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Institutions and Reciprocal Fairness

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Almost all economic reasoning starts from the assumption that human behavior is motivated by rationality and selfishness. The notion of rationality indicates that people are assumed to act purposeful, i.e. they choose actions that serve their ends. The notion of selfishness indicates that people are assumed to have goals that are completely self-centered. Applied economists in particular think of rational selfishness as the exclusive motivational force while all other motivational forces are discarded as explanatory variables. We certainly agree that there are good reasons for being conservative in the choice of motivational forces to consider. If we, as positive scientists, impose no restrictions on the motives that we consider as explanatory variables, our theories become vague and arbitrary. On the other hand, our theories will be unable to explain certain aspects of observed behavior, if we neglect basic and empirically relevant motivational forces.

In this paper, we argue that there is an important motivational force beyond rational selfishness. It is important because it is empirically relevant and because it interacts in important ways with the institutional environment. This motivational force is called reciprocal fairness or reciprocity. Evidence will be presented, indicating that economists and social scientists in general, who neglect reciprocity ignore key aspects of social and economic life, and will tend to make serious mistakes when they try to make normative judgements about institutions or give advice to decision makers.

The paper is structured as follows: The first section defines reciprocal fairness and presents experimental evidence, showing reciprocal fairness to be a basic motivational force. The second section discusses how different institutions affect the economic impact of reciprocal fairness. It turns out that in competitive environments with complete contracts the impact of reciprocity is rather limited, whereas reciprocity is of great importance when contracts are incomplete. The third section adresses a major puzzle of principal agent theory. This theory suggests that complicated contracts can be constructed,

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guaranteeing incentive compatibility. However, such complicated contracts are hardly ever observed in reality. We argue that simpler contracts may be chosen because reciprocity constitutes a reliable motivational force that contributes to the enforcement of contracts. The last section discusses how reciprocal fairness may help to explain the enforcement of social norms. Evidence is presented, showing that reciprocity may help to overcome prisoner's dilemma situations which are at the heart of problems of norm enforcement. Our arguments in this paper are mainly based on *rigorous* experimental evidence. This does not mean that we consider field evidence as unimportant. Quite the contrary. The ultimate purpose of rigorous and carefully conducted laboratory experiments is to shed light on real life phenomena. Yet, field data can very often be interpreted in different ways. Since such conflicting interpretations can be ruled out more easily by properly designed experiments our arguments are largely based on experimental evidence.

Reciprocal Fairness is a basic motivational force

In this section we argue that reciprocal fairness constitutes a basic motivational force. First, we make some remarks on the nature of reciprocity. It is claimed that reciprocity is neither purely egoistic nor purely altruistic. We then proceed to discuss some experimental evidence on reciprocal fairness. This evidence points to two facts: First, reciprocal fairness is an important motivational force in the sense that it has strong behavioral effects on the interaction of complete strangers in controlled laboratory situations. Second, reciprocity is a reliable motivational force, even if the stakes involved are rather large.

The nature of reciprocal fairness

Broadly speaking, reciprocity means that we tend to treat other people the way they treat us. Reciprocal fairness is the motivational drive to be kind to those who have been kind to us and to hurt those who hurt us. Positive reciprocity arises if someone who benefitted from a favor now himself becomes the others benefactor, whereas negative reciprocity arises if a harmed person is fighting back, i.e. is retaliating. Whether an act is perceived as a favor or as an injury is defined relatively to some "neutral" reference act. In a slightly different diction, one can also define positive reciprocity as rewarding cooperators and negative reciprocity as punishing non-cooperators. It is important to note that reciprocal behavior is neither purely egoistic nor purely altruistic. It is not purely egoistic behavior because reciprocators incur some personal cost in responding to other peoples' actions. It is not purely altruistic behavior because gifts are exclusively presented to people who gave something before, or are supposed to give something back later. I am not really being an altruist if my action is based entirely on the expectation of your reciprocation. This kind of reciprocal behavior has been observed in all cultures and at all times. Therefore, researchers from other disciplines (e.g. sociobiology, anthropology) suspect that this behavior may be genetically determined or the result of long-run social learning processes (see Hoffman et al., 1995 for further references).

Evidence on reciprocal fairness as a basic motivational force

The Simple Ultimatum Game. The by now very famous simple ultimatum game has first been proposed by Güth et al. (1982). In this game, a given amount of money (a "pie") has to be divided between a proposer and a responder. The game proceeds in two steps:

first, the proposer suggests some division of the pie, then the responder accepts or rejects this division. If the responders accepts, the proposed division is implemented. If, however, the responder does not accept the division, both get nothing.

For this bargaining game the standard game theoretic model predicts that proposers demand the whole bargaining pie while responders are willing to accept *any* positive share. This game has been implemented many times by various experimentalists (see Güth and Tietz, 1990 or Roth, 1995 for surveys). In general, splits like 60:40 for the proposer are typical and a very common observation is that divisions of less than a quarter for the responder are rejected. These regularities indicate that responders punish proposers if they perceive the assigned shares as insultingly low, i.e. responders exhibit *negative* reciprocity. In addition, most proposers seem to anticipate this willingness to punish unfair proposals.

The Gift Exchange Game. A slightly more complicated game has been suggested by Fehr, Kirchler, Weichbold and Gächter (1996). In this game, there are two players, called "firm" and "worker". The firm has an initial endowment of v and is matched with a worker. The game proceeds in three stages: first, the firm proposes a wage w to his worker. Second, the worker accepts or rejects this proposal. If the worker accepts, she has to bear acceptance costs of c_0; in addition, she has to choose an effort level e at the third stage. If she rejects the offer, both the worker and the firm get zero. However, if the worker accepts the proposal, the following payoffs result:

(1) $\Pi = (v - w) \cdot e$ for the firm

(2) $U = w - c(e) - c_0$ for the worker with $c(e^{min}) = 0$; $c'(e) > 0$.

From these payoff-functions it is clear that the provision of effort exceeding e^{min} is costly to the worker, but profitable to the firm. However, the firm has no means to actually enforce any nonminimal effort. Therefore, standard economic theory predicts that a firm will offer a wage equal to the worker's acceptance costs c_0, because rational and selfish workers always choose e^{min}. However, the experimental evidence on this game shows that firms propose on average wages which are far above c_0 and workers' effort choices are positively related to w.[1] This indicates that workers are motivated by *positive* reciprocity and that firms try to elicit reciprocal responses by generous wage offers.

Both the results of the simple ultimatum game and the gift exchange game were very surprising and challenging to the economics profession. Consequently, critics questioned the robustness of these results. Yet, both types of evidence were convincingly confirmed in further experimental studies. The same behavioral patterns prevailed under high stake conditions (see Cameron, 1995 for evidence on the ultimatum game; see Fehr and Tougareva, 1995 for the gift exchange game)[2] and under double anonymity conditions (Bolton and Zwick, 1995; Berg et al., 1995). In our view, these results demonstrate convincingly that reciprocal fairness is an important motivational force because it has a

1. In Fehr, Kirchler, Weichbold and Gächter (1996) the parameter values were $v = 120$, $c_0 = 20$ and average wages were approximately 63.
2. In Cameron (1995) subjects earned three times their monthly incomes if they agreed on a division. In Fehr and Tougareva (1995) subjects earned on average between 2.5 and three times their monthly incomes in a single experimental session.

considerable impact on the interaction of complete strangers and this impact remains unaffected by increasing the monetary sums at stake.

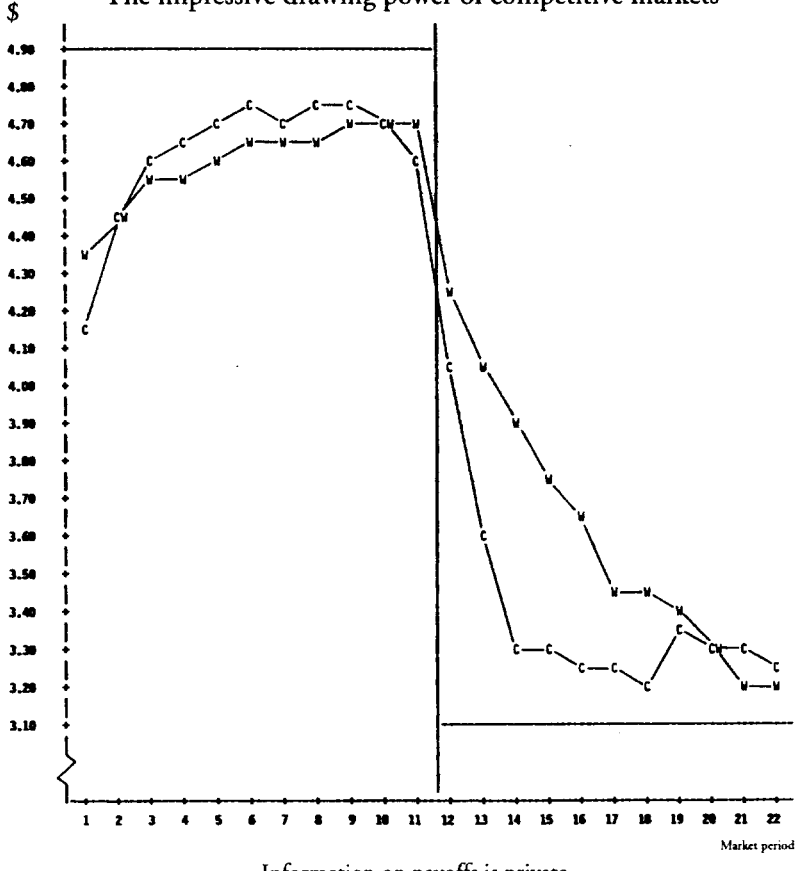
Institutions affect the economic impact of reciprocal fairness

The preceeding section indicated that reciprocal fairness is an important motivational force, shaping behavior in non-competitive environments. But can reciprocal fairness matter in a competitive environment? This section adresses the question: Under which conditions does reciprocal fairness have an economic impact in competitive markets? Experimental evidence from competitive markets shows that the impact of reciprocity is negligible if contracts are completely specified, but is of foremost importance when contracts are incompletely specified. This type of experimental evidence thus lends further support to alternative theories of the labor market, since labor contracts are a prime example for incompletely specified contracts.

Competitive markets with complete contracts limit the impact of reciprocal fairness

It is well known in the experimental markets literature that competitve markets with com-

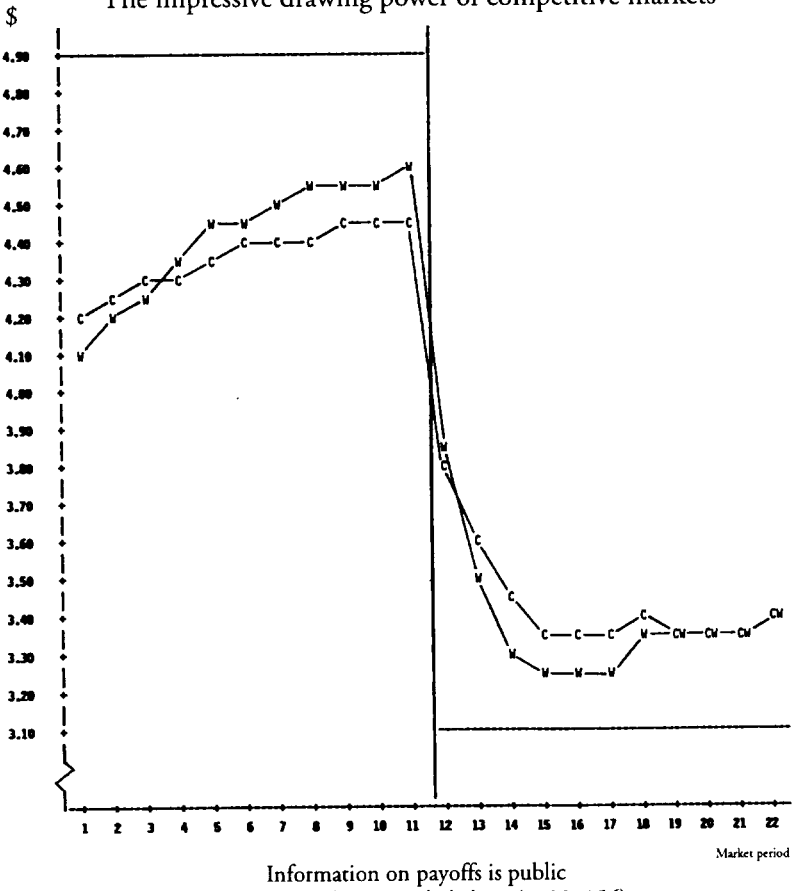
Figure 1a:
The impressive drawing power of competitive markets



Information on payoffs is private
Source: Kachelmaier and Shehata (1992:155-6)

pletely specified contracts quickly converge to the competitive equlibrium. This fact has been shown to be true in numerous experiments of the so-called double-auction type (see Davis and Holt, 1993, chap. 3, for a survey). In this setting, the competitive equilibrium is reached, even if the resulting allocation is unfair by almost any conceivable definition of fairness, e.g., if the whole market income is reaped by only one side of the market. Kachelmaier and Shehata (1992) show this to be true, despite all cultural differences between China and the West. Their experiments neatly demonstrate the drawing power of the competitive equilibrium (see *Figure 1*). During the first eleven periods of a competitive double auction the authors implemented an excess demand such that in the competitive equilibrium (at \$4.90) the whole market income was reaped by the sellers. The situation was reversed in periods 12-22; in these periods, there was an excess supply such that in equilibrium (at \$3.10) buyers reaped the total market income. Despite these extreme earnings inequalities the average price in China (indicated by C in *Figure 1a* and *1b*) as well as in the Western Countries (W) were strongly attracted by the competitive equilibrium. In the final periods of each treatment condition (period 11 and

Figure 1b:
The impressive drawing power of competitive markets



Information on payoffs is public
Source: Kachelmaier and Shehata (1992: 156)

22) the long side of the market received on average less than 20% of the available surplus. As can be seen from a comparison of *Figure 1a* and *1b*, the findings are the same, irrespective of whether information on earnings (inequality) was private (*Figure 1a*) or public (*Figure 1b*).

These findings from competitive double auction experiments contrast sharply with the results in the ultimatum game (see section 1). While in the ultimatum game responders get on average about 40 percent of the surplus, the long side in the competitive market receives at most 20 percent and often even much less. How to explain this astounding difference in outcomes? We hypothesize that the institution of a competitive market with complete contracts does not allow for effective punishment, i.e. negative reciprocity. In the ultimatum game a responder can be sure that her rejection punishes the proposer, whereas in a competitive market a single individual on the long side of the market cannot ensure punishment. Therefore, the difference stems from the institutional framework: If the instutional framework allows for (negative) reciprocity to be effective, it matters (as in the ultimatum game). If the institutional environment precludes the possibility to punish unfair actions (as in competitive markets with complete contracts), reciprocity has a rather limited impact.

Competitive markets with incomplete contracts do not seem to limit the impact of reciprocal fairness

To test whether competition by itself will mitigate or even dominate the impact of reciprocity, Fehr et al. (1996) conducted a gift exchange game which was embedded in a competitive market. The market was set up with firms (as buyers) and workers (as sellers), and payoffs were given by equation (1) and (2) above. The experiment was designed with a large excess supply of workers. As a consequence workers were exposed to strong competitive pressures. First, firms announced their wage offers (in a bid auction), and second, workers could choose among available offers. The authors compared the results of this competitive framework with a purely bilateral gift exchange game, where firms and workers were matched exogeneously (as in section 1). In both treatment conditions, i.e. in the Gift Exchange Game (GEM) and in the Bilateral Gift Exchange (BGE) the same parameter values were implemented (v = 120, c_0 = 20, $c(e^{min})$ = 0, $c'(e) > 0$). However, in both treatments contracts were *incomplete* in the sense that firms had to make wage offers without knowing the effort they would get from the workers who accept their contract. In addition, the experimental conditions in both treatments ensured that traders remained anonymous and could not develop a reputation. Each trade in a given market period can, therefore, be regarded as a one-shot (i.e. short-term) interaction.

The prediction of standard economic theory for the competitive environment with incomplete contracts is that wages collapse to the market-clearing level (i.e. where wages equal workers' acceptance costs c_0 = 20) and that only minimum effort levels are provided by workers.

Yet, as can be verified in *Figure 2*, these experiments showed substantial and persistent deviations from the (selfish) competitive equilibrium prediction. Wages never even came close to the market clearing level (w = 20) in the GEM. Instead, firms tried to induce workers' positive reciprocity. They voluntarily paid wages exceeding the market clearing level c_0, hoping that workers would be prepared to reciprocate this "gift" by choosing nonminimal effort levels. In fact,

the experimental evidence exhibits a rather stable wage-effort relation: The higher the wages were, the more effort was provided by the workers. The same behavioral phenomena have been observed by Fehr, Kirchsteiger and Riedl (1993a, 1993b). A further important fact that is revealed by *Figure 2* concerns the comparison of the GEM and the BGE. Notice that from period 4 onwards firms in the GEM paid on average the same wages as in the BGE. This indicates that the anticipation of workers' reciprocal responses was the main determinant of wages in the GEM while the impact of competition on wage wage formation was – despite the large excess supply of workers – negligible.

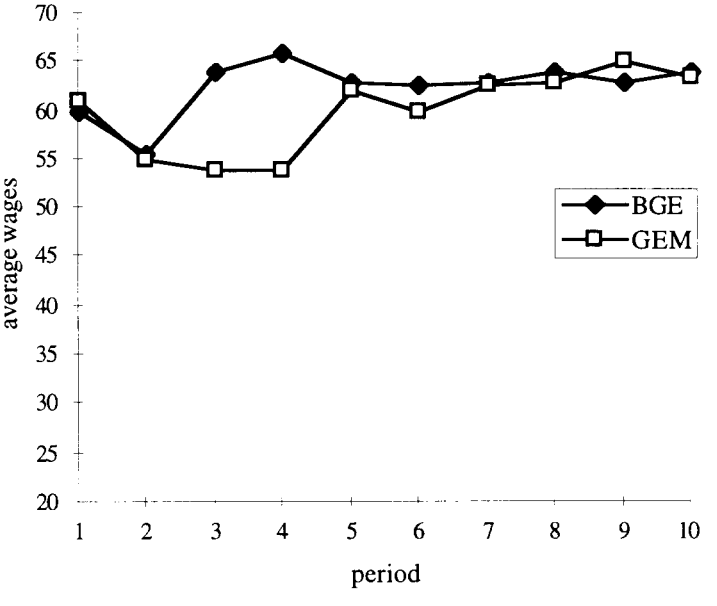
In the GEM as well as in the BGE, the workings of reciprocity led to effort levels that were more efficient than the one that would have emerged from the interaction of purely rational and selfish individuals: Firms and workers were better off. Firms preferred to pay higher wages, as long as they got higher effort levels; Workers were prepared to choose nonminimal effort levels, as long as they received high enough wages to overcompensate their effort costs.

Reciprocity and labor markets

The above cited experimental evidence shows that reciprocity has an important impact even in competitive environments with short term contracts. It can be further hypothesized that the effect of reciprocity is even more prominent, if incomplete contractual relations are of a long-term nature. Incomplete contracts do by their very nature not fully specify the contracting parties' duties and claims in every

Figure 2

The impact of reciprocity in competitive and noncompetitive environments with incomplete contracts



Source: Fehr, Kirchler, Weichbold and Gächter (1996).

conceivable circumstance that may arise. This opens a leeway for discretion and, therefore, for reciprocity. Reciprocity is likely to play a more prominent role in long-term relationships for the obvious reason that there are just more opportunities for positive and negative reciprocation the longer the parties interact.

The labor market provides a prime example for an inherently incomplete and long lasting contractual relation. Labor contracts typically are very unspecific on future remuneration, career opportunities etc. It is a well known fact that many labor relations are of a long term nature. People often stay for many years, sometimes their entire working life with the same employer. Reciprocal interactions are, therefore, of particular relevance for labor relations. In the pioneering work of Akerlof (1982) labor contracts have been modeled as a gift exchange relation. The above cited evidence lends support to Akerlof's view of the labor market.

Reciprocal fairness affects institutional choices

One of the major puzzles of modern principal agent theory is the following: On the one hand, this theory suggests the implementation of very complicated (labor) contracts in which payments are conditional on any informative event regarding workers' behavior. On the other hand, such contracts are hardly ever observed in reality. We usually observe very simple (labor) contracts with no or only very few conditional payments. For example, labor contracts do, in general, not entail entrance fees or performance bonds although principal agent theory frequently predicts these features.

In the first section we argued that reciprocal fairness is a basic and reliable motivational force. If this is true, then this fact should be considered by rational individuals when deciding which type of contract to choose. Therefore, one could hypothesize: If reciprocal fairness is a reliable motivational force it should affect contract choices. To test this hypothesis, Fehr, Gächter and Kirchsteiger (FGK, 1996) implemented a competitive experimental labor market in which firms could propose incentive compatible contracts. A contract is defined to be incentive compatible if it is in the interest of a selfishly rational worker to meet the contract's requirements, i.e. to provide the effort demanded. In the absence of reciprocity motives it is of course never in the interest of a rational firm to propose contracts that are not incentive compatible because such contracts will certainly be violated by rational and selfish workers.

In the FGK-experiments only "low" effort levels could be enforced by incentive compatible means because firms were limited in their ability to contractually require wage deductibles in case of contract violations. Reciprocity could, however, provide a *non*incentive compatible means of contract enforcement. The evidence from gift exchange games suggests, for example, that by making a generous employment offer, a firm can induce a worker to provide effort beyond the level that is enforceable by incentive compatible means. In addition, the willingness to punish unfair behavior may also contribute to the enforcement of contracts. Suppose that firms offering generous contracts are willing to punish workers at some private cost if the contract was violated by workers. Yet, if the worker anticipates this willingness to punish she has a reason not to violate the contract in the first instance, even if her motives were completely selfish.

The experimental evidence strongly indicates that reciprocity considerations induce firms to propose *non*incentive compatible contracts. Firms persistently

demanded effort levels (i.e. chose such contracts) that were far above the level that could be enforced by incentive compatible contracts. Moreover, if firms were given the opportunity to punish or reward workers after their effort choice they were indeed able to enforce these nonincentive compatible effort levels. Thus, reciprocity did not only affect the choice of labor contract terms, it also contributed to the enforcement of these (nonincentive compatible) contract terms. As a consequence, it considerably raised the gains from trade for both parties, and thus efficiency.

To our knowledge modern principal-agent theory has so far not been concerned with the impact of reciprocity on contract terms and their enforcement. The results of FGK indicate, however, that the neglect of reciprocity may render principal agent models seriously incomplete. As a consequence it may inhibit their predictive power. Moreover, the normative conclusions that follow from models that neglect reciprocity may not be correct. This is indicated by the large efficiency gains that were caused by reciprocity in this experiment. Both workers and firms were considerably better off than they would have been in the equilibrium predicted by standard theory. In view of the powerful behavioral impact and the efficiency consequences of reciprocity it seems doubtful that one can design optimal incentive contracts if reciprocal motivations are neglected.

Reciprocal fairness as a norm-enforcement mechanism

Up to now, we argued that reciprocal fairness is a basic motivational force, which strongly affects economic outcomes when the institutional framework allows for it (i.e. when contracts are incomplete). In the previous section we went on to argue, that reciprocity may decisively affect institutional choices (e.g. favor the choice of simple, non incentive-compatible, yet more efficient (labor) contracts). In this section we argue that reciprocal fairness may be a mechanism to enforce social norms. We define a social norm as a socially shared belief about how one ought to behave in certain situations, *and* the enforcement of the prescribed behavior by informal social sanctions. If the behavior prescribed by the norm or the informal sanctioning of deviant behavior involves no private costs the enforcement of the norm is not problematic. If, however, the prescribed behavior and the enforcement of the norm is privately costly the problem of norm enforcement arises. If people are rational and selfish such norms are obviously difficult to maintain.

This problem is encountered in many contexts. However, the prototypical problem is the one of cooperation norms in prisoner's dilemma or public good situations. As is well known, it is a dominant strategy in a prisoner's dilemma situation not to cooperate, and in the case of voluntary public goods provision the Nash-equilibrium predicts an undersupply.

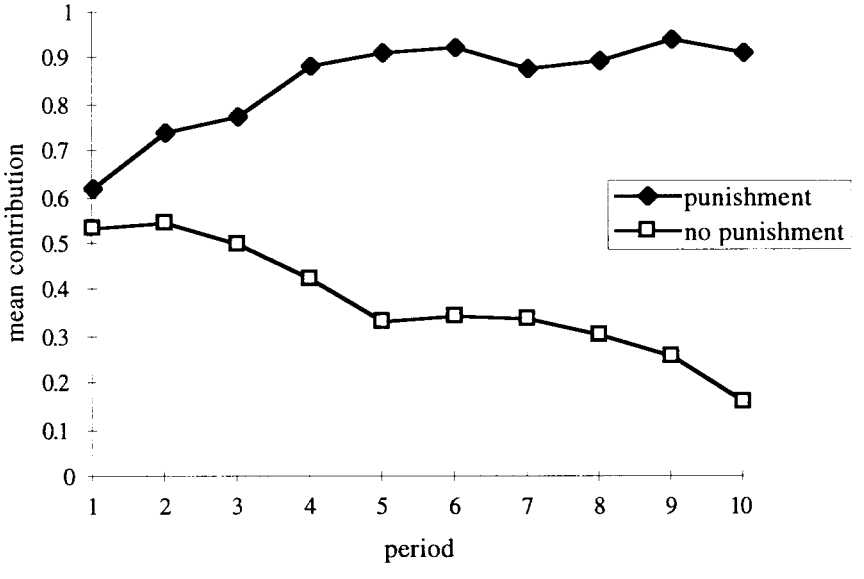
Yet, the extensive literature on public good experiments has firmly established the stylized fact that even among complete strangers there is initially a relatively strong cooperative drive (for a survey, see Ledyard, 1995). However, with repetition cooperation rates show a strong decline. The usual explanation for this deteriorating cooperation is seen in learning effects. According to this view, subjects learn to play Nash-equlibrium strategies in the course of the game. An alternative explanation of this decline starts from the assumption that players may be either of a "pure egoistic type" or a "conditional cooperative type". According to this view, the subject pool in a given experiment generally consists of some pure egoists and some

reciprocally fair subjects. The latter are upset by the non-cooperation of "pure egoists" which induces them to retaliate, i.e. to reduce their cooperation to punish non-cooperators (negative reciprocity). Therefore, the following hypothesis is suggested: Since conditional cooperators are motivated by reciprocity considerations they are willing to punish – at some cost to themselves – non-cooperative actions if given the opportunity. Rational egoistists will anticipate this (credible threat of) punishment and will, hence, choose actions that are approximately equal to the average cooperation in the group.

Interestingly, evolutionary biologists and anthropologists have come up with similar hypotheses on the workings of reciprocity, even though there is little agreement among these researchers about the details of how reciprocity works. In the simplest models negative reciprocity takes the form of withdrawal of further cooperation. I will keep helping you as long as you keep helping me, but if you cheat, I won't help you any more. Such strategies are sometimes labeled as "simple reciprocity". Other authors argue that negative reciprocity takes the following form: non-cooperators are punished by various forms of social ostracism, reduced status, fewer friends etc. Trivers (1971) calls this behavior "moralistic reciprocity". According to these researchers, moralistic reciprocity provides a plausible mechanism for the maintenance of even large scale cooperation.

However, there is a problem with moralistic reciprocity: why should individuals punish after all? If punishing is costly and the benefits of cooperation accrue to the group as a whole, selfish individuals will, in the presence of a punishment threat, cooperate

Figure 3:
Reciprocity strengthens the social norm of cooperation



Source: Fehr and Gächter (1997).

but not punish. This problem is solved if moralistic reciprocators also punish people who do not punish when they should. This means that moralistic strategies punish a) non-cooperators, b) individuals who do not punish non-cooperators and c) individuals who do not punish non-punishers. When such strategies are common, it can pay to punish, even though the cooperation that results is not sufficient to compensate some individual punishers for the cost of punishing. If moralists are common, the cost of punishing non-cooperators may be small, and the cost of being punished large, so that, as Boyd and Richerson (1995) hypothesize, even quite costly group benefical behavior can be maintained by this mechanism.

Evidence

To test the hypothesis that reciprocal motivations are capable of maintaining cooperation, Fehr and Gächter (1997) implemented a public good experiment with two stages. At the first stage, each participant decided how much to contribute to the public good. At the second stage, each participant had the opportunity to punish other group members at some cost to himself. The results of this treatment were compared to a one stage treatment, where punishment, and thus negative reciprocity, was excluded by design. If people are selfish, i.e. are not motivated by (negative) reciprocity, nobody will punish at stage two because punishment is costly. If people are rational, everybody anticipates, at stage one, that nobody will punish at stage two. Therefore, if people are rational and selfish, the two treatment conditions generate the same outcome. If, however, some group members are motivated by reciprocity considerations even pure egoists have an incentive to cooperate at stage one. In the experiments the same subjects played first the two-stage game for ten periods and then the one-stage game for ten periods.[3] The main result is depicted in *Figure 3*.

As can be seen from *Figure 3*, average cooperation rates quickly decline in the one-stage treatment (without punishment), while in the two-stage treatment (with punishment opportunities) they reach 90 percent within four periods and remain stable afterwards. Thus, this experiment shows that if negative reciprocity can express itself in the form of explicit punishment it is capable of enforcing stable cooperative behavior.

Summary

In this paper we have argued that reciprocity can be considered to be a fundamental behavioral drive. Its impact is shaped in important ways by the institutional environment but it has also important effects on the institutional environment. Experimental evidence has been presented, indicating that reciprocity is quite effective when contracts are incomplete. Reciprocity affects the choice and the enforcement of contracts and it shapes our informal institutional environment by contributing to the enforcement of social norms. In our view these results are not trivial. We hope that they are sufficient to draw the attention of economists and other social scientists to the behavioral effects of reciprocity.

References

Akerlof, G. (1982): Labor Contracts as a Partial Gift Exchange. *Quarterly Journal of Economics*, 97: 543-69.

Berg, J.; Dickhaut, J. and McCabe, K. (1995): Trust, Reciprocity, and Social History. *Games and Economic Behavior*, 10(1): 122-42.

3. When in the two-stage treatment, subjects did not know that afterwards there will be a one-stage treatment. They only knew that the one-stage treatment ends after period ten.

Bolton, G. and Zwick, R. (1995): Anonymity versus Punishment in Ultimatum Bargaining. *Games and Economic Behavior*, 10(1): 95-121.

Boyd, R. and Richerson, R. (1995): *The Puzzle of Human Cooperation*, unpublished manuscript.

Cameron, L. (1995): *Raising the Stakes in the Ultimatum Game: Experimental Evidence from Indonesia.* Discussion Paper, Dept. of Economics, Princeton University.

Davis, D.D. and Holt, C.A. (1993): *Experimental Economics.* Princeton University Press: Princeton, N.J.

Fehr, E. and Gächter, S. (1997): *Cooperation and Punishment – An Experimental Investigation of Norm Formation and Norm Enforcement.* Working Paper, Institute for empirical economic research, University of Zürich.

Fehr, E.; Gächter, S. and Kirchsteiger, G. (1995): *Reciprocity as a Contract Enforcement Device. Experimental Evidence.* Working Paper, Institute for empirical economic research, University of Zürich. Forthcoming in: *Econometrica.*

Fehr, E.; Kirchler, E., Weichbold, A. and Gächter, S. (1996): *When Social Norms Overpower Competition – Social Exchange in Experimental Labor Markets.* Working Paper, Institute for empirical economic research, University of Zürich, August 1996. Forthcoming in: *Journal of Labor Economics.*

Fehr, E; Kirchsteiger, G. and Riedl, A. (1993a): Does Fairness Prevent Market Claring? An Experimental Investigation. *Quarterly Journal of Economics*, 108(2): 437-60.

Fehr, E.; Kirchsteiger, G. and Riedl, A. (1993b): *Gift Exchange and Reciprocity in Competitive Experimental Markets.* Discussion Paper University of Technology: Vienna. Forthcoming in: *European Economic Review.*

Fehr, E. and Tougareva, E. (1995): *Do Competitive Markets with High Stakes Remove Reciprocal Fairness? Experimental Evidence from Russia.* Working Paper Institute for empirical economic research, University of Zürich.

Güth, W.; Schmittberger, R. and Schwarze, B. (1982): An Experimental Analysis of Ultimatum Bargaining. *Journal of Economic Behavior and Organization*, 3(3): 367-88.

Güth, W. and Tietz, R. (1990): Ultimatum Bargaining Behavior: A Survey and Comparison of Experimental Results. *Journal of Economic Psychology*, 11: 417-49.

Hoffman, E.; McCabe, K. and Smith, V.L. (1995): *Behavioral Foundations of Reciprocity: Experimental Economics and Evolutionary Psychology.* Working paper, Iowa State University, March 1995.

Kachelmaier, S.J. and Shehata, M. (1992): Culture and Competition: A Laboratory Market Comparison between China and the West. *Journal of Economic Organization and Behavior*, 19: 145-68.

Ledyard, J.O. (1995): Public Goods: A Survey of Experimental Research, in: J.H. Kagel and A.E. Roth (eds.): *The Handboook of Experimental Economics.* Princeton University Press: Princeton, N.J.: 111-94.

Roth, A.E. (1995): Bargaining Experiments, in: J.H. Kagel and A.E. Roth (eds.): *The Handboook of Experimental Economics.* Princeton University Press: Princeton, N.J.: 253-348.

Trivers, R.L. (1971): The Evolution of Reciprocal Altruism. *Quarterly Journal of Biology*, 46: 35-57.