

## 6. NON-MARKET AND ORGANIZATIONAL RESEARCH

### Introduction

Modern laboratory experimental methods were heavily influenced by research in the worlds of non-market, public choice and political science. In the early 1970s these areas held much new theory and the conflicts among theories, including conflicts across disciplinary boundaries were visible. The public economics and political science worlds are worlds without prices, property rights and exchanges other than through voting. Multiple agents are involved as opposed to the two, typical of game theory experiments and preferences do not depend upon your own actions but instead could depend on the action of others. So, an individual could become benefited or harmed while taking no actions at all. The first subpart of Part 6 contains research papers (nine) on externalities and public goods and the second subpart contains five papers on committees and voting processes. The final subpart is a single entry that is focused on broad organizations.

#### *6.1. Public Goods and Externalities*

Early experiments demonstrated that the group makes contributions to the public good early in an experiment but contributions decay over time (first demonstrated by [Isaac, McCue, and Plott, 1985](#)). The subsequent challenge was to discover why any contribution took place at all and why it tended to change over time.

Many of the traditional public goods experiments placed the equilibrium on the boundary. This is important because if the equilibrium is on the boundary of zero contribution then any error at all appears as a purposefully cooperative act. By contrast Laury and Holt look at interior equilibrium. A large number of studies reviewed demonstrate that moving the equilibrium within the interior can change the pattern of contributions relative to the equilibrium. However, it is not the case that having an equilibrium on the interior is sufficient to produce equilibrium levels of contributions. Thus, other factors are at work.

Those “other factors” began to emerge with surprising dimensions with a discovery by Saijo that the attitudes might not be positively inclined toward others at all. Through experiments with public goods with an interior equilibrium he discovered the existence of spiteful behavior, those who fail to invest when the private value is above the marginal cost. It is as though they view the benefits that they provide to others from the public investment as a cost to themselves. This behavior seems to be prevalent among Japanese and in more complex games it has an effect on the path to an equilibrium.

Andreoni and Croson study public goods provision environments in which one has experience with those in the group as opposed to an environment in which the public

goods problem must be solved by people who are thrown together for the first time – strangers. The striking result is the difference in provision that depends on the whether the group consists of partners or strangers and the challenge is to determine why. The paper reviews experiments that search confusion, a taste for cooperation (warm glow), altruism and reputation formation as the reasons. The issue is pursued further by Croson who becomes focused on beliefs about what others will contribute. Beliefs that others will contribute enhances contribution. The conjecture is that reciprocity is the driving attitude.

The matter of fundamental attitudes is addressed by Brandts and Schram by using a different methodology. Rather than a single decision they as subjects for a contribution function for multiple situations, which is then analyzed and applied for group decisions. They conjecture that the phenomena of contribution is driven by attitudes of reciprocal altruism and note that a tension between dominant strategy equilibrium and efficiency suggest that the central driving attitude is not the warm glow of giving in general. And their theme is echoed by Chan, Mestelman and Muller, whose voluntary provision of public goods experiments are used to test equity theory with positive results. They also focus on the effects of redistributing endowments and income to determine the effect on provision. And, the issue of differing attitudes is explored further by Holt and Laury in an examination of a series of models based on different motivations. The performance of the models is compared in the sense of their ability to capture observed comparative statics. No firm resolution among the models emerges.

The question of fundamental types is raised in still another context by Schram, Offerman and Sonnemans. The step level goods they study are fundamentally different from the continuous versions of public goods provision problems. A threshold of contributions must be reached before any benefits are provided. It is a non convexity of special magnitude and it has the consequence of changing the nature of the equilibrium in that beliefs about the contributions of others are central to the concept. In this context a test to see if personality type had an effect on contributions suggested that the variable is not important. Group size as a variable decreases average contribution but increases the instances of successful provision. This influence is explained by the difference in beliefs about being marginal (or crucial) contributor whose contribution makes the total cross the threshold. Whether the group consists of partners or strangers makes no difference but the framing of the problem is important as people will contribute more to a public good than to a public bad.

The focus on the characteristics of the individual was pursued by Von Winden. He uses a social value orientation measure from social psychology to classify subjects as individualists or cooperators. Positive social orientation leads to greater contributions to the public good and contributions to the public good facilitates group ties. The success or failure of the public good provision has an influence on the attitudes that the members of the group have toward each other. Thus, his result suggests that the issues of the role of individual attitudes in the provision of public goods might be addressed through direct measurements of individual personality types.

## 6.2. Committees and Voting Groups

The basic model presented by Bottom, Handlin, King and Miller rests on a primitive concept of a decisive coalition from which a dominance relation is derived and solution concepts applied. This abstraction permits the modeling of institutions that are far more complex than can be accommodated by game trees and the non-cooperative game model. The focus of the research is on institutions and in particular agendas, super majorities, divided houses and other institutional structures that induce the existence of a core in a world in which majority rule cores do not otherwise exist. The evidence of institutional influence on the group decision is overwhelming and the power of the underlying model to predict the results of the experiments is astounding. The model and data expose an underlying tendency of the data to gravitate to the core of the underlying model.

The same type of theoretical analysis is used in two contexts by Wilson. Five-person committees operating under majority rule such as Roberts Rules are known to converge to near the core. Wilson demonstrates that this is through a process of agenda proposals that move toward the core when it exists. He then studies committees in which the core does not exist and demonstrates that the pattern of outcomes is sensitive to the locations of preferences but the outcomes themselves are dispersed, suggesting that the instability suggested by the theory is a fact of life.

Wilson's second paper is focused on institutional structures that induce equilibria in the context of a committee process. In particular, a monopoly agenda setter is studied as is a special set of rules requiring the "backward" consideration of proposals and amendments. While the decision rule is majority rule, a rule that gives an individual the monopoly authority to call for a vote is extremely powerful. The outcomes gravitate to the area of the agenda setter's ideal point. The backward consideration procedures are remarkable in that they create several equilibria in a world in which equilibria do not ordinarily exist. The result is a well contained pattern of outcomes that can be compared with the "scattered" outcomes that result in the absence of the "backward" agenda.

The two final papers of the section draw the discussion back to traditional non cooperative game theory. In the first Reitz demonstrates that Duverger's law operates in three candidate elections. Consider a three candidate race in which candidates are preferred by a majority in the order  $A > B > C$ . Yet in a three way race the vote can be split between A and B with the result that C wins. Duverger's law says that strategic voting will prevent that from happening. Those who prefer B but sense that it will lose will switch to A thereby defeating C. Of course this requires certain configurations of preferences but the idea is that such avoidance of choosing a majority loser can surface through the natural and uncoordinated strategic behavior of voters. The data clearly demonstrate the operation of the law.

A second application of non cooperative theory is found in Sonnemans and Schram. In a majority rule election system a single person's vote becomes important only if the election is a dead heat and otherwise, it makes no difference on the outcome. If it makes no difference and it is at all costly, then there is no incentive to vote. Thus voter turnout

becomes a challenge to theory. Sonnemans and Schram explore the turnout in the light of equilibrium theory and in the context of two different election systems. While the quantitative features of the data depart from theory the comparative statics resulting from non-cooperative game theory are correct.

## **Reference**

Isaac, R. Mark, McCue, Kenneth F., Plott, Charles R. (1985). "Public goods provision in an experimental environment". *Journal of Public Economics* 26, 51–74.