou (2012), and Tabellini (2008 and 2010). A common assumption in this literature is imperfect empathy. Imperfectly empathic parents desire, by assumption, that their children adopt the parents' cultural traits (such as religion). Parents' effort in shaping their children's values determines the

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[37]Pecuniary incentives are also considered in Hao, Hotz and Jin (2008), who focus on birth order effects. Specifically, parents may want to punish older children more severely for unwanted behavior, in order to built up a reputation for toughness vis-à-vis the younger children.

[38] Other information-based theories include Adriani and Sonderegger (2009, 2014).

probability of successful transmission. When transmission fails, children copy the trait of a random member of the population. Different from this approach, our model is framed in a dynastic model where parents have both altruistic and paternalistic motives. In our model, even fully paternalistic parents have no exogenous drive to reproduce their own traits. Rather, preferences may be persistent across cohorts within dynasties as an equilibrium outcome.[39] Interactions between parental transmission of preferences and occupational choice are also central to the analyses of Doepke and Zilibotti (2005, 2008) and Corneo and Jeanne (2010), but in these papers parents are entirely altruistic, and alternative parenting styles are not considered.

Another closely related theory is Becker, Murphy and Spenkuch (2014), who 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. Such an investment can be Pareto improving, since parents invest more in the human capital of their children when they expect more support from them in old age. Becker, Murphy and Spenkuch (2014) share with our study the notion that parents can mold their children's preferences. However, they abstract from paternalistic motives in parents' choice, and they do not consider alternative parenting styles. In turn, we ignore the consequences of parents investing in their children's preferences on old-age insurance, which is the focal point of their study. Thus, the two papers are complementary. Conversely, Lundberg, Romich and Tsang (2009) and Romich, Lundberg and Tsang (2009) focus on the non-cooperative interaction between paternalistic parents and myopic children. These papers focus on the parental choice between letting children decide autonomously, sharing decision making with them, or imposing decisions on them; and, on how this choice influences children's decision-making as they turn adolescent. Their empirical analysis is guided by a model where parents decide how much time to invest in controlling their children, while the children decide how much resistance to stage against parental control, at the cost of reducing family harmony and their resources. These dimensions, from which we abstract, are also complementary to our analysis.

In our model, authoritative parenting distorts the child's preferences away from those that would maximize their welfare in a utilitarian sense. Such intervention can therefore be interpreted as instilling a form of "guilt" that induces the child to behave responsibly, and in particular to avoid choices that adults view as inappropriate. For instance, the responsible child is induced to study diligently for an exam instead of playing with friends. This feature links our work to the recent paper by Fernández-Villaverde, Greenwood and Guner (2014), where altruistic parents choose how strongly to stigmatize sex, trading off the marginal gains from instilling a taboo against its costs. The focus of their paper is how an episode of technical change, i.e., the introduction of modern contraception, has changed over time the benefits, and thus the incidence, of the taboo. However, they do not discuss alternative parenting styles.

Our paper also has links to the recent literature on time-inconsistent decision making and temptation. In the application to patience in Section III, dynasties display quasi-hyperbolic discounting, as in Laibson (1997). The possibility of restricting choice sets to deal with this time-inconsistency is related to Gul and Pesendorfer (2003), who propose an axiomatic decision theory of a rational agent who is sub-

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[39] A more thorough review of the similarities and differences between the two approaches can be found in Saez-Marti and Zilibotti (2008).

ject to a temptation problem. Specifically, the choice set includes elements that would appeal to him, but whose choice he anticipates he would regret. The agent chooses optimally whether to succumb to temptation or to resist, knowing that even resisting induces a utility loss (e.g., not ordering an appetizing dessert at a restaurant). In this environment, the decision maker may wish to restrict the choice set ex ante. In our model, similarly, an adult may find it optimal to restrict the choice set of the next member of the dynasty. The tradeoff between restricting choice and letting children follow their inclinations is related to the tradeoff between commitment and flexibility in Amador, Werning and Angeletos (2006), who build on Gul and Pesendorfer but add an information friction that implies a downside to overly restricted choice sets.

Our application to patience is also related to the recent empirical literature emphasizing the importance of patience for savings and human capital investment (see, e.g., Mischel, Shoda and Rodriguez (1992), Heckman, Stixrud and Urzua (2006), Reyes-Garcia et al. (2007), and Sutter et al. (2013)). Similarly, the application to endogenous risk aversion relates to the literature on the determinants of entrepreneurship, namely individual risk tolerance (see Doepke and Zilibotti (2013)). More generally, our paper relates to the growing literature on the formation and accumulation of cognitive and non-cognitive skills, examples of which are patience, self-discipline, and social skills, see, e.g., Cunha and Heckman (2008), Cunha, Heckman and Schennach (2010), and Segal (2013). While these studies focus mainly on the production function for such skills, our framework provides a rationale for how differences in socio-economic conditions can affect parental investments in children. Elucidating such determinants is useful from a policy perspective. Heckman and Mosso (2014) show, for example, 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 and Heckman (2009) and Heckman, Pinto and Savelyev (2013)). These findings underscore the importance of understanding how parenting styles are chosen, and how policy interventions can affect those choices.

VII. Conclusions

The recent economic literature has turned increasingly to preference heterogeneity in its attempts to solve micro- and macroeconomic puzzles. The persistence of low economic development, for instance, has been linked to the prevalence of cultural traits that are not conducive to entrepreneurship and innovation (Gorodnichenko and Roland 2010 and 2011). In turn, the developmental psychology literature has long argued that parenting style can affect individual values, preferences, and beliefs. There is, however, little understanding of the determinants of parenting styles. In this paper, we provide a formal economic theory of child-rearing that rationalizes the emergence of different parenting styles as equilibrium outcomes. A cornerstone of our theory is the notion of paternalism: parents do not always accept their children's preferences and inclinations, and typically regard influencing or constraining their children's behavior as part of their parental duties. Our theory predicts that different parenting styles are the rational outcomes of the interaction between parental paternalism and the economic environment.

We apply our model to the intergenerational transmission of patience. The theory yields predictions for how the economic characteristics of a country determine the prevalence of different parenting styles. In particular, the theory is consistent with

historical evidence that authoritarian parenting declines as economic development advances. Moreover, the theory 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.

The theory can be extended in several directions. For instance, one could let paternalism result from an evolutionary process. Our analysis suggests that there is no golden rule about the fitness of paternalistic preferences. In our main application (patience), paternalism has high fitness, as it induces human capital accumulation, contributing to the economic success of paternalistic dynasties. In an application to risk preferences, parental paternalism reduces risk-taking and protects children from juvenile risk but can 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 operating through general equilibrium effects. In a companion paper, we study the interaction among preference formation, innovation, and growth in a model where patience and risk tolerance are endogenous (see Doepke and Zilibotti (2013)), and where the distribution of preferences has a general equilibrium effect via an endogenous choice between entrepreneurship and other occupations (although in that paper, we abstract from paternalism and endogenous parenting style). One could go even farther and study how parenting style feeds back into the determination of policies, institutions, and social norms. Such extensions are left to future research.

References

Adriani, Fabrizio, and Silvia Sonderegger. 2009. "Why Do Parents Socialize their Children to Behave Pro-socially? An Information-based Theory." *Journal of Public Economics*, 93(11–12): 1119–24.

Adriani, Fabrizio, and Silvia Sonderegger. 2014. "On the Mechanics of Cultural Transmission: Teaching by Example." Unpublished Manuscript, University of Nottingham.

Alesina, Alberto, and Paola Giuliano. 2011. "Family Ties and Political Participation." *Journal of the European Economic Association*, 9(5): 817–839.

Alesina, Alberto, and Paola Giuliano. 2013. "Family Ties." In *Handbook of Economic Growth*. , ed. Philippe Aghion and Steven Durlauf, Chapter 4. Elsevier.

Algan, Yann, Pierre Cahuc, and Andrei Shleifer. 2013. "Teaching Practices and Social Capital." *American Economic Journal: Applied Economics*, 5(3): 189–210.

Amador, Manuel, Ivan Werning, and George-Marios Angeletos. 2006. "Commitment vs. Flexibility." *Econometrica*, 74(2): 365–96.

Aunola, Kaisa, Hakan Stattin, and Jari-Erik Nurmi. 2000. "Parenting Styles and Adolescents' Achievement Strategies." *Journal of Adolescence*, 23(2): 205–22.

Barro, Robert J., and Gary S. Becker. 1989. "Fertility Choice in a Model of Economic Growth." *Econometrica*, 57(2): 481–501.

Barsky, Robert B., F. Thomas Juster, Miles S. Kimball, and Matthew D. Shapiro. 1997. "Preference Parameters and Behavioral Heterogeneity: An Experimental Approach in the Health and Retirement Study." *Quarterly Journal of Economics*, 112(2): 537–79.

Baumrind, Diana. 1967. "Child Care Practices Anteceding Three Patterns of Preschool." *Genetic Psychology Monographs*, 75(1): 43–88.

Baumrind, Diana. 1971. "Current Patterns of Parental Authority." *Developmental Psychology*, 4(1 Pt. 2): 1–103.

Baumrind, Diana. 1978. "Parental Disciplinary Patterns and Social Competence in Children." *Youth & Society*, 9(3): 239–76.

Bchir, Mohamed A., and Marc Willinger. 2013. "Does the Exposure to Natural Hazards Affect Risk and Time Preferences? Some Insights from a Field Experiment in Peru." Working Paper 13-04, LAMETA, Universtiy of Montpellier.

Becker, Gary S. 1974. "A Theory of Social Interactions." *Journal of Political Economy*, 82(6): 1063–93.

Becker, Gary S. 1981. *A Treatise on the Family.* Harvard University Press.

Becker, Gary S., and Nigel Tomes. 1979. "An Equilibrium Theory of the Distribution of Income and Intergenerational Mobility." *Journal of Political Economy*, 87(6): 1153–89.

Becker, Gary S., Kevin M. Murphy, and Jörg L. Spenkuch. 2014. "The Manipulation of Children's Preferences, Old Age Support, and Investment in Children's Human Capital." Unpublished Manuscript, University of Chicago.

Bhatt, Vipul, and Masao Ogaki. 2012. "Tough Love and Intergenerational Altruism." *International Economic Review*, 53(3): 791–814.

Bisin, Alberto, and Thierry Verdier. 2001. "The Economics of Cultural Transmission and the Dynamics of Preferences." *Journal of Economic Theory*, 97(2): 298–319.

Bisin, Alberto, and Thierry Verdier. 2010. "The Economics of Cultural Transmission and Socialization." In *Handbook of Social Economics.* Vol. 1A, , ed. Jess Benhabib, Alberto Bisin and Matthew O. Jackson, Chapter 9. Elsevier.

Bursztyn, Leonardo, and Lucas C. Coffman. 2012. "The Schooling Decision: Family Preferences, Intergenerational Conflict, and Moral Hazard in the Brazilian Favelas." *Journal of Political Economy*, 120(3): 359–97.

Bussmann, Kai-D., and Andreas Schroth. 2009. "The Effect of Banning Corporal Punishment in Europe: A Five-Nation Comparison." Unpublished manuscript.

Camerer, Colin F., and Ernst Fehr. 2006. "When Does 'Economic Man' Dominate Social Behavior?" *Science*, 311(5757): 47–52.

Chan, Tak Wing, and Anita Koo. 2011. "Parenting Style and Youth Outcomes in the UK." *European Sociological Review*, 27(3): 385–99.

Corneo, Giacomo, and Olivier Jeanne. 2010. "Symbolic Values, Occupational Choice, and Economic Development." *European Economic Review*, 54(2): 237–51.

Cosconati, Marco. 2009. "Parenting Style and the Development of Human Capital in Children." Unpublished Manuscript, Bank of Italy.

Cramer, J. S., Joop Hartog, Nicole Jonker, and C.M. van Praag. 2002. "Low Risk Aversion Encourages the Choice for Entrepreneurship: An Empirical Test of a Truism." *Journal of Economic Behavior and Organization*, 48(1): 29–36.

Cunha, Flavio, and James J. Heckman. 2008. "Formulating, Identifying and Estimating the Technology of Cognitive and Noncognitive Skill Formation." *Journal of Human Resources*, 43(4): 738–82.

Cunha, Flavio, and James J. Heckman. 2009. "The Economics and Psychology of Inequality and Human Development." *Journal of the European Economic Association*, 7(2–3): 320–64.

Cunha, Flavio, James J. Heckman, and Susanne M. Schennach. 2010. "Estimating the Technology of Cognitive and Noncognitive Skill Formation." *Econometrica*, 78(3): 883–931.

Darling, John. 1994. *Child-Centred Education and Its Critics.* London: Paul Chapman.

Darling, Nancy, and Laurence Steinberg. 1993. "Parenting Style as Context: An Integrative Model." *Psychological Bulletin*, 113(3): 487–96.

Doepke, Matthias, and Fabrizio Zilibotti. 2005. "Social Class and the Spirit of Capitalism." *Journal of the European Economic Association*, 3(2-3): 516–24.

Doepke, Matthias, and Fabrizio Zilibotti. 2008. "Occupational Choice and the Spirit of Capitalism." *Quarterly Journal of Economics*, 123(2): 747–93.

Doepke, Matthias, and Fabrizio Zilibotti. 2012. "Parenting with Style: Altruism and Paternalism in Intergenerational Preference Transmission." IZA Discussion Paper 7108.

Doepke, Matthias, and Fabrizio Zilibotti. 2013. "Culture, Entrepreneurship, and Growth." In *Handbook of Economic Growth*. Vol. 2A, , ed. Philippe Aghion and Steven N. Durlauf, Chapter 1. Elsevier.

Dohmen, Thomas, Armin Falk, David Huffman, and Uwe Sunde. 2012. "The Intergenerational Transmission of Risk and Trust Attitudes." *Review of Economic Studies*, 79(2): 645–77.

Dornbush, Stanford M., Philip L. Ritter, P. Herbert Leiderman, Donald F. Roberts, and Michael J. Fraleigh. 1987. "The Relation of Parenting Style to Adolescent School Performance." *Child Development*, 58(5): 1244–1257.

Fehr, Ernst, and Karla Hoff. 2011. "Introduction: Tastes, Castes and Culture: the Influence of Society on Preferences." *The Economic Journal*, 121(556): F396–F412.

Fernández-Villaverde, Jesús, Jeremy Greenwood, and Nezih Guner. 2014. "From Shame to Game in One Hundred Years: An Economic Model of the Rise in Premarital Sex and its De-Stigmatization." *Journal of the European Economic Association*, 12(1): 25–61.

Galor, Oded, and Daniel Tsiddon. 1997. "Technological Progress, Mobility, and Economic Growth." *The American Economic Review*, 87(3): 363–82.

Ge, Suqin, and Dennis Tao Yang. 2014. "Changes in China's Wage Structure." *Journal of the European Economic Association*, 12(2): 300–36.

Gorodnichenko, Yuriy, and Gerard Roland. 2010. "Culture, Institutions, and the Wealth of Nations." NBER Working Paper 16368.

Gorodnichenko, Yuriy, and Gerard Roland. 2011. "Individualism, Innovation, and Long-run Growth." *Proceedings of the National Academy of Sciences*, 108(S4): 21316–19.

Gottschalk, Peter. 1997. "Inequality, income growth, and mobility: The basic facts." *Journal of Economic Perspectives*, 11(6): 21–40.

Gul, Faruk, and Wolfgang Pesendorfer. 2003. "Temptation and Self-Control." *Econometrica*, 69(6): 1403–35.

Guttormsson, Loftur. 2002. "Parent Child Relations." In *Family Life in the Long Nineteenth Century (1789–1913)*. Vol. 2 of *The History of the European Family*, , ed. David I. Kertzer and Marzio Barbagli, Chapter 8. New Haven: Yale University Press.

Hao, Lingxin, V. Joseph Hotz, and Ginger Z. Jin. 2008. "Games Parents and Adolescents Play: Risky Behaviour, Parental Reputation and Strategic Transfers." *Economic Journal*, 118(528): 515–55.

Hassler, John, and Jose V. Rodriguez Mora. 2000. "Intelligence, Social Mobility, and Growth." *American Economic Review*, 90(4): 888–08.

Hauk, Esther, and Maria Saez-Marti. 2002. "On the Cultural Transmission of Corruption." *Journal of Economic Theory*, 107(2): 311–35.

Heckman, James J., and Stefano Mosso. 2014. "The Economics of Human Development and Social Mobility." NBER Working Paper No. 19925.

Heckman, James J., Jora Stixrud, and Sergio Urzua. 2006. "The Effects of Cognitive and Noncognitive Abilities on Labor Market Outcomes and Social Behavior." *Journal of Labor Economics*, 24(3): 411–82.

Heckman, James J., Rodrigo Pinto, and Peter A. Savelyev. 2013. "Understanding the Mechanisms through Which an Influential Early Childhood Program Boosted Adult Outcomes." *American Economic Review*, 103(6): 2052–86.

Hsieh, Chang-Tai, Erik Hurst, Charles I. Jones, and Peter J. Klenow. 2013. "The Allocation of Talent and U.S. Economic Growth." NBER Working Paper 18693.

Hyman, Irwin A. 1997. *The Case Against Spanking.* San Francisco: Jossey–Bass.

Kaestle, Carl F., and Maris A. Vinovskis. 1980. *Education and Social Change in Nineteenth-Century Massachusetts.* Cambridge: Cambridge University Press.

Kan, Kamhon, and Wei-Der Tsai. 2006. "Entrepreneurship and Risk Aversion." *Small Business Economics*, 26: 465–74.

Katz, Lawrence F., and Kevin M. Murphy. 1992. "Changes in Relative Wages, 19631987: Supply and Demand Factors." *Quarterly Journal of Economics*, 107(1): 35–78.

Kohn, Melvin L. 1977. *Class and Conformity: A Study in Values, with a Reassessment.* . Second Edition ed., Chicago: University of Chicago Press.

Laibson, David. 1997. "Golden Eggs and Hyperbolic Discounting." *Quarterly Journal of Economics*, 112(2): 443–77.

Lizzeri, Alessandro, and Marciano Siniscalchi. 2008. "Parental Guidance and Supervised Learning." *The Quarterly Journal of Economics*, 123(3): 1161–95.

Locke, John. 1800. *Some Thoughts Concerning Education.* Printed for W. Baynes, Paternoster-Row, by Hemingway and Crook, Blackburn. Eighteenth Century Collections Online.

Long, Jason, and Joseph Ferrie. 2013. "Intergenerational Occupational Mobility in Great Britain and the United States since 1850." *American Economic Review*, 103(4): 1109–37.

Lundberg, Shelly, Jennifer Romich, and Kwok P. Tsang. 2009. "Decision-Making by Children." *Review of Economics of the Household*, 7: 1–30.

Marimon, Ramon, and Fabrizio Zilibotti. 1999. "Unemployment vs. Mismatch of Talents: Reconsidering Unemployment Benefits." *Economic Journal*, 109(455): 266–91.

Mischel, Walter, Yuichi Shoda, and Monica L. Rodriguez. 1992. "Delay of Gratification in Children." In *Choice Over Time.* , ed. George Loewenstein and Jon Elster, Chapter 6. New York: Russell Sage Foundation.

Morin, Roger-A, and Fernandez Suarez. 1983. "Risk Aversion Revisited." *Journal of Finance*, 38(4): 1201–16.

Mulligan, Casey B. 1997. *Parental Priorities and Economic Inequality.* University of Chicago Press.

Pålsson, Anne-Marie. 1996. "Does the Degree of Relative Risk Aversion Vary with Household Characteristics?" *Journal of Economic Psychology*, 17(6): 771–87.

Piketty, Thomas, and Emmanuel Saez. 2003. "Income Inequality in the United States, 1913-2002." *Quarterly Journal of Economics*, 118(1): 1–39.

Plumb, J.H. 1975. "The New World of Children in Eighteenth-Century England." *Past & Present*, 67(1): 64–95.

Pollock, L. 1983. *Forgotten Children: Parent-child relations from 1500 to 1900.* Cambridge University Press.

Ramey, Garey, and Valerie A. Ramey. 2010. "The Rug Rat Race." *Brookings Papers on Economic Activity*, Spring 2010: 129–76.

Reyes-Garcia, Victoria, Ricardo Godoy, Tomas Huanca, William R. Leonard, Thomas McDade, Susan Tanner, and Vencent Vadez. 2007. "The Origin of Monetary Income Inequality: Patience, Human Capital, and the Division of Labor." *Evolution and Human Behavior*, 28: 37–47.

Romich, Jennifer L., Shelly Lundberg, and Kwok P. Tsang. 2009. "Independence Giving or Autonomy Taking? Childhood Predictors of Decision-Sharing Patterns Between Young Adolescents and Parents." *Journal of Research on Adolescence*, 19(4): 587–600.

Rousseau, Jean-Jacques. 1762. *Emile, or On Education.* . Translated by Allan Bloom (1979) ed., New York: Basic Books.

Saez-Marti, Maria, and Fabrizio Zilibotti. 2008. "Preferences as Human Capital: Rational Choice Theories of Endogenous Preferences and Socioeconomic Changes." *Finnish Economic Papers*, 21(2): 81–94.

Saez-Marti, Maria, and Yves Zenou. 2012. "Cultural Transmission and Discrimination." *Journal of Urban Economics*, 72(2–3): 137–46.

Segal, Carmit. 2013. "Misbehavior, Education, and Labor Market Outcomes." *Journal of the European Economic Association*, 11(4): 743–79.

Spera, Christopher. 2005. "A Review of the Relationship Among Parenting Practices, Parenting Styles, and Adolescent School Achievement." *Educational Psychology Review*, 17(2): 125–46.

Steinberg, Laurence, Nina S. Mounts, Susie D. Lamborn, and Sanford M. Dornbush. 1991. "Authoritative Parenting and Adolescent Adjustment Across Varied Ecological Niches." *Journal of Research on Adolescence*, 1(1): 19–36.

Straus, Murray A., and Julie H. Stewart. 1999. "Corporal Punishment by American Parents: National Data on Prevalence, Chronicity, Severity, and Duration, in Relation to Child and Family Characteristics." *Clinical Child and Family Psychology Review*, 2(2): 55–69.

Sutter, Matthias, Martin G. Kocher, Daniela Glaetze-Ruetzler, and Stefan T. Trautmann. 2013. "Impatience and Uncertainty: Experimental Decisions Predict Adolescents' Field Behavior." *American Economic Review*, 103(1): 510–31.

Tabellini, Guido. 2008. "The Scope of Cooperation: Norms and Incentives." *The Quarterly Journal of Economics*, 123(3): 905–50.

Tabellini, Guido. 2010. "Culture and Institutions: Economic Development in the Regions of Europe." *Journal of the European Economic Association*, 8(4): 677–716.

van Praag, C. M., and J. S. Cramer. 2001. "The Roots of Entrepreneurship and Labour Demand: Individual Ability and Low Risk Aversion." *Economica*, 68(269): 45–62.

Violante, Gianluca. 2002. "Technological acceleration, skill transferability, and the rise in residual inequality." *Quarterly Journal of Economics*, 117(1): 297–338.

Weinberg, Bruce A. 2001. "An Incentive Model of the Effect of Parental Income on Children." *Journal of Political Economy*, 109(2): 266–80.

Zumbuehl, Maria, Thomas Dohmen, and Gerard Pfann. 2013. "Parental Investment and the Intergenerational Transmission of Economic Preferences and Attitudes." Unpublished Manuscript, University of Bonn.

APPENDIX

A. Mathematical Appendix

A1. Proofs for Lemmas and Propositions

Proof of Lemma 1: The proof is by contradiction. Suppose $a^* = \hat{a}' \neq \underline{a}$. Given (3), we then have:

$$(1 - \lambda) U^y \left(x^y, \hat{a}'\right) + \beta U^o \left(\hat{x}', \hat{a}'\right) + \beta z \lambda U^o \left(\hat{x}^{y\prime}, \hat{a}'\right) + \beta z (1 - \lambda) U^y \left(\hat{x}^{y\prime}, \hat{a}''\right) + \beta^2 z v(\hat{a}'')$$
$$\geq (1 - \lambda) U^y \left(x^y, \underline{a}\right) + \beta v \left(\underline{a}\right)$$
$$\geq (1 - \lambda) U^y \left(x^y, \underline{a}\right) + \beta U^o \left(\hat{x}', \underline{a}\right) + \beta z \lambda U^o \left(\hat{x}^{y\prime}, \underline{a}\right) + \beta z (1 - \lambda) U^y \left(\hat{x}^{y\prime}, \hat{a}''\right) + \beta^2 z v(\hat{a}''),$$

where $\hat{x}'$, $\hat{x}^{y\prime}$, $\hat{a}''$ denote optimal future choices given that preference parameter $\hat{a}'$ is chosen today. Note that these choices differ from the optimal future choices which would obtain if $a' = \underline{a}$. Thus, imposing these choices in the continuation after $a' = \underline{a}$ can only decrease future utility on the right-hand side of the inequality. This explains the second inequality.[40] Also notice that the first term on both sides of (3) drops out because x^y is independent of a'.

Canceling terms, the first and third line of the expression above imply:

$$(1 - \lambda) U^y \left(x^y, \hat{a}'\right) + \beta U^o \left(\hat{x}', \hat{a}'\right) + \beta z \lambda U^o \left(\hat{x}^{y\prime}, \hat{a}'\right)$$
$$\geq (1 - \lambda) U^y \left(x^y, \underline{a}\right) + \beta U^o \left(\hat{x}', \underline{a}\right) + \beta z \lambda U^o \left(\hat{x}^{y\prime}, \underline{a}\right).$$

But this cannot be true, since Assumption 1 implies that $U^y \left(x^y, \underline{a}\right) \geq U^y \left(x^y, \hat{a}'\right)$, $U^o \left(\hat{x}', \underline{a}\right) \geq U^o \left(\hat{x}', \hat{a}'\right)$, and $U^o \left(\hat{x}^{y\prime}, \underline{a}\right) \geq U^o \left(\hat{x}^{y\prime}, \hat{a}'\right)$. We thus obtain a contradiction, and must have $a^* = \underline{a}$. $\square$

Proof of Lemma 2: First, note that

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

Next, differentiating $e \left(a'\right)$ yields:

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

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

$$c_{a'}^y(a') = \frac{y_H^{1-\sigma}}{1 - \sigma} \left(1 - e \left(a'\right)\right)^{1-\sigma} \times \frac{de \left(a'\right)}{da'}$$
$$= -\frac{y_H^{1-\sigma} \left(1 + R\right)^{1-\sigma}}{R\sigma\beta \left(1 + R \left(\frac{\psi - a'}{R\beta}\right)^{\frac{1}{\sigma}}\right)^{2-\sigma}} \left(\frac{\psi - a'}{R\beta}\right)^{\frac{1-2\sigma}{\sigma}},$$

---

[40] This is because the parent is fully altruistic towards the old-age choices of the child, meaning that a version of the envelope theorem applies.

where the last equality follows from replacing $e(a')$ by its expression in (10). Substituting $e(a')$, $c^y(e(a'))$, and $c^y_{a'}(e(a'))$ into (11) and rearranging terms yields (12).

Notice that the lemma only states a necessary condition for an optimum. For a given interior solution satisfying (11) to be a local maximum, one must also check that the second-order condition holds. In particular, let:

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

Then, the second-order conditions require that $\frac{\partial Q(a', R)}{\partial a'} < 0$ for the value of a' that satisfies (11) with equality. If the special case $\psi < 1 + \sigma$, the marginal benefit is everywhere decreasing in a', and the local optimum is unique. In particular, the condition $\frac{\partial Q(a', R)}{\partial a'} < 0$ must be true at the global optimum. $\qquad\square$

Proof of Lemma 3: The right-hand side of (12) is negative for $\lambda = 0$, implying that $a' = 0$ for $\lambda = 0$ and, by continuity, also for a range of λ sufficiently close to zero. At $\lambda = 1$, The second term in (12) is zero, and the condition can be satisfied only by setting $a' = \psi - 1$, so that the first term is zero as well. $\qquad\square$

Proof of Proposition 1: First note that if $\lambda \leq \sigma\frac{\psi}{\psi - (1-\sigma)}$, the right-hand side of (12) is negative for any a' and R. Hence, the inequality is strict and we must have $a' = 0$. For the case $\lambda > \sigma\frac{\psi}{\psi - (1-\sigma)}$, the threshold $\bar{R}$ results from setting $a' = 0$ and then equating the right-hand side of (12) to zero. Hence, if $R = \bar{R}$ condition (12) holds as an equality at $a' = 0$, so that $a' = 0$ is optimal. For $R < \bar{R}$, at $a' = 0$ the right-hand side of (12) is negative, so that we are at the corner solution and $a' = 0$ is optimal as well. For $R > \bar{R}$, notice that the right-hand side of (12) is strictly decreasing in R, which implies that the optimal a is strictly increasing in R also in this range. Finally, when R goes to infinity, the right-hand side of (12) converges to:

$$\frac{\lambda(\psi - a' - 1)}{\sigma(\psi - a')} - \frac{1 - \lambda}{1 - \sigma}.$$

Setting this expression equal to zero implies that:

$$\bar{a}^* = \lim_{R \to \infty} a^* = \psi - \lambda\frac{1 - \sigma}{\lambda - \sigma},$$

as required. $\qquad\square$

Proof of Proposition 2: The results for the choice between authoritative and permissive parenting in the region $\mu \leq \hat{\mu}(R)$ follow from Proposition 1. Here we need to establish that there exists a $\hat{\mu}(R)$ function that satisfies $0 < \hat{\mu}(R) \leq \bar{\mu}$ and such that authoritarian parenting is optimal for $\mu \geq \hat{\mu}(R)$. Consider the case $\mu = \bar{\mu}$.

We have:

$$\tilde{w}\left(X^{HOME},0\right) = \frac{y_H^{1-\sigma}}{1-\sigma}\left((\lambda+(1-\lambda)\psi)\frac{(1-\bar{e})^{1-\sigma}}{1-\sigma}+\beta\frac{(1+R\bar{e})^{1-\sigma}}{1-\sigma}\right),$$

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

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

$$\tilde{w}\left(X^{HOME},0\right) \geq \tilde{w}\left(X^{FREE},a^*\right).$$

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

$$\tilde{w}\left(X^{HOME},0\right) = \frac{y_H^{1-\sigma}}{1-\sigma}\left(\psi\frac{(1-\bar{e})^{1-\sigma}}{1-\sigma}+\beta\frac{(1+R\bar{e})^{1-\sigma}}{1-\sigma}\right) = \tilde{w}\left(X^{FREE},0\right).$$

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 $a^*=\psi-1$ and $e(\psi-1)=\bar{e}$, so that we have:

$$\tilde{w}\left(X^{HOME},0\right) = \frac{y_H^{1-\sigma}}{1-\sigma}\left(\frac{(1-\bar{e})^{1-\sigma}}{1-\sigma}+\beta\frac{(1+R\bar{e})^{1-\sigma}}{1-\sigma}\right) = \tilde{w}\left(X^{FREE},\psi-1\right).$$

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, $e(a^*)=\bar{e}$, implying that $\tilde{w}\left(X^{HOME},0\right) > \tilde{w}\left(X^{FREE},a^*\right)$, since $\bar{e}$ is chosen optimally, and $e(a^*)$ is distorted from the parent's perspective. In particular, if the parent is permissive, as long as $R>0$ we have:

$$\tilde{w}\left(X^{HOME},0\right) = \frac{y_H^{1-\sigma}}{1-\sigma}\left((\lambda+(1-\lambda)\psi)\frac{(1-\bar{e})^{1-\sigma}}{1-\sigma}+\beta\frac{(1+R\bar{e})^{1-\sigma}}{1-\sigma}\right)$$
$$> \frac{y_H^{1-\sigma}}{1-\sigma}\left((\lambda+(1-\lambda)\psi)\frac{(1-e(0))^{1-\sigma}}{1-\sigma}+\beta\frac{(1+Re(0))^{1-\sigma}}{1-\sigma}\right)$$
$$= \tilde{w}\left(X^{FREE},0\right),$$

since $e(0)<\bar{e}$, and $\bar{e}$ 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 lower effort of the child and her lower felicity for the child). 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 $a^*=0$ and $e(0)=\bar{e}=0$, thus $\tilde{w}\left(X^{HOME},0\right)=\tilde{w}\left(X^{FREE},0\right)$. 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 $\lambda \in [0, 1]$. $\qquad\square$

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