Why do parents socialize their children to behave pro-socially?

An information-based theory*

Fabrizio Adriani   Silvia Sonderegger

SOAS - University of London   University of Bristol, CMPO

February 6, 2009

Abstract

We present a model of intergenerational transmission of pro-social values in which parents have information about relevant characteristics of society that is not directly available to their children. Differently from existing models of cultural transmission of values (such as Bisin and Verdier, 2001, and Tabellini, 2008) we assume that parents are exclusively concerned with their children's material welfare. If parents coordinate their educational choices, a child would look at her system of values to predict the values of her contemporaries, with whom she may interact. A parent may thus choose to instil pro-social values into his child in order to signal to her that others can generally be trusted. This implies that parents may optimally decide to endow their children with values that stand in contrast with maximization of material welfare, even if their children's material welfare is all they care about.

JEL CODES: D64, D82, H41, Z13
KEYWORDS: Intergenerational Transmission, Signaling, Values.

1 Introduction

Many parents see the family as the primary institution devoted to transmitting pro-social values to children. For instance, the advice to avoid lying even when this may entail material benefits, or not to let down those who rely on one's actions are typical elements of parents' teachings. More generally, a substantial amount of parents' educational effort consists in instilling values in their children that restrict behavior associated with imposing negative externalities on others, and promote behavior associated with positive externalities. However, existing economic theory does not fully explain why parents are willing to spend time

1

and other resources to endow their children with values that, while benefiting other individuals, appear to be in conflict with maximization of their children's material welfare.[1] In our opinion, the recent interest of economists in the evolution of values within society[2] has moved this problem up in the agenda. A recent example is Tabellini (2008) who applies the "imperfect empathy" model of Bisin and Verdier (2001) (henceforth TBV) to the intergenerational transmission of values.

In this paper, we borrow from the TBV framework the idea that parents are able to manipulate the preferences of their children.[3] However, the crucial assumption of our model is that parents have information about relevant characteristics of society that is not directly available to their children. If parents coordinate their educational efforts, a child would look at her own set of values to predict the values that will prevail among her contemporaries. Hence, children use introspection to assess whether it is optimal to trust other individuals in society. A parent may thus choose to instil pro-social values into his child in order to signal that others can generally be trusted.

While we see the model as an extreme simplification of reality, we find the analysis useful in several respects. First, it builds on recent experimental evidence on the use of introspection to predict the behavior of others.[4] Glaeser et al. (2000) find that reported trusting attitudes are a better predictor of an individual's trustworthiness than of his/her actual trusting behavior. Sapienza et al. (2007) rationalize this finding by arguing that trust has a belief-based and a preference-based component. Subjects' beliefs about their opponent's behavior are usually formed by extrapolating from their own behavior. In line with these results, our model predicts that trustworthy children (i.e. children with pro-social

---

[1]Throughout the paper we abstract from issues of reputation. While these are clearly important, experimental evidence suggests that individuals do not act opportunistically even when interactions are one shot and anonymous (see for instance Dawes and Thaler 1988 for an early survey). Moreover, as shown by Andreoni (1995), this behavior is not simply the outcome of errors or confusion, but is rather connected with some inbuilt trait ("kindness"). Of course, it is still possible that for some reason parents are unable to impart contingent advice like "do not let down people with whom you may interact in the future" and therefore have to stick to general principles/values. We find this possibility worth of further investigation.

[2]See Bisin and Verdier (2008) for a review of recent works.

[3]While parents' educational effort in this direction is difficult to measure, the family environment seems to be important in shaping preferences. Recent evidence suggests that parents' generosity (Wilhem et al. 2008) and attitudes towards risk and trust (Dohmen et al. 2008) determine their children's generosity and attitudes, respectively.

[4]Psychologists have long recognized the importance of introspection for predicting the actions of others, even to the point of generating a "false consensus effect" (see for instance the seminal paper by Ross et al. 1977). Mitchell at al. (2006) provide brainscan evidence that people use introspection to make inferences about others who they perceive as "similar" to themselves.

values) exhibit more trust than opportunistic children (in fact, as will become clear later, this is an essential ingredient of our results).

A second implication of our analysis is that, since introspection is only valuable if parents coordinate their educational efforts, an incentive to transmit pro-social values can only arise when other parents are generally expected to do so. Hence, consistent with casual observation, our model predicts that parental educational choices are characterized by complementarities. A parent's decision on how to educate his child is affected by the (expected) educational choices of other parents, so that "good behavior breeds good behavior". Importantly, however, these complementarities are not built in the parent's utility function, but emerge endogenously as a result of signaling from parents to children.[5]

Third, recent evidence (Alesina and La Ferrara 2000 and 2002, Uslaner and Brown 2005) suggests that both trust and pro-social behavior are less likely to emerge in heterogeneous societies. Our analysis provides a rationale for why this may be the case. In an extension to the basic model, we show that, if heterogeneity is sufficiently large, the unique equilibrium is one where parents avoid spending resources to endow their children with pro-social values. Importantly, however, this result does not emerge from some exogenously-imposed dislike of people who are "different" from oneself. Instead, it emerges from an information-based argument, suggesting that what really matters here are informational differences rather than differences along other dimensions.

Our analysis is a first step towards the development of a theory of why parents endow their children with pro-social values that appear to be in conflict with the maximization of their children's *material welfare*. Such a theory should ideally complement the TBV approach. The TBV framework is useful to analyze the evolution of values, but does not explain where the fundamental economic benefit of having these values lies. The problem is in large part bypassed through the assumption that parents have some measure of children's *utility* – rather than material welfare – in their objective function. The utility measure typically reflects material welfare but also psychological costs or benefits not directly associated with economic costs or benefits. These psychological benefits can be evaluated either with the parent's preferences (imperfect empathy) or with the child's own preferences (full altruism).

---

[5]Complementarities also emerge in the model by Tabellini (2007), although in that paper they are imposed exogenously.

Under these assumptions, TBV show that parents may find it optimal to socialize their children to a trait that does not maximize the children's material welfare. While we do not find these assumptions implausible, it is clear that, taken out of its specific context, this approach risks becoming tautological. For instance, a parent may instil self-destructive values into his child because they induce the self-destructive behavior that maximizes the child's utility as measured by a parent (or a child) with self-destructive values.[6] By contrast, we show that parents may want to endow their children with values that are apparently in conflict with maximization of material welfare *even* when they are *only* interested in their children's material welfare.[7] While these values reduce the benefit to the child of behaving opportunistically, they may encourage the child to trust others. When others are trustworthy, trusting yields economic benefits. This result is important, since it provides a robust rationale for why pro-social behavior may persist even in the long-run.[8]

The paper contributes to the growing body of literature trying to model apparently suboptimal behavior with information imperfections and belief manipulation (see for instance Anderlini et al. 2007, Bénabou, and Tirole, 2003 and 2007, Bénabou, 2008, Guiso et al. 2008 for recent contributions to this literature, and Glaser and Konrad 1996 for an early contribution). A strand of this literature focuses on the problem of self-signaling in games of imperfect recall (Mullainathan 2002, Bénabou and Tirole, 2004). Clearly enough, the case of an altruistic parent whose actions convey information to an imperfectly informed child is not very different from a problem of self-signaling. Among models of self-signaling, the intuition for our result echoes the analysis of the prisoners' dilemma in Bernheim and Thomadsen (2005). Differently from most models of self-signaling, however, our results do not rely on anticipatory feelings.

---

[6]Corneo and Jeanne (2006 and 2007) side-step this potential issue by assuming that parents transmit a *value system*, rather than a *preference trait* to their children. This allows them to keep preferences fixed throughout their analysis.

[7]Our approach thus shares similarities with Frank (1987), who shows that it may be in a person's (material) interest to have a utility function that predisposes him to behave in a trustworthy manner, even when he is certain that, if he cheated, he would not be caught. In contrast with this work, however, here we explicitly analyze optimal parental behavior. As will become clear below, the rationale for our result is therefore quite different. In particular, it does not rely on the existence of an exogenous signal conveying information about an agent's type to potential trading partners.

[8]Bisin, Topa, and Verdier (2004) show that, while cooperative agents tend to be wiped out by natural selection, they generally survive under a cultural selection mechanism. However, "[this] selection criterion is not based on objective (or purely material) payoffs but on payoffs as perceived by cultural parents according to their own preferences and values" (p. 481). By contrast, our result implies that there exist equilibria in which socializing children to pro-social values is actually optimal from a material viewpoint.

The paper is organized as follows. Section two outlines the model. Section three presents the main result. Section four discusses the case of an heterogenous society. Section five concludes.

2   The Basic Model

There is a continuum of Parent (P) - Child (C) pairs and two periods. In the first period, parents simultaneously choose how to educate their children. We model the outcome of the parent's educational choices as a type τ for the child. There are two possible types of children, trustworthy $\tau = T$ and opportunistic $\tau = O$.[9] In the second period, children (now grown-up) observe their type and engage in economic activity.

The Child's Problem

For simplicity, we model economic activity as a "trust game" in which an agent (trustor) chooses whether to trust or not another agent (trustee) who, if trusted, can choose whether to honor or betray the trust given. We assume that each child is randomly and anonymously matched with two contemporaries, and performs the role of trustee in one match and the role of trustor in the other. All children are simultaneously matched. In the first stage of the game, each child chooses whether to trust or not to trust the stranger with whom she has been matched. This can be seen as the child's decision to enter a partnership, to entrust a financial intermediary with her saving, to hire an employee, etc. In the second stage, each individual who has been trusted chooses whether to honor or to betray the trust received. Notice that the timing of the game is designed to assume away all issues of reputation. Material payoffs are as follows. If the trustor chooses to trust and the trustee chooses to honor, both obtain a payoff of $\theta > 0$. If the trustor trusts and the trustee betrays, the trustor obtains $-\delta$, $\delta > 0$, and the trustee obtains $\beta > \theta$. If the trustor chooses not to trust, then both obtain 0. Notice that, from a material viewpoint, it is always optimal to betray when trusted. As a result, if only material payoffs matter, it is always optimal not to trust. However, we assume that trustworthy individuals also have a psychological cost of betraying.

---

[9]In principle, parents may also be of type T or O. However, we assume that parents only wish to maximize their children's material welfare, and have no direct preferences over their children's type. As a result, a parent's own type has no influence on his educational choice. This allows us to focus on our main point, namely that parents may optimally decide to instill pro-social values in their children, even if all they care about is maximize their children's material welfare.

5

The psychological cost is always greater than $\beta - \theta$ so that trustworthy individuals always choose to honor when trusted.[10] On the other hand, the type τ of the counterparty is private information so that an individual cannot observe whether her counterparty is trustworthy or opportunistic.

The Parent's Problem

We assume that educating children as trustworthy individuals is relatively more costly than educating them as opportunistic. This assumption works against the result we are set to prove, and therefore makes our results more compelling. Moreover, it appears to be realistic. For simplicity, we standardize the cost of educating the child as opportunistic to zero and assume that educating the child as trustworthy costs $k > 0$. The cost k is assumed to be identical to all parents (this is relaxed in the next section).[11]

Parents choose the type τ of their child as to maximize

$$U^P(\tau) = \lambda U^C(\tau) - c(\tau) \tag{1}$$

where $U^C(\tau)$ is the lifetime material payoff of a type τ child and $c(\tau)$ is the cost of socializing the child to type τ, so that $c(O) = 0$ and $c(T) = k$. The parameter $\lambda > 0$ is a measure of intergenerational altruism. The environment described is consistent with the idea that trustworthy children are a public good. The parents' problem thus resembles the problem of private provision of public goods.

Information

A child does not observe the actions of parents different from her own. Children observe their own type (but not the type of other children) and can use this information to form expectations on the fraction of their contemporaries who share their same type. The crucial assumption of the model is that parents have more information than their children about some characteristic of society. To model this, we consider the case in which the cost k of socializing a child to behave pro-socially is observed by all parents but is unobservable by the

---

[10]Alternatively, one could assume that type T individuals experience a "warm glow" when honoring trust (see Andreoni, 1990).

[11]As already mentioned, parents may themselves be trustworthy or opportunistic. In that case, it is possible that the cost k of educating children pro-socially may change, according to the parent's type (and may presumably be lower for a trustworthy). Allowing for this would make the model more involved without changing the main results.

children. The prior distribution for k is denoted with $f(k)$, $f(.)$ is assumed to be continuous and has full support $(0, \infty)$.

Our setup thus focuses on the case of asymmetric information about some "economic" characteristic of society, like the cost k. However, as discussed in the next section, our results straightforwardly extend to the case of asymmetric information over variables that are not immediately payoff-relevant.

If a parent's educational choices are contingent on the realization of k, the parent's action conveys information about k to the child. If all parents follow strategies contingent of k, then the child would use the information about k inferred from her parent's action to form expectations on the fraction of her contemporaries who are trustworthy. The natural solution concept for this problem is thus Perfect Bayesian Equilibrium (PBE). A PBE requires that, 1) all players play best replies given their beliefs, 2) children's beliefs are derived from parents' equilibrium strategies by using Bayes rule where possible.

Before presenting the main result, it is worth to discuss what happens in the benchmark case when the share of different types (trustworthy/opportunistic) among their contemporaries is observable by children. Denote this fraction with $\pi \in [0, 1]$. A child would trust (independently of her type) only if $\pi\theta - (1 - \pi)\delta \geq 0$. Let $\pi^* \equiv \frac{\delta}{\theta + \delta}$. Then, if $\pi \geq \pi^*$, both types obtain $\pi\theta - (1 - \pi)\delta$ as trustor. However, in their role of trustee, type O obtain β whereas type T obtain only θ. By contrast, if $\pi < \pi^*$ no one trusts and, therefore, both types obtain zero both as trustor and as trustee. As a result, $U^C(O) \geq U^C(T)$ for all π, so that all parents choose to educate their child as type O. This implies $\pi = 0 < \pi^*$. Thus, when π is observable by all, the free rider problem induces parents not to transmit pro-social values to their children. Incidentally, notice that with only two parent-child pairs, the game between the two parents would essentially be a prisoners' dilemma for all k such that $\lambda(\theta - \delta) < k < 2\lambda\theta$.

3   Introspection and parents' free riding

The setup in which the children observe k is characterized by two particular features. First, the child's choice of whether to trust or not is independent of the education received. Second, independently of other parents' choices, it is dominant for the parent to raise his child as

opportunistic.

As already argued, these features contrast with empirical evidence and casual observation. The case in which k is unobservable can address both of them. If parents coordinate their educational choices, then children can infer the type of their counterparty from their own type (introspection). This generates complementarities between the parents' decisions: when other parents raise their children as trustworthy, a parent may have incentive to do the same, in order to signal to his child that it is optimal to trust others. The game between parents thus resembles a stag-hunt, rather than a prisoners' dilemma. As a result of complementarity, the parents' behavior is coordinated, as if they were all obeying the same norm. Importantly, however, this arises endogenously, as a result of signaling from parents to children, rather than as a result of in-built complementarities – as would for instance be the case if parents explicitly cared about "following the norm".

For simplicity, we restrict attention to equilibria where all parents follow the same cutoff strategy k^*. This involves educating the child as trustworthy when k is below a cutoff k^* and educating the child as opportunistic otherwise.

Proposition 1. *If $\beta < 2\theta$, then there exists a continuum of PBE such that: 1) Children choose to trust when their parents socialize them to the trustworthy type and choose not to trust otherwise; 2) All parents follow the same cutoff strategy $k^* \in [0, \lambda(2\theta - \beta)]$ which prescribes socializing their children to the trustworthy type when $k \leq k^*$ and to the opportunistic type when $k > k^*$.*

Proof. Given the parents' strategy, a type T child believes $k \leq k^*$ which involves $\pi = 1$. Therefore, she always trusts. A type O child believes that $k > k^*$ which involves $\pi = 0$. As a result, a type O child would not trust. Consider parent i now and suppose that all other parents $j \neq i$ play a cutoff strategy k^*. We want to show that playing k^* is a best reply for parent i. Notice that, since parent i's payoff is monotone in k, any non-degenerate best reply takes the form of a cutoff strategy. If i plays k^* he obtains $2\lambda\theta - k$ when $k \leq k^*$ and 0 when $k > k^*$. Suppose first that i chooses a cutoff $k^i > k^*$. Then, for $k \geq k^i$ and $k \leq k^*$ he would obtain a payoff identical to the payoff that is obtainable by playing k^*. For $k \in (k^*, k^i)$, parent i would obtain $-\lambda\delta - k < 0$. Since he would obtain 0 by playing k^*, any $k^i > k^*$ is dominated. Consider now $k^i < k^*$. Again, this cutoff yields the same payoff as k^* for $k \leq k^i$ and $k \geq k^*$. For $k \in (k^i, k^*)$ it yields $\lambda\beta$. Hence, playing k^i is dominated whenever $k^* < \lambda(2\theta - \beta)$.

$\square$

Proposition 1 thus implies that, when $k < k^*$, economic interactions in period two are characterized by cooperation.

It is crucial to realize that this is an atypical signaling game. If parents coordinate their educational choices, a parent may find it optimal to raise his child as trustworthy in order

8

to signal to her that the value of k is low. However, the value of k does not directly enter the child's payoff. Information about k is only valuable to the child to the extent that it conveys information about the actions of other parents – since this information enables the child to make an informed choice about whether or not to trust her contemporaries. In our model, therefore, parents are motivated by the desire to inform their child about the actions that *other parents* are likely to take. This stands in contrast with most signaling models, where agents are motivated by the desire to provide information about *themselves*.[12] Note also that, when educating his child as trustworthy, the parent bears the direct cost, k, and also an indirect cost, $\lambda(\beta - \theta)$, due to the fact that a trustworthy child will forgo profitable opportunities to betray when trusted.

Another point worth stressing is that, as already mentioned, the result does not require that parents have private information on variables (such as k) that are immediately relevant for their payoffs. Cooperation could be sustained even in the presence of asymmetric information over a "sunspot", on whose realization parents may condition their educational choices. The sunspot variable would act as an equilibrium-selection device, and could be interpreted as indicating the prevailing "culture" or social norm within a particular society.[13] What is really crucial for the result is that parents observe the sunspot, while their children do not. Hence, in contrast with existing models of social norms (such as Kandel and Lazear 1994) here the parents' incentive for following the norm is not exogenously built in their utility function. Rather, it emerges endogenously from their desire to convey information to their children about the type of society in which their children will live.[14]

A possible objection to the set of equilibria we consider is that they may appear to depend on arbitrary restrictions on the parent's message space. To fix ideas, suppose that the parent could choose to raise the child as opportunistic for all values of k and just "tell" the child to trust others when he observes $k \leq k^*$. If the message were credible, then the parent would find it optimal to follow this strategy. Moreover, since all parents would prefer

---

[12]This feature shares similarities with Sliwka (2007), who shows that an employer may optimally decide to trust his (conformist) employee in order to signal to him that trustworthiness is the prevailing norm among other employees.

[13]See for instance Kreps (1996) for a model of culture as an equilibrium-selection device.

[14]This shares similarities with Bernheim (1994), who also shows that norm-following may endogenously emerge from signaling concerns. In Bernheim's case, individuals (who care directly about status and social esteem) follow the norm in order to send a signal about their type. Here, the signaling game is more subtle. Parents follow the norm in order to signal to their children that this is indeed the dominant norm.

9

this strategy to their equilibrium strategy, all equilibria in which parents cooperate (i.e. with $k^* > 0$) would unravel. There are two reasons why such a contradictory message would not be necessarily believed by the child. First, given an equilibrium of Proposition 1, the child may hold any belief about k when receiving an out of equilibrium message. For instance, if out of equilibrium beliefs assign a high probability to $k > k^*$, the child would choose not to trust. As a result, the parent would then be better off by following his equilibrium strategy. However, it is unclear whether these out of equilibrium beliefs are particularly sensible, since the parent can only benefit from sending this message when $k \leq k^*$. We find the second reason more compelling. In principle, upon observing her parent sending such a message, the child could doubt the fact that other parents are educating their children pro-socially. In the spirit of the model, it seems natural to assume that, when facing an out of equilibrium message, the child would use again introspection to update her beliefs about her peers. She would therefore suspect that the parents of other children might behave as her parent and would accordingly decide not to trust.

4   Heterogeneity

Common sense suggests that subjects rely less on introspection in environments characterized by individuals with heterogenous backgrounds.[15] A direct implication of our model is that, since introspection is less important when heterogeneity is high, the parents' incentive to raise their children as trustworthy is weakened. Suppose that there are $N \geq 1$ groups of identical size $1/N$ in the population. We will use N as a measure of the degree of heterogeneity within the population. Each group $n = 1, ..., N$ experiences an independent drawn k_n from the same distribution $f(k)$. Group-n parents observe their group-specific realization k_n but not the realization for other groups.

Consider any equilibrium in which all group-n parents socialize their children to the trustworthy type if k_n belongs to a set $\mathcal{K}$, where $\mathcal{K}$ is a subset of the support of $f(k_n)$, i.e. $\mathcal{K} \subseteq (0, \infty)$. For simplicity, we restrict attention to symmetric equilibria in which $\mathcal{K}$ is the same to all groups. Let $P(\mathcal{K})$ denote the probability that $k_n \in \mathcal{K}$. In equilibrium, the child chooses to trust when observing T and chooses not to trust when observing O. This is a

---

[15]Sapienza et al. (2007) use this argument to explain different correlations between trustworthiness and reported trust attitudes in homogenous groups (undergraduate students of the same institution) vis-á-vis heterogenous groups (households).

best reply if $(\theta + \delta)E(\pi|T) - \delta \geq 0$ and $(\theta + \delta)E(\pi|O) - \delta \leq 0$. These conditions can be rewritten as[16]

$$(\theta + \delta)\frac{N-1}{N}P(\mathcal{K}) - \delta \leq 0 \leq (\theta + \delta)\left[\frac{1}{N} + \frac{N-1}{N}P(\mathcal{K})\right] - \delta \quad (3)$$

We must determine conditions under which a parent finds it optimal to socialize his child to type T if and only if $k_n \in \mathcal{K}$, given other parents' strategies. Given a realization $k_n \in \mathcal{K}$, a group-n parent would find it optimal to raise his child as trustworthy if $\lambda[E(U^C(T)|k_n \in \mathcal{K}) - E(U^C(O)|k_n \in \mathcal{K})] \leq k_n$, or

$$\lambda\left[(\theta + \delta)\left(\frac{1}{N} + \frac{N-1}{N}P(\mathcal{K})\right) - \delta + (\theta - \beta)\left(\frac{1}{N} + \frac{N-1}{N}P(\mathcal{K})\right)\right] \geq k_n \quad (4)$$

where the first two terms in brackets represent the benefit that the child derives from trusting her counterparty. The last term in brackets is the cost of forgoing the opportunity to betray – and to obtain $\beta > \theta$ as a trustee. Similarly, given $k_n \notin \mathcal{K}$, a group-n parent would raise his child as opportunistic if,

$$\lambda\left[(\theta + \delta)\left(\frac{N-1}{N}P(\mathcal{K})\right) - \delta + (\theta - \beta)\left(\frac{N-1}{N}P(\mathcal{K})\right)\right] \leq k_n \quad (5)$$

Condition (4) and (5) are the parent's incentive compatibility constraints for $k_n \in \mathcal{K}$ and $k_n \notin \mathcal{K}$ respectively. Notice also that, given $k_n > 0$, and $\beta > \theta$, condition (4) always implies that the second inequality in (3) holds. Symmetrically, the first inequality in (3) always implies condition (5). In summary, the necessary and sufficient conditions for an equilibrium with cooperation are condition (4) for $k_n \in \mathcal{K}$ and the first inequality in (3). We are now ready to state the main result.

Proposition 2. *For any $\mathcal{K} \neq \varnothing$, there exists $\overline{N}$ such that, for all $N > \overline{N}$, $\mathcal{K}$ is not compatible with equilibrium.*

Proof. Given the first inequality in (3), for any $k_n \in \mathcal{K}$, condition (4) necessarily implies

$$\lambda\left[(\theta + \delta)\left(\frac{1}{N}\right) + (\theta - \beta)\left(\frac{1}{N} + \frac{N-1}{N}P(\mathcal{K})\right)\right] \geq k_n \quad (6)$$

given $\beta > \theta$, this requires that $\lambda(\theta + \delta) \geq Nk_n$. Clearly enough, for any $k_n > 0$ there exists $\overline{N}$ such that the above is violated for all $N > \overline{N}$. □

---

[16]A child of type T of group n expects the fraction of trustworthy individuals to be,

$$E(\pi|T) = E(\pi|k_n \in \mathcal{K}) = \frac{1}{N} + \frac{1}{N}\sum_{j=1}^{N-1} j\binom{N-1}{j}P(\mathcal{K})^j(1 - P(\mathcal{K}))^{N-1-j}$$

$$= \frac{1}{N} + \frac{N-1}{N}P(\mathcal{K}) \quad (2)$$

By the same token, $E(\pi|O) = E(\pi|k_n \notin \mathcal{K}) = \frac{N-1}{N}P(\mathcal{K})$.

Hence, all equilibria in which parents cooperate with positive probability (i.e. equilibria with $\mathcal{K} \neq \varnothing$) disappear if the degree of heterogeneity N is sufficiently high. The rationale for the result is that, as heterogeneity increases, parents' actions (and thus children's types) tend to be less correlated. Hence, parents' educational choices are less informative for the children's decision to trust. As a result, the signaling benefit of raising a child as trustworthy is outweighed by the cost. Note that, as in the previous section, the result straightforwardly extends to environments where parents condition their educational choice on the realization of (group-specific) "sunspots", representing culture or social norms.

Proposition 2 suggests that the reason why heterogeneity may make the transmission of pro-social values less likely is essentially an information-based one. What really matters here are informational differences, rather than differences along other dimensions.

Although the result is broadly consistent with empirical evidence[17], we do not want to claim that diversity is necessarily detrimental on the basis of an oversimplified view of the world. Several arguments warn for caution in interpreting the result. First, we considered heterogeneity in the cost of socializing children to pro-social behavior. However, there may be heterogeneity in the quality and degree of conformity to social norms. For instance, the arrival of a group of immigrants who socialize their children to pro-social values in a society trapped in a bad equilibrium exerts a positive externality on the society. If the group's attitudes towards children education are observable to all parents, natives may find it optimal to instil pro-social values in their children as well. Similarly, in our model, heterogeneity always reduces coordination. As shown by Grout et al. (2008), this is not necessarily the case. Finally, homogeneity makes it easier to transmit values that appear pro-social in the eyes of a particular community, but could be harmful for the wider society. The other side of the coin may thus be that homogenous communities are more prone to fanaticism, intolerance, and ideological bias.

5   Conclusions

We have shown that parents may want to bear the cost of instilling pro-social values into their children even when lacking any direct preference over their children's values. If other parents coordinate their educational choices, a parent may want to conform and endow his

---

[17]For instance, participation in associational activities (Alesina and La Ferrara, 2000) and level of trust (Alesina and La Ferrara, 2002) tend to be lower in more heterogenous communities.

child with pro-social values to signal to the child that others can be trusted. Future research should address possible conflicts of interests between parents and children and the role of other educational devices such as schools, role models, social networks.

References

[1] Alesina, A. and La Ferrara, E. 2002. "Who trusts others?" Journal of Public Economics, 85(2): 207-234.

[2] Alesina, A. and La Ferrara, E. 2000. "Participation In Heterogeneous Communities". Quarterly Journal of Economics, 115(3): 847-904.

[3] Anderlini, L., Gerardi, D., and Laguno, R. 2007. "Social Memory and Evidence from the Past" mimeo, Georgetown University.

[4] Andreoni, J. 1990. "Impure Altruism and Donations to Public Goods: A Theory of Warm-Glow Giving". Economic Journal. 100(401): 464-77.

[5] Andreoni, J. 1995. "Coperation in Public Goods Experiments: Kindness or Confusion?". American Economic review. 85(4): 891-904.

[6] Bénabou, R. 2008. "Ideology". CEPR Discussion Papers 6754.

[7] Bénabou, R., and Tirole, J. 2007. "Identity, Dignity and Taboos: Beliefs as Assets". mimeo, CEPR Discussion Papers 6123.

[8] Bénabou, R., and Tirole, J. 2003. "Intrinsic and Extrinsic Motivation". Review of Economic Studies. 70(3): 489-520.

[9] Bernheim, B.D. 1994. "A Theory of Conformity". Journal of Political Economy 102 (5): 841-877.

[10] Bernheim, B.D., and Thomadsen, R. 2005. "Memory and Anticipation". Economic Journal. 115(503): 271-304.

[11] Bisin, A., Topa, G., and Verdier, T. 2004. "Cooperation as a Transmitted Cultural Trait". Rationality and Society, 16(4): 477-507.

[12] Bisin, A., and Verdier, T., 2001. "The Economics of Cultural Transmission and the Dynamics of Preferences". Journal of Economic Theory. 97(2): 298-319.

[13] Bisin, A., and Verdier, T. 2008. "Cultural Transmission". The New Palgrave Dictionary of Economics. Second Edition, Durlauf, S.N., and Blume, L.E., eds.(Palgrave Macmillan, 2008).

[14] Corneo, G. and Jeanne, O. 2006. "A Theory of Tolerance" . CEPR Discussion Paper 5908.

[15] Corneo, G. and Jeanne, O. 2007. "Symbolic Values, Occupational Choice and Economic Development". IZA Discussion Paper 2763.

[16] Dawes, R.M., and Thaler, R.H. 1988. "Anomalies: Cooperation" Journal of Economic Prespectives 2 (3): 187-197.

[17] Dohmen, T.J., Falk, A., Huffman, D., and Sunde, U. 2008. "The Intergenerational Transmission of Risk and Trust Attitudes" CEPR Discussion Papers 6844.

[18] Frank, R.H. 1987. "If Homo Economicus Could Choose His Own Utility Function, Would He Want One With A Conscience?" American Economic Review 77(4): 393—394.

[19] Glaeser, E.L., Laibson, D.I., Scheinkman, J.A., and Soutter, C.L. 2000. "Measuring Trust". Quarterly Journal of Economics, 115(3): 811-846.

[20] Glaser, A. and Konrad, K. A. 1996. "A Signaling Explanation for Charity". American Economic Review, 86(4): 1019-1028.

[21] Grout, P.A., Mitraille, S., and Sonderegger, S. 2008. "The Costs and Benefits of 'Strangers': Why Mixed Communities Are Better". Centre forMarket and Public Organisation 08/191, University of Bristol.

[22] Guiso, L., Sapienza, P., Zingales, L. 2008. "Alfred Marshall Lecture: SocialCapital as Good Culture". Journal of the European Economic Association, 6 (2-3): 295-320.

[23] Kandel, E., and Lazear, E.P. 1992. "Peer Pressure and Partnerships". Journal of Political Economy, 100(4): 801-817.

[24] Kreps, D.M. (1996) "Corporate Culture and Economic Theory" in P.J. Buckley and J. Michie, eds., *Firms, Organizations and Contracts*, Oxford: Oxford University Press.

[25] Mitchell, J.P., Macrae, C.N., and Banaji, M.R. 2006. "Dissociable Medial Prefrontal Contributions to Judgements of Similar and Dissimilar Others". Neuron. 50(4): 655-63.

[26] Mullainathan, S. 2002. "A Memory-Based Model of Bounded Rationality". Quarterly Journal of Economics. 117(3): 735-774.

[27] Ross, L., Greene, D., and House, P. 1977. "The 'False Consensus Effect': An Egocentric Bias in Social Perception and Attribution Processes". Journal of Experimental Social Psychology. 13 (3): 271-301.

[28] Sapienza, P., Toldra, A., and Zingales, L. 2007 "Understanding Trust". NBER Working Paper No. W13387.

[29] Sliwka, D. 2007. "Trust as a Signal of a Social Norm and the Hidden Costs of Incentive Schemes". American Economic Review, 97(3): 999-1012.

[30] Tabellini, G. 2008. "The Scope of Cooperation: Values and Incentives". Quarterly Journal of Economics, forthcoming.

[31] Uslaner, E.M., and Brown, M., 2005. "Inequality, Trust, and Civic Engagement". American Politics Research 33(6): 868-894.

[32] Wilhelm, M.O., Eleanor,B., Rooney, P.M., and Steinberg, R. 2008 "The intergenerational Transmission of Generosity" Journal of Public Economics. 92(10-11): 2146-2156.