

How You Don't Play Like Your Kid And Why It Matters

MARCO CIPRIANI, PAOLA GIULIANO and OLIVIER JEANNE

George Washington University; Harvard University, IMF and IZA; IMF and CEPR

Cultural traits or values, such as trust and the propensity to cooperate are important determinants of economic outcomes, including growth, economic development, international trade, and labour market behaviour.¹

Values: where do they come from, why do they matter?

Whereas an interesting recent literature has documented the relevance of values for socio-economic outcomes, there is surprisingly little research on how these values are acquired. In the theoretical economic literature, the assumption that parents socialise their children is quite pervasive.² The empirical evidence on this assumption is, however, scant. In the psychology literature, some scholars (Eisenberg and Mussen, 1989) suggest that the family is the most important determinant of individual personality and attitudes, whereas others (Harris, 1995) suggest that the socialisation processes that most influence individual behaviour involve peer effects and non-family institutions such as the school.

Experimental games can be designed to study the transmission of values from parents to their children. The findings are strikingly different from those found in survey data in that the association between parents' and children's behaviour is almost non-existent

Very recently, some scholars (Dohmen et al., 2006) have tested the correlation between children and parents' values by using survey data and found a strong correlation between parents' and adult children's level of trust. Survey measures of individual traits, however,

have a drawback: sometimes survey answers are not strongly correlated to actual behaviour.³ This inconsistency of behaviour has been attributed to the fact that in surveys, as opposed to experiments, subjects are not remunerated and therefore have weak incentives to declare what they would consider to be the best action in a real economic setting. Moreover, a correlation between a parent and his or her adult child's behaviour can be due to the influence of common environment (e.g., the church or the neighbourhood) as much as to direct intergenerational transmission.

In contrast, our recent research illustrates how experimental games can be designed to study the transmission of values from parents to their children.⁴ We find that the experimental results offer markedly different implications from survey data. In particular, the association between parents' and children's behaviour is almost non-existent.

Why experimental evidence?

Experimental methods have been widely used in economics to evaluate theoretical predictions of economic behaviour. The use of controlled experiments in a laboratory setting allows the researcher to test the prediction of theoretical economic models. Controlled experiments have two advantages. First, since the experimenter controls the experiment, the usual identification problems that bedevil empirical economics are never an issue. Second, the experiment implemented in the laboratory can exactly replicate the theoretical model, whereas the same model is only a simplification of the empirical data generating process.

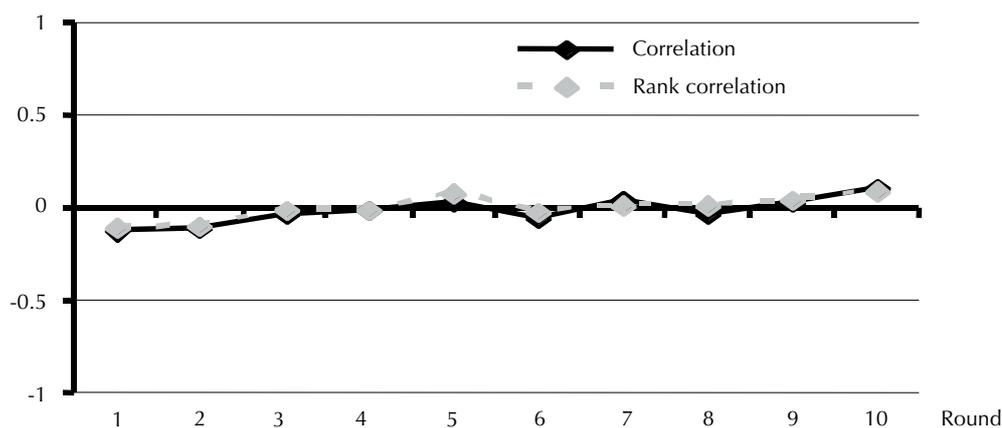
For this reason, experimental evidence has become the first line of testing for the prediction of theoretical economic models. First-principle assumptions widely used in more complex models (e.g., whether agents are risk averse, or expected utility maximisers) are easily tested in the laboratory, whereas it would be devilishly difficult to do so with empirical data. Moreover, devia-

1 See Guiso, Sapienza and Zingales (2006) for a review on the importance of culture and values on economic outcomes.

2 See Bisin and Verdier (2006) for a review of the literature on cultural transmission.

3 See, for instance, Glaeser et al. (2000).

4 'Like Mother Like Son? Experimental Evidence on the Transmission of Values from Parents to Children,' CEPR DP 6305.

Figure 1 Correlations and rank correlations between parents' and children's contributions

Source: Cipriani, Giuliano and Jeanne, CEPR Discussion Paper No. 6305

tions from theory observed in the experiment may suggest new directions for theoretical research (e.g., if in the laboratory subjects are not expected utility maximisers, dynamic intertemporal macroeconomic models may want to take that into account).

The challenge facing economic theorists is to explain the consistently observed behaviour that seems to reject the assumption of Nash behaviour – an approach that underpins most of current macro and microeconomic research

The experimental literature has spanned a wide variety of topics relevant to theoretical research, from individual preferences and the behaviour of agents under different market conditions, to the experimental validity of more complicated models (such as, for instance, bank-run models).⁵

Consider an example. One of the first theoretical models to be tested through the experimental method is the ultimatum game, in which 1) a ‘proposer’ splits a pot of money in two, and 2) a ‘responder’ has the option to accept the proposed division or to have all the money thrown away and lost to both players. Game theory is a tool that we, as economists, can use to predict behaviour in such a situation. As every economics student knows, the unique subgame perfect Nash equilibrium in this game is that the proposer keeps (almost) all the money for himself and the respondent accepts the proposed sharing scheme. After all, the responder gets something rather than nothing and the proposer, realising this, proposes the scheme that maximises his or her earnings.

Surprisingly, when the ultimatum game is tested in a laboratory the observed behaviour is quite different. Proposers tend to split the money 50–50 and when they do not, the responder often does not accept the pro-

posed division and has the money thrown away.

The challenge facing economic theorists is to find ways of explaining this observed behaviour. The equilibrium concept falsified by the data is that of Nash equilibrium (and subgame perfect Nash equilibrium) – which underpins most of current macro and microeconomic research. More generally, the behaviours observed in the laboratory are taken to be evidence against the standard *Homo Economicus* model of individual decisions. Since an individual who rejects a positive offer is choosing to get nothing rather than something, individuals must not be acting according to the simplest conception of self-interest. The behavior of individuals seems to be heavily influenced by their values, for example fairness or altruism.

More generally, the behaviours observed in the laboratory are taken to be evidence against the standard *Homo Economicus* model of individual decisions

Our research is the first to use experimental games to study the cultural transmission of economic relevant values. Some related earlier studies use experimental methods to study the impact of culture on expectations and preferences. For example Henrich et al. (2001) compare the responses to ultimatum games across different tribes to see whether there are systematic differences in the degree of reciprocity across cultures. The authors indeed find that the average offer varies systematically across tribes. On a similar line, Ichino et al. (2007) show that, in playing a trust game, there are systematic differences between Northern and Southern Europeans. But these studies do not explain where the observed differences come from, or how individual values are formed.

Like mother, like son? Value transmission across generations

In our experiment, we study whether the propensity to cooperate is transmitted from parents to their children by having the subjects play a standard ‘public good’

⁵ For a review of the experimental economic literature, see *The Handbook of Experimental Economics*, Kagel and Roth (editors), Princeton University Press, 1995.

Table 1 Average contributions-demographic characteristics

	Children
Average Contribution in Families with 3 or less than 3 children	2.95
Average Contribution in Families with more than 3 children	2.25*
Boys' Average Contribution	2.69
Girls' Average Contribution	2.87(0.387)
Average Contribution in Children in or below 3rd grade	3.07
Average Contribution in Children above 3rd grade	2.40*

Notes: * Hypothesis that the contribution equals that of the cell above can be rejected at the 1 percent significance level.
Source: Cipriani, Giuliano and Jeanne, CEPR Discussion Paper No. 6305

game in which each subject is given a money endowment and asked to share it between himself or herself and a group fund.

The experiment was run with Hispanic and African American parents and children from a public school in Washington, DC. We recruited 76 subjects (38 children and their parents). Parents were on average 36 years old, 50% of them were married and with a relatively high level of fertility (3.26). The children's age ranged between 6 and 12 years old.

Surprisingly, the experimental data showed no correlation between parent's interest in the common good and that of their children. A regression of children's contributions on parents' contributions show a coefficient very close to zero both in terms of absolute magnitude and in terms of statistic significance

Subjects were divided in groups. They received 5 tokens and they had to decide how many tokens they wanted to share with their group and how many they wanted to keep for themselves. Contributions to the group fund were doubled and then divided equally among group members. The game was repeated 10 times. The tokens earned at the end of the game were converted into dollars (for the parents) and into toys (for the children).

Simple game theory predicts that the subjects would contribute nothing to the group fund: regardless of what others do, each individual maximises his/her winnings by keeping all the tokens, as in the well known prisoner-dilemma.

In our experiment, we take the contribution of an individual to the group fund as an indicator of his/ her 'pro-sociality', i.e., a reflection of his/her values regarding the importance of contributing to the common good. We would expect altruistic people to contribute to the group fund and self-interested subjects to free-ride. To gauge the extent to which pro-sociality is transmitted across generations, we look at the correlation between the pro-sociality of a parent and that of his or her child. If cooperative behaviour is a family-transmitted value, we would expect a positive correlation

between the behaviour of parents and their children during the game.

Surprising results

The experimental data presented us with a surprising result. A parent's contribution is not correlated with that of his or her child. The results of a regression of children's contributions on parents' contributions show a coefficient very close to zero both in terms of absolute magnitude and in terms of statistic significance (the coefficient is 0.09 and its p-value is 0.41). The result, which is evident by plotting the correlations over all rounds between parents and children contributions (Figure 1), survives to a host of robustness checks.

The patterns of individual contributions are also worth noting (see Table 1). In particular, we found that:

- boys are less cooperative than girls;
- older children are less cooperative than younger ones;
- above all, children from larger families tend to contribute significantly less than children from smaller ones.

This last result, together with the absence of correlation between parents' and children's behaviour, is consistent with those scholars in the psychology literature, who have emphasised the importance of peer effects rather than parental influences in the socialization process.

Conclusions

Experimental games can be designed to understand the formation of the values influencing individual behaviour in basic economic settings. Based on a simple public good game played by a sample of parents and their children, we found that parents' attitudes toward free-riding have little effect on their children's dispositions. Such a lack of correlation between parents and children's behaviour suggests that, at least for some economic-relevant values, the family is not the main locus of values formation.

Marco Cipriani received his Ph.D. from the Department of Economics of New York University in September 2002. Since August 2002 he has been working as Assistant Professor of Economics and International Affairs at the Department of Economics and at the Elliot School of International Affairs of George Washington University. His research interests are in the fields of Financial Economics, International Finance and Experimental Economics.

Paola Giuliano is Visiting Assistant Professor of Economics at Harvard University, on leave from the IMF where she has been an Economist since 2003. She obtained a Ph.D. in Economics from the University of California at Berkeley in 2003. Her main area of research is applied microeconomics and behavioural macroeconomics. Recent projects focus on questions related to the role of culture in the determination of economic outcomes, and the importance of the family in the transmission of economic values. She received the Young Economist Award from the European Economic Association in 2004.

Olivier Jeanne is an economist at the Research Department of the International Monetary Fund. Prior to his appointment to the IMF in 1998 he taught at the Department of Economics of the University of California at Berkeley. He holds a MsC in Economics from the London School of Economics and a PhD from the Ecole des Hautes Etudes en Sciences Sociales. His current research focuses on the reform of the international financial architecture. He has published widely in international academic journals on the international financial architecture, currency crises, monetary policy and the economics of social status.

The Centre for Economic Policy Research (www.cepr.org), founded in 1983, is a network of over 700 researchers based mainly in universities throughout Europe, who collaborate through the Centre in research and its dissemination. The Centre's goal is to promote research excellence and policy relevance in European economics. CEPR Research Fellows and Affiliates are based in over 237 different institutions in 28 countries. Because it draws on such a large network of researchers, CEPR is able to produce a wide range of research which not only addresses key policy issues, but also reflects a broad spectrum of individual viewpoints and perspectives. CEPR has made key contributions to a wide range of European and global policy issues for over two decades. CEPR research may include views on policy, but the Executive Committee of the Centre does not give prior review to its publications, and the Centre takes no institutional policy positions. The opinions expressed in this paper are those of the author and not necessarily those of the Centre for Economic Policy Research.

