



Card games and economic behavior



Leonardo Becchetti*, Maurizio Fiaschetti, Giancarlo Marini¹

Department of Economics and Law, University of Rome Tor Vergata, Via Columbia 2, Rome 00133, Italy

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ABSTRACT

We wonder whether different game experiences are associated with significant differences in experimental behavior and, more specifically, whether expert bridge players, due to their habit of playing with partners and seldom for money, are more likely to adopt cooperative behavior than expert poker players. Evidence from trust games shows that bridge players make more polarized choices and choose the maximum trustor contribution significantly more often. Our findings are similar across incentivized and non-incentivized experiments and thereby support the hypothesis that behavior in simulated experiments resembles that in experiments with monetary payoffs.

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1. Introduction

A recent though well established tradition in the literature² challenges the old tenet of time-invariant preferences (Becker and Stigler, 1977) and discusses the nexus between frequently practiced (leisure, games, job) activities and individual preferences. The idea that activities may shape individual preferences is the core of the seminal Henrich et al. (2010) experiment on primitive ethnic groups. That research reports that Lamalera whale hunters in Indonesia display an extremely high average contribution (58 percent) as proposers in ultimatum games,³ which is the highest among the 15 primitive populations that participated in the research. At the other extreme, the average contribution of Machiguenga, who engage only in family activities without cooperation with other village members, is 27 percent. The interpretation of the Lamalera findings is that their everyday activity (hunting whales in large groups with canoes) cannot be performed in isolation and requires a high degree of cooperation and coordination, which progressively creates and is in turn naturally strengthened by social norms on equitable sharing rules among workmates.

Consistent with the hypothesis of the existence of a nexus between activities and preferences, Akerlof and Shiller (2010) have recently argued that the traders' bad financial practices that led to the global crisis may be a reflection of changes in their leisure activities, notably the decline in popularity of more cooperative games like bridge and the increased diffusion

* Corresponding author.

E-mail addresses: becchetti@economia.uniroma2.it (L. Becchetti), fiaschetti@uniroma2.it (M. Fiaschetti).

¹ Deceased April, 23rd 2013.

² See among others Loewenstein and Angner (2003) and Malmendier and Nagel (2011).

³ As it is well known, if the offer of the proposer in the ultimatum game is not accepted by the receiver (i.e., because it is not considered fair) the payoff is nil for both.

of individualistic games like poker.^{4,5} The authors observe that 44 percent of Americans played bridge in 1941, which was a game “recommended as a means of learning social skills.” By contrast, bridge is currently considered a game for the elderly⁶ and is in strong decline while poker became increasingly popular through most of the 00’s and, though interest has in part waned in the last few years, it is still a widely played game.⁷ Akerlof and Shiller’s implicit argument is that a professional or often practiced activity may shape individual preferences, exactly as in [Henrich et al. \(2010\)](#): while poker players are individualistic, bridge players have a partner either in team competitions (a teammate) or in duplicate pairs competitions (just a partner) and develop their cooperation skills consistently with the characteristics of their preferred game practice, which is analogous to the behavior of whale hunters. To provide support in favor of their argument, [Akerlof and Shiller \(2010, p. 40\)](#) remark as a second distinctive characteristic between the two games that poker is always played for money, which differs from what usually occurs in bridge, and has the characteristics that “deception” or bluffing is one of the most important tactics adopted to maximize the players’ payoff.⁸

Card games and particularly bridge and poker have always been an issue of great curiosity, inspiration and interest for academics. For example, [Borel’s \(1938\)](#) and Von Neumann’s analysis of bluffing in poker ([von Neuman and Morgenstern, 1944](#)) contributed to the foundations of information and game theory. Borel’s model of poker (called “la relance”) finds the optimal player’s strategies (including bluff) by differentiating the cases of plain game and pot-limit poker.⁹ Bridge has elicited similar interest among academics and has contributed to the development of probability theory¹⁰ even though it still poses a great challenge for game theorists due to its complexity.

Two of the most influential billionaires in the world, Warren Buffett and Bill Gates, have been advocating bridge qualities for years and have argued for the importance of teaching bridge starting in the lower school grades. They have recently financed million dollars programs to introduce bridge at school because they are convinced that “anyone’s good in bridge is gonna be great in a lot of things”¹¹ and that in bridge “You have to look at all the facts. You have to draw inferences from what you’ve seen, what you’ve heard. You have to discard improper theories about what the hand had as more evidence comes in sometimes. You have to be open to a possible change of course if you get new information. You have to work with a partner, particularly on defense.”¹² Note however that the policy suggestion from Buffet and Gates only works if empirical testing demonstrates that the causality nexus goes from bridge practice to pro-sociality and not vice versa. If, on the contrary, more pro-social individuals self-select by choosing bridge instead of poker practice (i.e. because ex ante they do not like to play for money or they like to play with a partner), reverse causality is the only rationale for the observed correlation and therefore such practice does not add to pro-social behavior.

Although poker actually shares most of the rationality enhancing characteristics of bridge described in the two billionaires’ statements, the two above mentioned qualifying differences (playing with partner and seldom for money) motivate our investigation aiming to test whether bridge players behave differently with respect to poker players in trust game experiments, which typically measure participants’ cooperative attitudes.

The analysis of bridge and poker player preferences is an issue so far unexplored in the literature and falls into the broader and more investigated branch studying how field experts behave in lab experiments.

To test whether game experience is related to experimental behavior we formulate the hypothesis that bridge players act more pro-socially and thereby send a significantly higher amount of the endowment received in trust games producing Pareto superior outcomes given the game structure.¹³ This should occur even though the analogy between the bridge partnership and the trust game partnership is not perfect. Both trustors and bridge partners may increase their payoffs if

⁴ What the authors imply is that the financial crisis and the related scandals that occurred in the same period in leading financial institutions were caused by a deterioration of social skills and an increase in self-regarding attitudes of financial traders (see [Akerlof and Shiller, 2010, p. 40](#)).

⁵ Such a reduced propensity to play team games is consistent with the well-known parallel evidence provided by [Putnam \(2000\)](#) that shows a decrease in the number of people who bowl in leagues despite the increase of bowling players in the last 20 years.

⁶ The average age of English Bridge Union members was 55 in 2006 ([The Independent, 2006](#)), but the average age was 67 for members of the American Contract Bridge League in 2005 ([Moore, 2005](#)).

⁷ It is hard to find updated and reliable data about the relative diffusion of the two games. About bridge, the WBF (World Bridge Federation) states that “...The WBF has shown strong and steady growth and its membership now comprises 124 National Bridge Organizations (NBOs) with approximately 1 000 000 affiliated members who participate actively in competitive bridge events (locally, nationally and internationally)...” (see the WBF website, 2014). Reliable data on poker diffusion are even harder to find given its tight regulation in some countries. Therefore, we refer to the statistics of one of the major online cardrooms, PokerStars, which had over 50 million active players at the beginning of 2012 (see [PokerScout online traffic report, 2012](#)).

⁸ The reasoning of the authors ends with the following question: “Of course there may be no link between what is taking place at the card table and what is taking place in the economy. But if card games played by millions of people shift the role of deception, wouldn’t be so naïf simply to assume that such shifts do not occur also in the world of commerce?” (p. 40).

⁹ Von Neumann finds new implications by only limiting losses for players. A further extension of Borel’s model is given by the works of [Bellman and Blackwell \(1949\)](#), [Bellman \(1952\)](#) and [Karlin and Restrepo \(1957\)](#).

¹⁰ [Borel and Chéron \(1940\)](#) explain how bridge has helped in developing an understanding of the practical implications of probabilistic laws and theorems through the analysis of hand distributions and the design of playing strategies. A new statistical method for evaluating bridge hands has been proposed by [Cowan \(1987\)](#).

¹¹ Bill Gates in ACBL news archive (2009).

¹² Warren Buffett interviewed by A. Crippen on the CNBC website (2008).

¹³ As it is well known, the optimal strategy of a trustee with standard preferences on the maximization of her own monetary payoff in a trust game is to give back nothing, and that of a trustee following team reasoning (with pro-social attitudes) is to give back half of (some of) the money received. As a consequence, in the presence of common knowledge on this kind of players’ characteristics the optimal strategy for the Nash maximizing trustor would be to give nil (that is both players maximize their individual monetary payoffs since they believe that their counterpart will also do so). On the contrary,

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