Are Brazilian Economists Different?*

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The paper took its inspiration from a bargaining experiment recently conducted by Carter and Irons in the USA. It envolves an ultimatum game, where subject is asked to divide R$ 10 between himself and another anonymous individual. The Brazilian sample consisted of two groups of university students, the first one majoring in economics and the other one majoring in social sciences.
Empirical results show a clear deviation from the selfish rationality model, and suggest that a strong reason for this could be the importance that moral norms such as fairness and equity have in the shaping of human behavior. However, as subjects are further trained in economic theory, they get closer to the selfish rationality model.

O artigo inspirou-se em experimento recentemente conduzido por Carter e Irons nos Estados Unidos. Envolve um jogo de ultimato, no qual o sujeito deve dividir R$ 10 entre ele e um outro indivíduo anônimo. A amostra brasileira consistiu de dois grupos de estudantes universitários, sendo o primeiro deles do curso de economia e o segundo do curso de ciências sociais.
Os resultados empíricos mostram um claro afastamento do modelo de racionalidade egoísta, e sugerem que uma forte razão para tal pode ser a importância que normas morais como justiça e eqüidade têm na moldagem do comportamento humano. Entretanto, à medida que os indivíduos recebem treinamento adicional em teoria econômica, seu comportamento chega mais perto do modelo de racionalidade egoísta.

1. Introduction

Laboratory experiments enjoy a growing popularity among economists. As pointed out by Kagel and Roth (1995:3), evidence gathered by these studies now appears with regularity in the major economics journals. A clear

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advantage of the experimental design over questionnaires and similar devices is the fact that the former is able to depict actual behavior, rather than mere opinion or attitude. Typical economic experiments involve monetary incentives, in which subjects face decisions that imply making or losing money.

Evidence from recent experimental studies question the ubiquity of the rational behavior as postulated by traditional neoclassical microeconomics, that predicts that when people make decisions they set out to maximize their preferences, choosing the best means to achieve this end. Deviations from the strict rationality model occur even in economic circumstances, involving making or losing money. Imperfect knowledge, costs of gathering information, weakness of will, and non-transitive preferences are some of the presumed reasons for the observed deviations. Yet they still do not tell the whole story. As discussed by Etzioni (1988) and Coughlin (1991), ethical commitments are an important factor in the shaping of human behavior.[1] The authors emphasize the primacy of what they call "normative-affective" factors over the pursuit of self-interested motives.

How do economists stand in this regard? Are they different from other groups, in the sense of pursuing their own selfish goals, rather than basing their choices in ethical commitments? Some experimental research projects, dealing with behavior in economic situations and comparing economists to other groups, suggest that this is the case. Marwell and Ames (1981) found out that free riding was significantly greater for a group of students majoring in economics than it was for students majoring in other areas. Accordingly, Frank, Gilovich and Regan (1993) observed that economists would rather apply their money in individual accounts, whereas students of other subjects showed a lot more disposition to apply in a public account. Carter and Irons (1991) report that the predictions of the selfish rationality model are better suited for economists, much more so than for other professional groups. The authors strongly encourage new tests of their hypotheses, in different social contexts, in order to verify if their conclusion can be generalized.

Why do economists behave differently from other groups? The literature based on experimental procedures alludes to two possible explanations for this pattern of behavior, which are not mutually exclusive:

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[1] *See Etzioni (1988), for a thorough review of the literature.*

a) a self-selection process;

b) a learning effect.

The *self-selection* hypothesis explains the behavior of the economists by associating it to their choice of a major in economics. It predicts that people who tend to behave selfishly, in the pursuit of self-interested, egoistic motives, will also tend to choose economics as a major.[2]

The *learning* hypothesis sets out the possibility of people adapting their behavior over time to the basic axioms of the theories that they study. Learning that selfish, self-interested conduct preponderate in many circumstances, students majoring in economics will tend to adopt this model in their own personal conduct. Throughout the courses that they follow at college, they are trained to look at self-interest as a powerful drive for human action.

This paper has modest goals. Its basic inspiration came from the above mentioned project carried out by Carter and Irons (1991). The authors designed a bargaining experiment meant to test whether people behave in accordance with the prediction of the selfish rational model. By comparing two groups of university students, the first one majoring in economics and the second one majoring in other areas, Carter and Irons wanted to find out if there was a significant difference in the decision process of both groups. To measure the impact of schooling over behavior, they compared freshmen and seniors in the two groups.

By replicating Carter and Irons' experiment in a sample from a Brazilian university, we wanted to know whether their conclusions were pertinent to Brazil. Besides measuring the relative weight of egoistic motives in behavior, we wanted to contrast economists with non-economists, to find out if the differences observed by Carter and Irons persisted in the Brazilian circumstances.

2. The Experiment

We invited two groups of students, one majoring in economics, the other in social sciences, to participate in an experiment intended to evaluate "decision-

[2] *As* The Economist *(1993) puts it, in a rather sarcastic tone, "Mean people are somehow attracted to economics".*

making processes". The experimental sessions were based on written instructions. They were held in the classroom, after the morning classes, and involved 61 freshmen and 73 seniors, totalizing 134 subjects.

As in Carters and Irons' design, the experiment involved a simple ultimatum bargaining game, with two players, A and B, called the *proposer* and the *respondent*, respectively. The rules of the game were the following:

a) the proposer's task was to divide R$ 10 (US$ 9.70) between himself and an anonymous individual, B (the respondent);

b) A could propose any kind of division, with a single restriction: the minimum amount that he could offer B was R$ 1;

c) the respondent (B), in turn, was asked to declare the minimum amount that she was ready to accept from the proposer (from R$ 1 to R$ 10);

d) if the respondent asked for an amount that was smaller or equal to what the proposer offered him, a deal was set;

e) if, on the contrary, the respondent asked for an amount that was higher to what the proposer decided to offer him, there was no deal, and no further chance for a negotiation between the parties.

The above mentioned rules classically define a sequential bargaining game. Moreover, the fact that each player makes only one decision characterizes it as an ultimatum game.

When we designed the experiment, we tried to assure that the general circumstances under which it took place were as similar as possible to the ones prevailing in Carter and Irons' experimental research.[3] We intentionally introduced a difference, though. In Carter and Irons each subject played both the respondent and the proposer roles. In the Brazilian experiment we decided to randomly assign subjects two alternative questionnaires. Subjects who got the first questionnaire were asked to play the proposer (A); subjects who got second questionnaire were asked to play the respondent (B). In making this

[3] *We first conducted the experiment in high inflation conditions during the years 1993-1995 with the help of two undergraduates, Oriette Gerin Leite and Fernando Leme Fleury. The experiment that we am reporting here took place at the University of Brasília, during the months of November and December 1995, after the so-called "Plano Real". Psychologist Maria Regina Mendes Prata helped us to apply the questionnaires and discussed with us their final form and the sampling procedures adopted.*

distinction, we wished to eliminate an explicit stimulus for each player putting himself in the position of his partner. Our final sample comprises 68 proposers and 66 respondents, randomly selected.

The game-theoretic solution for this ultimatum bargaining game is the following:

a) A offers B a sum equivalent to R$ 1 (the minimum amount stipulated);

b) B accepts this offer.

This solution is straightforward, "at least in comparison to many other experimental games" (Carter & Irons 1991:172): the respondent has no reason to refuse R$ 1 in the hope of getting a better offer later on. Since she knows that she is playing an ultimatum game, if she rejects A's offer no deal is possible, and both parties end off with nothing. The same reasoning applies to the proposer: A offers B the minimum stipulated amount because he knows in advance that if B does not accept his offer, both end off with no money at all. The questionnaires explicitly emphasized the fact that there was no second chance for a negotiation.

When the experiment was over, subjects were randomly matched, and we chose out by lot 20 couples to actually receive their payoff, according to the way both players had agreed to split the money. (The questionnaires had a specific instruction about this.)

For the sake of convenience, when conducting the analysis we calculated the amount kept by the proposer, by deducing the amount offered to the respondent from R$ 10. For statistical purposes, *amount kept by A* and *minimum acceptable amount for B* constituted our dependent variables.

3. The Results

General results shown in tables 1 to 4 suggest that the selfish rationality model is unable to predict the majority of the decisions taken, in situations involving perfect knowledge, monetary gains, and ultimatum conditions. Playing the proposer role, subjects offered amounts that significantly exceeded the stipulated minimum. In fact, equalitarian offers (where A offered R$ 5 to B)

corresponded to 57% of the total number of offers.[4] A similar result applies to B: playing the respondents, subjects asked for amounts that significantly exceeded the minimum stipulated amount.

Table 1
Brazilian experiment – some general results

Total number of offers by A (proposer)	68.00
Equalitarian offers (%)	57.35
Total number of deals	63.00
Deals settled (%)	74.55

Table 2
Comparative results – Brazil *vs.* US
Amount kept by proposer (R$)

Country	Freshmen	Seniors
Brazil		
Economists	5.43	6.78
Non-economists	5.60	5.84
US		
Economists	6.11	5.84
Non-economists	5.48	5.04

Amount kept = US$ 10.00 minus amount offered to B.

Table 3
Comparative results – Brazil *vs.* US
Minimum acceptable amount (R$)

Country	Freshmen	Seniors
Brazil		
Economists	4.92	3.26
Non-economists	3.13	3.57
US		
Economists	1.34	1.92
Non-economists	2.76	1.92

[4] *Bolton (1997) analyzes the rationality of splitting equally from the evolutionary point of view. He argues that empirical results that seem to imply a fairness issue have biological roots. In his own words, "splitting fairly – splitting equally – acts as a coordinating convention that persists because it fulfills a biological purpose". (Bolton, 1997:366).*

As Carter and Irons state, "more than just logic"[5] is necessary to explain these results. Although the authors do not extend their reasoning that far, moral norms such as equity and fairness could be a strong reason why subjects deviate from the rational/self-interest model of behavior.[6] The demand for fairness may sometimes overwhelm the motivations that the experimenter is trying to induce, when he stipulates the monetary rewards. Other normative-affective factors could also help to explain the proposer's behavior. Among those, a strong factor could be the risk of the respondent declining *A*'s offer, thus leading the game to a no-deal solution.

The proposers knew that they were allowed by the rules of the game to offer the minimum stipulated amount to the respondents. They also knew that the respondents could either accept or reject their offer; if they rejected, they risked leaving the game with no money at all, the same applying to the proposers.

At the same time, however, the proposers were probably aware that this was not a fair solution. With this in mind, they would tend to expect the respondents to stipulate a minimum acceptable amount that exceeded R$ 1. As a matter of fact, only 31% of the total number of the respondents resigned themselves to this sum of money.

One conclusion that seem to emerge from the research, both for Brazil and the US, is that *fairness* might play a significant role in determining the outcomes of negotiations. It is reasonable and realistic to expect that most people prefer more money to less. But it is also reasonable and realistic to expect that people like to receive a fair treatment from others, and that people like to treat others fairly as well.

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[5] *Carter and Irons introduced an additional question in their experiment through which they were able to control the possibility of economists being more skilled at the deductive logic required to determine opportunities for making money. Although the proportions of correct questions regarding the proposer's offer were higher among economists, this difference by itself could not account for the different performance of both groups. Thus, "something more than deductive skill is involved". (Carter & Irons, 1991:176).*

[6] *Thaler (1992) considers the implications for economics that derive from the fact that people want to resist what they consider to be an unfair allocation of money in an ultimatum situation. Any time a monopolist sets a price, he says, it has the quality of an ultimatum. Just as the respondent may reject a small offer, people may decide not to participate in an exchange in which their perception is such that the other party gets too large a share of the surplus.*

The results obtained in the Brazilian experiment also suggest that factors associated to pride may affect human behavior. When the respondent decides about the proposer's offer, she may make the following consideration: "*A* got this money by mere chance; why should I agree to accept such a small part of it?" In favor of this hypothesis we verified that less than 1/3 of the respondents resigned themselves to receive the minimum stipulated amount. Anticipating this possibility, and agreeing that it is reasonable, the proposer might make a higher offer to begin with. As a matter of fact, the proposers in our sample moved even further in this direction, since only 10% of them restricted their offers to the minimum stipulated amount.

Another way to express this argument is to reason that a self-regarding individual might feel offended by a very small offer from the proposer. By declining offers that are close to the minimum stipulated amount, the respondent reveals that her utility function has non-monetary arguments. Her decision process possibly involves resistance to unfairness and a desire to punish an unfair proposer. She would rather leave the game empty-handed than accept a sum that she thinks is unfair.[7]

As for the proposer, two not mutually incompatible motives could explain his behavior: either he is moved by sentiments of fairness, or he worries that the respondent might reject a small offer.[8]

Thaler (1992) prompts that greed might also help to explain the choices actually made by both parties. However, his argument is not entirely satisfactory. Suppose that a very ambitious *B* asks for a sum of money that highly exceeds the minimum stipulated amount. She has great probability of not meeting *A*'s offer, thus risking a no-deal solution. Since she can figure out that by herself, and if she is reasonable besides being ambitious, she will

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[7] *Foccusing anomalies in experimental evidence, Roth (1995:288) concluded that efforts to be fair did not play a large role in the observed behavior, while efforts to avoid being treated unfairly may decisively influence it.*

[8] *This specific experiment does not allow us to isolate these two effects. Guth, Schmittberger, and Schwarze (1982) designed an experiment asking subjects to answer a questionnaire with specific instructions about their expected behavior. "YOU WILL BE DOING US A FAVOR IF YOU SIMPLY SET OUT TO MAXIMIZE YOUR WINNINGS", said the written instructions, in all caps. The authors concluded that when players have a chance to think about the game, they tend to get closer to the selfish rationality model. However, similar experiments held at a later period did not support their conclusion.*

not ask for high sums, however greedy she might be. The same goes for the proposer: if he offers B a sum of money that equals the minimum stipulated offer, or is just slightly above it, in order to keep as much money as possible for himself, he risks a no-deal solution.

4. Economists *vs.* Non-economists

Do economists in Brazil behave differently from non-economists, as they did in the US? In order to answer this question, which implies a self-selection process, we regressed the dependent variable "amount kept" on a constant and a dummy variable distinguishing economists from others. This dummy variable equaled 1 for subjects majoring in economics and 0 otherwise. To test the learning hypotheses, a second dummy variable was introduced in our regression, distinguishing seniors from freshmen. Finally, we constructed a third dummy variable to identify senior economists.

The results of both the regression and the difference of means tests – reported in tables 4 and 5, respectively – suggest that there is no self-selection process going on in the sample. In general terms, our results differ from the results obtained in the US in two basic ways:

a) the self-selection hypothesis does not hold;

b) the minimum offer that the respondent would accept is on average much higher than in the US.

Table 4

Difference of means – t tests

Economics	Seniors vs. freshmen	1.93*
Seniors	Economics vs. social sciences	1.85*
Social Sciences	Seniors vs. freshmen	0.53
Freshmen	Economics vs. social Sciences	0.12

*Significant at α=.10.

Table 5
Regression results for amount kept

Variable	Amount kept		
	(a)	(b)	(c)
Constant	5.8871 (17.515)	5.3821 (13.431)	5.6000 (11.894)
Economist	0.3832 (0.841)	0.2800 (0.628)	-0.1714 (-0.253)
Senior		0.9784 (2.180)	0.5563 (0.849)
Senior economist			0.7978 (0.886)
R-square	0.01060	0.07799	0.08915
N	68	68	68

Note: *t*-statistics are in parentheses below the corresponding figure. The "economist" variable equals 1 if subject is majoring in economics, and 0 otherwise. The "senior" variable equals 1 if subject is a senior student, and 0 otherwise. Finally, the "senior economist" variable equals 1 if subject is a senior students in economics and 0 otherwise.

When comparing freshmen according to the subject that they chose as a major, the statistical tests do not reveal a significant difference between economists and non-economists regarding the amount kept by the proposer. This implies that there is no self-selection process going on in the Brazilian sample. Differently from Carter and Irons, we cannot conclude that "economists are born".

The regression results tests do not support the hypothesis of a learning effect, either. Although as students in economics proceed to their senior year they tend to move towards the direction predicted by the economic theory, the difference observed in amount kept is not statistically significant.

The respondent's minimum acceptable amount differs significantly in the Brazilian case (table 3). Both economists and non-economists playing the respondent role stipulated a minimum acceptable amount that largely exceeded the game-theoretic solution and the average amount reported by Carter and

Irons. Besides, playing B roles, economists in Brazil asked for more than non-economists, whereas the opposite went on in the US.

We are unable to offer a compelling explanation for this contrast. One reassuring fact is that these particular results are consistent with the ones calculated for amount kept: economists begin as freshmen by demanding a larger amount of money from A than non-economists; as they approach their senior year they present a declining average, a result that fits the learning hypothesis.

The fact that we had two different questionnaires for As and Bs in the Brazilian sample can account for the high averages asked by subjects who played the respondent. In principle, playing both roles leads the subject to empathize with his party by actually putting himself in his position, much more so than he would spontaneously do.

5. Concluding Remarks

Our results are limited in scope: the amount of money dealt with in the experiment is small, and subjects were young university students, pertaining to elite and middle-class cohorts. Nevertheless, they provide a few insights for understanding the behavior of economic agents in Brazilian conditions and how they vary across professions.[9]

The empirical research reported reinforce our conviction about the necessity of revising the role of selfish rationality in economic models. Models based on the strict selfish rationality assumption seem to be analytically deficient in situations resembling an ultimatum bargaining process.[10]

These patterns are consistent with the literature. Several authors question the ultimate consequences of behaving in a self-oriented rational way in terms of the benefits that the economic agent can get from it in the long run. Relying on empirical evidence, Amartya Sen (1977) describes people that always behave according to rational/self-interested patterns as "rational fools". He concludes that mutual choices totally based on egoistic payoffs

[9] *Given the high prestige and large influence that economists have been enjoying in the Brazilian society, at least for the last 30 years, this is not trivial.*

[10] *This conclusion is consistent with Roth (1995:279), who claims that in ultimatum games the observed behavior gets far from the equilibrium prediction. In this regard, "best shot" games yield better results.*

lead to suboptimal outcomes for all parties involved. Also based in empirical research, Kahneman et alii (1986:737) claim that the market place may extend its conception of unfairness to cover actions that are profitable in the short run "and not obviously dishonest". This happens, they say, when people perceive these actions as unfair exploitations of the market power. Geiger (Coughlin, 1991:10), studying behavior molded by equity values and looking at the situation from the reverse side, makes a similar point. He states that fairness-oriented behavior does not necessarily lead to negative-sum outcomes in terms of economic efficiency, both for individuals and society.

These considerations uphold some conclusions for the theory-building process. They support the theoretical challenge to the concept of "efficiency", as defined by the orthodox neoclassical microeconomics. If ethical commitments and normative-affective factors in general have a thorough impact in human conduct, the relevant question is not only how efficient individuals pursuing their self-oriented goals can be but, besides, how useful this specific model of human nature can be.

As for decision making under uncertainty, the results of this research reiterate that normative theories that fit the game-theoretic model are of little use, when seen in isolation. Examining the present state of affairs in game theory, Thaler (1992:20) claims that "the role of selfish rationality in economic models needs careful scrutiny". Normative theories based on simplified assumptions, he asserts, need to be complemented by descriptive theories, which are able to account for the agents' actual behavior.

Building models that encompass normative-affective factors in human conduct is a challenging endeavour, and the development of tractable models will take some time. Yet economists are already facing this challenge.[11] As bold as their enterprise looks at this point in time, they seem to be moving in the correct direction.

References

Bolton, Gary E. The rationality of splitting equally. *Journal of Economic Behavior & Organization, 32*:365-81, 1997.

[11] *Rabin (1993) gives an interesting example, when discussing the incorporation of fairness considerations into game-theoretical models. The author decided to include in his model only forms of "contingent altruism", relying on the assumption that, unless player 1 acts kindly to player 2, player 2 will not react kindly to his action. This assumption entirely ruled out the possibility of injecting "pure altruism" into the theoretical framework. Interestingly enough, in his conclusion Rabin (1993:1.298) concedes that "pure altruism can also sometimes be important".*

Carter, John R. & Irons, Michael D. Are economists different, and if so, why? *Journal of Economic Perspectives, 5*(2):171-7, Spring 1991.

Coughlin, Richard (ed.). *Morality, rationality and efficiency.* Armonk, M. E. Sharpe, 1991. Chap. 1, p. 3-13.

Etzioni, Amitai. *The moral dimension.* Towards a new economics. New York, Free Press, 1988.

Frank, Robert; Gilovich, Thomas & Regan, Dennis. Does studying economics inhibit co-operation? *Journal of Economic Perspectives, 7*(2), Spring 1993.

Guth, Werner; Schmittberger, Rolf & Schwarze, Bernd. An experimental analysis of ultimatum bargaining. *Journal of Economic Behavior and Organization*, (3):367-88, Dec. 1982.

Kagel, John H. & Roth, Alvin (eds.). *The handbook of experimental economics.* Princeton, Princeton University Press, 1995.

Kahneman, Daniel; Knetsch, Jack L. & Thaler, Richard, Fairness as a constraint on profit-seeking: entitlements in the market. *The American Economic Review, 76*(4):728-41, Oct. 1985.

Marwell, Gerald & Ames, Ruth E. Economists free ride, does anyone else? *Journal of Public Economics, 15*:295-310, 1981.

Rabin, Matthew. Incorporating fairness into game theory and economics. *The American Economic Review, 83*(5):1281-302, Dec. 1993.

Roth, Alving. Bargaining experiments. In: Kagel, John H. & Roth, Alvin (eds.). The handbook of experimental economics. Princeton, Princeton University Press, 1995. p. 255-342.

Sen, Amartya. Rational fools: a critique of the behavioral foundations of economic theory. *Philosophy and Public Affairs, 6*:317-44, 1977.

Thaler, Richard H. *The winner's curse - paradoxes and anomalies of economic life.* New York, Free Press, 1992.

The Economist. *How do you mean, fair?* May 29th, 1993. p. 71.