EXPERIMENTAL INVESTIGATION OF COLLECTIVE ACTION*

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1 Introduction

Politics is about conflicting interests and influence backed up by force. Although rooted in individual behavior, it is not a one-man affair. Lack of information and control make social groups important, as they provide the behavioral clues and political clout (van Winden 1999). Action – in particular, collective action – aimed at shared interests is thereby a key issue in political economics; think of participation in lobbying, riots, voting, and the like. Fiorina (1997, p 402) even speaks of the "fundamental irrelevance of the individual voter". Important research topics are related to this observation. They concern the determining factors of shared interests – linked up with a sorting process of individuals into (formal or informal) groups –, the way political action is coordinated and organized, decision making regarding the type and level of activity, and the determinants of political influence.

Public Choice theory has been very helpful in developing some fundamental insights in this field of research, with seminal contributions by Downs (1957) and Olson (1965). Emphasizing methodological individualism and focusing on self-interest and rationality as behavioral assumptions (homo economicus), it was argued that shared interests are not sufficient for collective action, due to a free-riding problem. The usual example is voting in large scale elections. Why would an individual bother to turn out and vote if the chance of being decisive is negligible? Given some cost of voting one would not expect many people to do so. This is precisely what is predicted by existing voting models applying a purely individual calculus of expected benefits and costs. Unfortunately, often more than 50% of the electorate turns out in actual elections. The main theoretical conclusion is that something like an additional benefit derived from voting - such as through the fulfilment of 'civic duty' - is required for an 'explanation' (see e.g. Mueller 1989, Aldrich 1997).[1] Or is it non-selfish behavior and/or irrationality that plays a role? Even more qualitative predictions derived from these models, like higher turnout the closer the election, have not found undisputed empirical support. A major problem with the empirical studies is, however, that they have to rely on field data, from elections or surveys, that are not particularly tailored to test the theoretical predictions. For example, with surveys it is unclear what motivates the responses that people provide, while election data are typically highly aggregated and violating the 'ceteris paribus' condition of theoretical models (is the higher turnout in a closer election due to a larger

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[1] According to the 'rational voter hypothesis' people will vote if: $PB + D - C > 0$, where P stands for the perceived probability that the vote is decisive, B denotes the benefit from changing the election outcome, D the

probability for a voter of being decisive or to a larger effort by candidates to get the vote out?).

Fortunately, an alternative research method exists that allows the investigation of behavior under controlled conditions: laboratory experimentation. In an economic experiment real people make real choices with real (generally, monetary) consequences in a controlled environment. The environment can be linked to a specific theoretical model and attention focused on essential aspects, which can be manipulated (varied) one by one. Moreover, to check the robustness of findings the experiment can be replicated. Control and replication are the major comparative advantages of this relatively new research method (see e.g. Davis and Holt 1993, Kagel and Roth 1995). By now, a substantial number of studies exist applying this method to issues of public choice, like electoral competition, committee decision making and principal-agent problems (see Palfrey 1991, Kinder and Palfrey 1993, van Winden and Bosman 1996).

In this survey, attention will be focused on collective action experiments. More particularly, I will discuss three sets of experiments, in three separate sections. Section 2 is concerned with the fundamental issue of free riding. It considers participation as a contribution to a public good. Section 3 adds an important political dimension by introducing competing groups, while Section 4 focuses on the activity level and political influence of interest groups (lobbying). Implications for theory and practice will be discussed in Section 5. Section 6, finally, concludes with some issues for future research.

2 Participation as contribution to a public good

The question addressed in this section is whether people will indeed free ride if participation in the provision of a public good (collective action) is costly to them whereas the benefits are shared by all.[2] Many experiments, using different designs, have been run to study this issue and the precise conditions under which participation takes place (for surveys, see Ledyard 1995, Offerman 1997). In the *basic experimental design* each individual in a group has a number of tokens that can be allocated to a 'private account' (private good) or a 'group account' (public good). Group members do not know each other's identity. Each token

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benefit from voting per se (like civic duty), and C the cost of voting. The main conclusion is that D is necessary to explain the substantial turnout levels observed in practice.

contributed to the group account leaves the individual a smaller payoff than putting it in the private account. However, the payoff from a token allocated to the group account is enjoyed by all members of the group. Moreover, the total payoff to the group of that token is larger than the payoff the individual would get from the private account.[2] The implication is that a rational own-payoff maximizer (a homo economicus) should not contribute to the group account in the experiment. But, this would run against the group interest in the sense that all members would be better off by contributing all tokens. Typically, this public good game is repeated over a number of rounds, to allow for some learning, for example. Variants of the basic design include 'strangers' versus 'partners' (i.e. changing instead of constant group compositions over rounds), continuous versus step-level public good games (in the latter case, contributions have to exceed a certain level before the public good is obtained), opportunities for communication or sanctioning, and different payoff functions. The first results to be presented belong to the strong and replicable effects mentioned by Ledyard (1995).

- Contributions to the public good are substantial (on average, 40-60% of the tokens), but decline over rounds (at least, with strangers).

- There is a tendency towards free riding - zero contributions - in the final rounds (so-called 'end effect').

- Contributions increase with the individual payoff from the public good, relative to the private good.[4]

- Communication positively affects contributions, even if only 'cheap talk'.

- Contributions do not decrease with larger group size (up to a size of 100, at least).

These results are difficult to reconcile with the standard homo economicus model, in particular if joined with the following more recent observations.

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[2] Of course, the public good may also consist of the prevention of a public bad like the excessive use of fishing grounds, deforestation, and the like.

[3] Formally, the payoff to an individual i from a group with n members is given by: $payoff_i = p(z_i - x_i) + g \, S_j \, x_j$ (j = 1,...,n), with z the total number of tokens (endowment), x the number allocated to the group account, and p (g) the return on a private (group) account token. Moreover: $ng > p > g > 0$.

[4] In case of a step-level, this is relative to the required sum of contributions (Croson and Marks 2000).

- There exists clear evidenc e of reciprocal behavior. In repeated games, contributions adjust to the group average, with contributions higher (smaller) than the average showing a tendency to become smaller (higher) (Keser and van Winden 2000). Moreover, if given an explicit opportunity to reward or punish group members, people use the opportunity to do so, where reward and punishment appear to be related to the (average) contributions made by these other members. This happens even if doing so is costly, and even after the final round (see Ostrom and Walker 1997, Fehr and Gächter 2000). The presence of such an opportunity turns out to have a significant impact on cooperation; it substantially increases the contribution level. At this stage, it is not completely clear what precisely drives this behavior. It may be due to cognitive deliberations based on norms like fairness ("I should punish unfair behavior"). On the other hand, reciprocal behavior also appears to be triggered by emotions like anger or gratitude (Fehr and Gächter 2000, Bosman and van Winden 2001), which over time may generate positive or negative social ties (van Dijk et al. 2000).

- People show different motivations. For example, some individuals free ride all the time, whereas others appear to be 'conditional cooperators' whose willingness to cooperate depends on the cooperation observed among the other group members (see Schram 2000).[5] Motivations are also affected by the nature of the environment. Situations where individuals stay together in groups (partners) - in particular, if opportunities for communication exist - appear to be beneficial for fostering cooperation. A sense of group identity affecting beliefs and expectations may play a role here (see, in this context, Brewer and Gardner 1996).

The picture that emerges from the experimental studies is the following. First, the free-riding problem for collective action is not as bad as the homo economicus model suggests. Second, motivational factors other than own (monetary) payoffs, like norms and emotions or identification with a group, are important. Third, and related to the previous point, the smaller the 'social distance' - as determined by factors like social mobility (cf. partners versus strangers) and opportunities to communicate or to reward and punish - the greater the likelihood that collective action succeeds.

In this section we focused on the collective action problem within a social group. The next section is concerned with the politically highly relevant issue of the impact of competition between groups.

3   Participation with competition among groups

Politics is about conflicting interests, in particular between social groups. Does intergroup conflict affect the participation in collective action? If so, what are the consequences? Since government policie s will be influenced by the relative participation of social groups, a competitive aspect is now added to the (within group) cooperative 'team' aspect of collective action (see Palfrey and Rosenthal 1983). The latter is again related to the fact that the political outcome of collective action is like a public good within the groups concerned (for example, a service, tax rate, or subsidy). The *basic experimental design* of such 'team games' is as in the single group case discussed in the previous section, with the exception that there are now two (equally sized) groups and the individual payoff decreases with the participation level of the other group (resembling proportional representation in politics).[6] Although it is easy to see that, again, a rational own-payoff maximizer should free ride (contribute nothing to the group account) - whereas it is in the interest of each group separately that people participate (contribute tokens) -, this behavior is now in line with the collective interest of the groups take n together. The reason is that the competitive and symmetric nature of the situation causes cooperation by group members to lead to the same result as when all free ride (namely, a tie). Thus, it is in their collective interest not to participate in collec tive action (like voting, pressure group activity, or a war against the other group). It is important to note, however, that own-payoff maximization can lead to a completely different outcome in case of a winner-takes-all situation (where a zero payoff is obtained from the group account if total contributions fall short of those in the other group), which resembles majority rule in politics. It is readily seen that in such a situation, with equally sized groups, it would be individually rational for all to participate. Although there are not many experimental studies, some

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[5] Fischbacher et al. (2001) find about 20-30% free riders and about 50% conditional cooperators among their subjects.

[6] Formally: $payoff_i = p(z_i - x_i) + g (S_j x_j - S_j y_j) + t$, with x (y) indicating the tokens allocated to the group account by a member of group X (Y), t denoting the payoff from the group account in case of a tie (i.e., $Sx = Sy$), and again $ng > p > g > 0$. Alternatively, the payoff from the group account may be related to the relative level of contributions.

interesting results can be reported (see the survey of Bornstein 2000, Schram and Sonnemans 1996a,b). The findings reported below relate to the basic design and some variants thereof, concerning partners instead of strangers, communication, and winner-takes-all instead of proportional influence.

- Contributions within groups are higher than with one group (no competition).

- Again, contributions are higher when group composition is constant (partners), and with communication among group members.

- Again, there appears to be no (clear) effect of changes in group size.

- Again, motivational heterogeneity is observed.

- Contributions are higher in case of a winner-takes-all situation, compared to proportional influence.

Thus, it appears that competition between groups stimulates participation in collective action within groups, and the more so in case of a winner-takes-all type of situation (note the similarity with a step-level public good). As discussed above, this behavior runs counter to the collective interest of the groups, which would now be furthered by less collective action (on both sides). This, as well as other important issues, need further investigation. For example, what are the effects of strong asymmetry (highly unequal group sizes) or of different decision making procedures within groups (for some first results, see Bornstein et al. 2001)? Regarding the latter, experimental evidence exists showing that so-called unitary groups, where group members can make (costless) binding agreements, are more competitive than individuals (see Insko and Schopler 1998). This is an important result because it is common in economics to model groups - like firms, unions, or political parties - as individuals.

4 Lobbying

In the previous two sections attention was focused on the collective action issues of participation and coordination. We will now report on experimental studies concentrating on the costly endeavours of interest groups to influence policymaking. Three types of models dealing with this topic are investigated: rent seeking, common agency, and signaling models (for a discussion and references, see van Winden 1999). In contrast with the other models, in rent seeking models the benefits from lobbying are not determined by an actual policymaker (player) but by an assumed mechanism, that is, a function mapping rent seeking expenditures into a probability of success for each interest group. The main difference between common agency and signaling models is that the latter are concerned with the (strategic) transmission of information and the influence thereof, whereas the former (as yet) focus on the influence of contributions to a policymaker under perfect information. Further details are given below when we discuss the experiments for each type of model. All of these theoretical models employ the homo economicus assumption that players aim at the maximization of their own payoff (net of lobby costs).

Rent seeking

In view of the huge number of publications concerning theoretical rent seeking models, it is quite remarkable that there are only few experimental studies. In the *basic experimental design* there are two players, each having an identical number of tokens, which they can use to bid (simultaneously) for a given 'prize'. The probability of winning the prize, and thereby the (expected) payoff, depends on the player's bid relative to the other player's bid; in case of a tie, this probability is assumed to be ½.[7] The starkest contrast is between the case where the probability to win equals the ratio of the bid and the sum of the bids (proportional probabilities) and the case where the highest bidder wins (perfect discrimination). Note that the importance of relative bids implies that there is a public good (bad) aspect to lobbying in these models, in the sense that players might benefit if they could restrain themselves from lobbying. In fact, they would get the highest payoff if they would not bid at all. However, the theoretical prediction is that players will bid. And, if bids stand for the use of resources that could otherwise be productively employed, this means that behavior would be inefficient. Put differently, the rent represented by the prize would be more or less dissipated by the rent

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[7] Formally, letting x and y denote the respective bids, and P the prize, then the payoff to the player with bid x equals: payoff = $[x^r/(x^r + y^r)].P - x$, with $[.] = ½$ if $x = y = 0$. The higher r the more discriminatory the game becomes (with $r = 8$, the highest bidder wins). The basic model is due to Tullock (1980).

seeking expenditures. The experiments show the following findings (see the survey and results of Potters et al. 1998).

- The rent seeking model has predictive power. Rent dissipation (inefficiency) is observed, and, at least for the two starkest cases, the results are in line with the theoretical predictions.

- There is some evidence of less dissipation if players stay together over rounds of play (partners situation).

- Players are of different types. Some play like 'gamesmen': they appear to understand the strategic nature of the game and behave accordingly. Others seem simply confused and just randomize, while a substantial proportion of players adapts behavior to the outcomes in earlier rounds.

In an interesting variant of the basic model, Weimann et al. (2000) have players make sequential instead of simultaneous bids. Theoretically, this two-stage game gives the first mover the opportunity to make a preemptive bid, leaving the second player with at best a zero payoff. So, what is observed?

- No support is found for the theoretical first-mover advantage. Rather, a second mover advantage is observed.

- The driving factor appears to be the opportunity for second movers to punish first movers, which is costly to the former but even more costly to the latter. Moreover, they exploit cooperative (efficient or 'fair') behavior by first movers.

- Emotions, rather than strategic behavior, appear to play a role because second movers still intensively punish in the last round (and they do not seem to be motivated much by norms like fairness, see the previous point).

Thus, with this variation of the rent seeking model little support for the theory is found. Interestingly, as with the public good experiments, the opportunity to punish appears to be

used in a non-strategic way but plays an important role in producing the results. The fact that second movers are better off shows that the 'irrationality' of this kind of behavior can be questioned (cf. Frank 1988).

Common agency

In common agency game models multiple lobbyists (principals) offer contributions to a policymaker (agent) in the form of a schedule, where contributions are contingent on the policy chosen by the policymaker (see Bernheim and Whinston 1986). For example, think of campaign contributions offered to political candidates in exchange for policy promises (which are assumedly kept), where the more is offered the better the promise. As yet, we only know of one experiment investigating this type of model (Kirchsteiger and Pratt 2000). In the experiment the game is between one player (the agent) who has to choose between a number of alternatives of no direct interest to himself and two other players (the principals) with conflicting interests. The latter simultaneously choose a contribution schedule, promising a non-negative contribution (here, an amount of money) for each alternative. Then, the first player chooses between the alternatives and collects the contributions. Assuming rational own-payoff maximizing behavior, theory predicts that the agent will maximize the sum of the contributions and that the principals will spread their contributions in a specific way. [8] The main finding is the following.

- Little support is obtained for the theoretical equilibrium predictions.

- Players only make serious contributions to the most preferred alternative.

According to Kirchsteiger and Pratt, an important reason for these findings may be the complexity of the theoretical equilibrium strategies.

Signaling

An important reason for lobbying, neglected by the previous mode ls, is the lack of information on the side of policymakers concerning the consequences of policies. Interest groups are likely to be better informed, either because the policies affect them directly or because of their better contact with those who are concerned. The problem for the

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[8] In the experiment the first player was actually substituted by a robot.

policymaker, of course, is the possibility of strategic information transmission by the lobbyists representing these interest groups. They may not (always) provide all of the information they have or may not transmit it in a truthful way. Signaling models of lobbying try to formalize such a situation, without assuming that those involved can make binding contracts as in common agency models (for a basic model, see Potters and van Winden 1992). Again, only few experiments have been carried out to date. In the experiments of Potters and van Winden (1996, 2000) there are two players. One of the players (the policymaker) has to choose between two alternatives. The alternative chosen determines the payoffs of both players, given the 'state of the world'. The second player (the interest group) gets informed about the actual state, while the policymaker only knows the likelihood of the possible states. The distribution of the states is such that the alternative that is least preferred by the interest group (whatever the state is) gives the higher expected payoff to the policymaker. Before the policymaker decides, the interest group has the option to send a costly message to the policymaker concerning the actual state. For illustration, think of a policymaker who is uncertain about the benefits of subsidizing a firm, where the benefits depend on the competitiveness of the firm. Theoretically, in this situation, rational own-payoff maximizing interest groups should more often send messages if the state is such that there is no conflict of interest with the policymaker; otherwise, the latter would not risk changing the policy that is believed to be best in the absence of a message. In equilibrium, then, both the interest group and the policymaker can expect to benefit from the possibility of lobbying (sending costly messages). The experimental results show the following.

- Information transmission benefiting both the interest group and the policymaker occurs.

- However, the predictive power of the theory is rather weak. Players focus (too much) on their own payoffs and adapt (beliefs) to the observed actions of the opponent.

- Professional lobbyists - compared to students - earn more money and behave more like gamesmen. Professional rules of conduct (like 'avoid conflicts of interest', 'focus on win-win situations', and 'never cheat or misinform') may explain.

Taking stock, the conclusion should be that experimental studies, generally, only find weak support for the models of lobbying that are proposed in the literature. On the other hand, there are as yet very few studies. Furthermore, many aspects are still left to be explored, like the

group (decision making) aspect of interest groups, (financial) constraints on contributions, or the entry and exit decisions of interest group members.

5 Implications for theory and practice

What can we conclude from the experimental findings concerning collective action obtained so far? Let us start with some policy implications and then look at the findings from a more theoretical perspective.

Implications for practice

In my view, there are at least three major policy implications.

➢ The rationale for government intervention needs to be revisited.

Although free riding occurs, and quite a few people free ride all the time, the experiments show that on average people make substantial voluntary contributions to public goods. They also use (costly) opportunities to communicate and sanction, even when this runs against their self-interest. Thus, the textbook homo economicus rationale for government interference with the supply of public goods does not get much support. Note, however, that from a collective welfare point of view this is not always good news. There are circumstances where collective action may lead to welfare losses. Experiments showed this for intergroup conflicts, where collective action (being a group-specific public good, in that case) may trigger a detrimental escalation. Another well-known example is collusion among firms.

➢ Lobbying is important for informed policymaking.

Once we step back from the rent seeking and common agency models of lobbying where the information problem for policymaking is neglected, and acknowledge the lack of information confronting policymakers in practice, the opportunity to transmit policy relevant information through lobbying becomes extremely important. The signaling model experiments showed that people use such a (costly) opportunity and that it can be beneficial to all concerned. This is not to say, of course, that there are no potential welfare losses that have to be taken into

account, which may be due to, for example, an unequal access to lobbying or an excessive spending of resources.

➢ We know substantially more now about how to enhance collective action.

Options for people to communicate, to apply sanctions, and to stay together (with the prospect of future interaction and the possibility of social ties), appear to be important. Note that mobility and government intervention may be two-sided swords in this respect, because of their impact on the possibility to apply sanctions and form social ties (e.g. by breaking up or diminishing the relevance of the social network established through collective action). Also, norms and values that people internalize through the interaction with educators, teachers, and others, play a role. Culture matters (see also Ockenfels and Weimann 1999, Henrich et al. 2001). This includes what we learn to attribute to other people in this respect. For example, it seems that training in the homo economicus model of behavior encourages the view and expectation that others are motivated primarily by self-interest, and thereby increases the likelihood that people will defect in social dilemmas (Frank et al. 1996, Blais and Young 1999). Finally, the experimental results point at paying heed to collective choice procedures, such as proportional representation or winner-takes-all, because they can affect collective action.

Implications for theory

The evidence surveyed in this paper only adds to a lot of other experimental evidence (see Kagel and Roth 1995, Camerer 1998) in support of the following conclusion.

➢ The homo economicus model fails as a generally applicable model to explain economic behavior.

Firstly, we have seen that many people do not seem to rationally pursue their economic self-interest only. For instance, they punish or reward other people even if this is only costly to themselves. Behavior is shaped by different social norms and values, as well as psychological traits (ways of thinking and feeling). People often do care about the well-being of other people or the appropriateness of their behavior. Moreover, the experimental evidence indicates that individuals have feelings that motivate them. They get angry, and feel urged to

retaliate, if an opponent defects from cooperative behavior, for instance. Whereas it may be obvious to any casual observer of politics in practice that emotions count, these are completely neglected in our economic models. Where's the heat? Substantial evidence exists showing that emotions are an important motivational factor and, in addition, may in fact be crucial for rational decision making. In the next section, I will return to these issues. Another important implication of the experimental results is that models should allow for adaptive and mostly backward looking behavior. It would help understand the dynamics of collective action – a neglected area of research –, such as the gradual tendency towards free riding among 'strangers', and the different pattern displayed by 'partners' (see Keser and van Winden 2000). And, finally, it is to be acknowledged that the usual single player assumption for interest groups is not innocent. Even so-called unitary groups (making jointly binding decisions) appear to behave different in comparison with an individual. In the next section, I will elaborate on some important topics for future research that are linked to these observations. I expect that the necessary enrichment of our formal conception of economic behavior will have the following more general implication.

➢ Specific models for specific classes of cases will have to be developed for generating further insights.

It is only by going through a phase where solid evidence is collected for models focusing on particular behavioral settings (in terms of cognition and emotion) that we can hope to arrive at a powerful more general model at some later stage. Homo economicus may very well survive in a more restricted habitat, like certain markets, as suggested by the experimental literature (see Davis and Holt 1993, Kagel and Roth 1995).

6 Future research

In the Introduction, the following major issues concerning collective action were distinguished: the nature of the interests shared by those (potentially) involved in the collective action, the way the action is coordinated and organized, the type and level of an interest group's activity, and the determinants of its political influence. The laboratory experiments discussed in the previous sections have generated some important insights, but

they have also raised many new interesting questions, and much is left to be (further) explored. In this section I will focus on some important issues dealing with individual behavior, organization, and the role of laboratory experimentation.

Behavior

Individual behavior is determined by interests, cognition (reasoning) and......emotions. Although economists – as in fact psychologists, up to about the mid 1980s – have neglected emotions as a motivational factor, there exists substantial evidence now that they should be taken into account to understand and predict behavior. Let me start, however, with the following statement regarding interests.

- People are groping for political interests; they do not just have them.

I guess some introspection will make it clear that we often do not know what precisely our interests in the political sphere are. Take the interests of a worker in the taxation of wages and profits. At first glance, one might perhaps think that a worker would prefer profit taxation. However, confronted with statements about capital flight, a worker may get convinced that wage taxation is to be preferred. In a world with severe uncertainty about what is right or wrong in terms of policy, one cannot simply take the interests of political agents as given. But, then, how do they develop? As I have discussed more extensively elsewhere, we have to pay much more attention to the social embeddedness of behavior and take a group frame of reference (van Winden 1999). People interact, which impacts their beliefs and preferences. In this way they sort themselves into (informal) social groups, the members of which are characterized by similar behavior. There are many concepts around referring to this phenomenon, like social norms, conformity, imitation, contagion, herding, bandwagons, neighborhood effects, and peer influences (see Manski 2000). As yet there are hardly any collective action models which allow for such dynamic aspects (see, however, Lohmann 1994, Sadiraj et al. 2002), and almost no experiments (an exception is Ehrhart and Keser 1999).

- Bounded rationality: cognition.

In contrast with the usual assumption in economics, the rationality of individuals – in terms of capacity and skills of reasoning – is clearly bounded (see Camerer 1998, Rabin 1998).[9] People find it hard to look ahead (do backward induction or exponential discounting), to reason strategically (put themselves in the position of others) , or to deal with probabilities (apply Bayes' rule). It is, therefore, important to investigate, for example, non-expected-utility models like prospect theory. The risk seeking in the domain of losses predicted by this theory may help explain, for instance, why political movements against incumbents and in favor of challengers stand a better chance in case of economic adversity (Quattrone and Tversky 1993).

- Bounded reasoning: emotions.

Our economic decisions are not only affected by cognitive limitations but also by the impact of emotions. I will elaborate somewhat more on this issue, because I think it is important and refers to a relatively much less familiar aspect of behavior. An emotion arises when an event is appraised by an individual as relevant to an important concern or interest (see e.g. Oatley and Jenkins 1996). If the interest is advanced (impeded) a positive (negative) emotion is generated which is experienced as pleasurable (painful); consequently, they have a direct hedonic effect.. The occurrence of an emotion cannot be chosen, because the underlying mental processes are unconscious and not cognitively penetrable. Emotions have a dual nature: they entail benefits or costs (hedonic impact), but also affect the decision making process as such (e.g. via attention and memory). Central to an emotion is an action tendency, an urge to execute a particular action, which may be regulated by further appraisals. If the intensity of an emotion is sufficiently strong, however, it surpasses a regulation threshold, leading to a mode of operation where we just react rather than think. This implies that emotions may lead to less reasoned decisions, and in this sense contribute to bounded rationality (Kaufman 1999). On the other hand, many arguments and substantial evidence exist pointing at beneficial effects; according to some scholars emotions are even necessary for cognitions to have an influence on behavior (see Elster 1998, Loewenstein 2000). In any case, emotions would seem to play an important role in politics. There are not only many statements by professional and academic experts bearing this out, but also some empirical studies. Regarding the former, De Tocqueville and Schumpeter, for example, pointed at the

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[9] See in this context also the critical study of Green and Shapiro (1994) regarding applications of rational choice theory in political science.

role played by emotions in determining political behavior (see the quotes in Mueller 1989, pp. 348-349). And many politicians and commentators have referred to hatred as a motivation for political violence, on the occasion of the terrorist attacks of last year's September 11th. According to Roemer (1979), collective action in the form of demonstrations or riots may often be the expression of bottled-up anger with no instrumental purpose. In a similar vein, Romer (1995) sees political participation related to anger induced by the perceived negation of entitlements. As regards the empirical evidence, Abelson et al. (1982), for instance, find that affect scores of presidential candidates are highly predictive of political preferences, adding significantly to the explanation offered by trait scores and party identification (see also Rahn et al. 1990). Marcus and Mackuen (1993) provide empirical evidence indicating that anxiety stimulates voters to pay attention to campaigns, to learn policy-related information about candidates, and to rely to a lesser extent on habit in voting decisions. Furthermore, some political psychologists have speculated that anxious people are more susceptible to the influence of leaders who are adept at discovering 'enemies' as the 'cause' of their anxiety (Barner-Barry and Rosenwein 1985). Also, it is to be expected that emotions like guilt and shame – which may be triggered by peer influences or internalized norms (e.g. that it is one's civic duty to vote) – can help explain political participation. Emotions are not just random and transitory events that are of no political economic significance. They are very systematic in character, and some first economic experiments point at a significant behavioral impact in a politically relevant setting of appropriation and retaliation (see van Winden 2001, Bosman and van Winden 2001). The waiting is now for models of collective action allowing for emotions, and for experiments to explore their importance in such a setting.

Organization

So far, experimental studies of collective action – as, in fact, theoretical studies of interest groups – have either focused on the contributions of members of a given group to some (group-specific) public good or on the lobbying by single player interest 'groups'. The way that such groups get started and develop as well as their decision-making structure have been neglected.

- How do formal (organized) interest groups get started and how do they develop?

We need to know much more about the initiative takers (political entrepreneurs), and the determinants of why people join, stay with, and leave interest groups; in short, the dynamics of interest groups. Political economic outcomes can be very different once these dynamic aspects are taken into account (Sadiraj et al. 2001, 2002). More knowledge is also required about the choice and impact of means of communication and sanctioning. Moreover, how are actually the decision-making procedures and rules determined? Experiments can be very useful here, because such issues may be difficult to investigate systematically in the field. The same holds for the next one.

- What is the impact of decision-making structures?

For example, does it matter for a group's decisions whether these are taken in a democratic or dictatorial way? And, if so, how would that affect the outcome of intergroup conflict? The little experimental evidence that exists suggests that it does make a difference which of these collective choice rules are used by interest groups (Bornstein et al. 2001), but more research is needed. Another interesting issue would be whether there are any interaction effects between the choice rules employed by (competing) interest groups and their use of communication and sanctioning mechanisms (e.g. the choice between 'words' and 'deeds').

Laboratory experimentation

Laboratory experimentation has proved to be a useful research method for the study of collective action problems. As regards the kinds of problems that are investigated, however, it is now time to move on to topics other than free riding in social dilemma situations. The previous paragraphs hopefully show that there is a lot left to be researched. In addition to the topics already mentioned I would like to point at the importance of executing experiments with very large groups. So far, group sizes up to about 100 participants have been studied. With the use of modern technology, like the internet, it should be possible to go much further. Laboratory experimentation is no substitute for other research methods, however. First, there are other forms of experimentation that may be fruitfully used. Apart from field experiments, that are typically difficult (and costly) to organize, one should in particular think of computer experiments (simulations), because of the opportunity it gives to study complex interactions (see e.g. Sadiraj et al. 2001, 2002). Second, there are other empirical research methods (like questionnaires or case studies). And, third, we should try to relate our findings with

theoretical models. There is a need for problem-driven models (focusing on classes of cases first), which are tested and improved through the use of the aforementioned research methods, and take the findings from the other (social) sciences seriously.

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