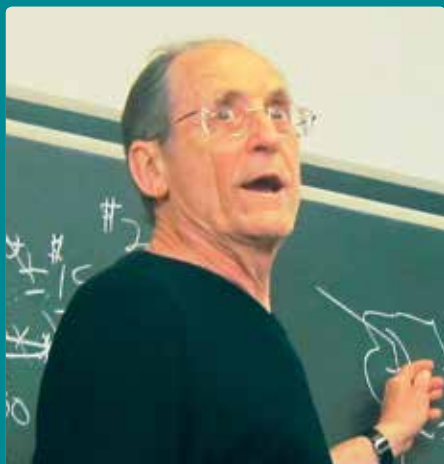


Fiscal thinking

DR JOHN KAGEL



Dr John Kagel explains the background to his experimental research into economics, which takes innovations from psychology, applying them to generate insights into economic behaviour with far-reaching consequences for the discipline

Your background lies in experimental economics. Could you begin by outlining what this discipline entails?

Experimental economics falls into four broad categories, similar to any field of science. First is engaging in dialogue with theorists – taking theoretical models and investigating them in the lab to see if they work, and if they work the way the theory says they should. For this you have to understand there is a distinction between a ‘fully rational’ economic person intent only on materialistic gain, and real human beings who are subject to a variety of biases. Second, researchers argue between themselves concerning different explanations for a particular phenomenon found in the lab, especially which element of the experimental design or behaviour is responsible for the outcome. Third, experiments can be used to investigate properties of newly designed market mechanisms. A leading example of this has been the use of experiments to test the properties of auction mechanisms for government sale of spectrum (air wave) rights beginning in the US and now practised around the world. Fourth, experiments can be used as a teaching tool through student participation in experiments related to class content, similar to the way a lab is used in biology or physics.

What techniques do you use to support your investigations?

The primary technique is to employ financially-motivated human subjects in a laboratory setting designed to mimic the economic environment of interest. Payoffs of subjects depend on the decisions they make. For example, one might design an auction for an item for which subjects are assigned dollar values for the item representing the value they place on the item, and the winner of the auction is paid his assigned value, minus what they bid in a first-price, sealed bid auction. If the interest is in comparing different auction mechanisms, the results from a series of first-price auctions might be compared to results from a series of open outcry auctions with the same distribution for bidders’ valuations and numbers of bidders. One can also run experiments of this sort on eBay, or design a lab experiment to investigate the latest twist in the design of spectrum auctions, or design a field experiment to study different methods for evaluating public school teachers in terms of the impact on student achievement.

If systematic coding exists to explain this theory, will there be potential to develop it into a winning formula?

I think we can develop much more realistic models of economic behaviour, and have a much deeper understanding of economic behaviour with this line of research. In this sense it’s foundational. However there are potential applied elements as well, as the study of auctions has led to new and important policy applications, such as the design of spectrum auctions around the world, or the design of auctions for the procurement of medical equipment under Medicare contracts.

How do you study the cognitive response of the individuals involved in this study? Are you drawing on the expertise of other disciplines to conduct this research?

We use the real-time dialogues between team mates to study cognitive responses. The closest sister discipline to this sort of research is psychology – in particular social psychology. In fact, in addition to publishing our research results in mainstream economic journals, my colleagues and I have published a number of papers in psychology journals and in management science journals where economics and psychology naturally blend together.

What facilities does the institution offer you and your team? How do they support your endeavours?

I am the University Chaired Professor of Applied Economics and Director of the Economics Laboratory at the Ohio State University. Among other things, the University has provided me with a dedicated computer lab facility with some 30 work stations, along with highly competent systems administrators, and a dedicated research fund. I have an excellent set of both junior and senior colleagues to collaborate with, and high quality graduate students to interact with as well. The University has also supported a series of postdocs assigned to the lab. There is ample support for graduate student research and the prospects for a major behavioural decision making centre to be developed at the University, which would result in a substantial increase in resources and numbers of people working in related areas to mine.

The way we **act**

Economic theories lie behind international responses to the global financial crisis, yet these same philosophies are based on simplistic depictions of idealised humans, which a team from **Ohio State University** is aiming to change

EXPERIMENTAL ECONOMICS ALLOWS researchers to understand the way in which human interactions differ from those of the idealised models that lie at the heart of economic theory. This relatively new discipline combines economics, psychology, management science and behavioural economics in an attempt to expose the ways in which humans interact.

Dr John Kagel is leading a collaborative project at Ohio State University (OSU) to investigate strategic decision-making by groups and individuals in a number of economically important settings using an experimental economics approach. One important area of recent research involves markets with asymmetric information, where one side of the market has better information than the other side. Within this environment there are two types of agent: high and low quality types. These agents are aware of their own type, but the other side of the market only knows the prior probabilities of the two types. High quality agents are incentivised to display their type by taking costly actions, much as higher cognitive types have incentives to obtain advanced degrees in order to signal their type. In one experiment being conducted at OSU, pairs are matched with an advisor and advisee, with advisors receiving a bonus payment based on how well their advisee does in terms of signalling their

type. The experiment has already highlighted a number of surprising results, challenging the expectations of the researchers.

SURPRISING RESULTS

The first of the unexpected outcomes is that a considerable number of the advisors who learn how to signal their own type, which would result in increased financial gain if they passed on the advice, fail to do so. The result is incongruous given that it is wholly in their best interest to communicate this information. Investigating this phenomenon, Kagel and his partners found that the single biggest fact contributing to this is that women are less likely to pass on advice than men. Building on work done by other researchers, the suggestion is that women are less confident in their decision-making than their male counterparts.

Another interesting result of this study is that advice which was accompanied by a sound and detailed explanation was no more likely to be followed than advice that was given without an explanation at all, with advice being acted upon in around two thirds of all cases. The indication is that, counter to economic theory, individuals are not rational actors weighing the evidence and considering all the options at their disposal on a regular basis. Whilst such an assertion is unsurprising for those from

a psychology background, this could have significant ramifications for economic theory. The OSU investigators are now exploring the broader implications of this finding for economic theory and behaviour.

EQUALITY ARGUMENTS

The project has also demonstrated a shift in outcome when the dynamics of the interactions were changed. For example, if the pairing was a two person freely-interacting team, they were far more likely to effectively signal their type than when there is an advisor and advisee. Kagel is particularly interested in the dynamic shift across these systems: "Just as there is friction in conveying information between advisors and advisees, there are well-established frictions to conveying information effectively in freely-interacting groups, such as free riding, and a considerable amount of idle chatter. So it is not obvious why the advisor-advisee relationship should fall short".

This is a significant finding for management strategies and provides models for relationships to follow. For instance, for advice to be effective there must be a free and easy interchange of information between advisors and advisees. Furthermore, companies should aim to have fully interactional relationships between senior and junior management,



INTELLIGENCE

EXPERIMENTAL STUDIES ON GROUP DECISION MAKING IN STRATEGIC ENVIRONMENTS

OBJECTIVES

- To investigate hypotheses as to why teams perform substantially better than individuals in strategic economic/business environments; at times doing substantially better than individuals in the problem-solving domain
- To explore the origins of group performance advantage and details of the decision making processes used in strategic settings

PARTNERS

Professor Hal Arkes, Ohio State University

Professor David Cooper, Florida State University

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CONTACT

Dr John Kagel

Ohio State University
Department of Economics
410 Arps Hall
1945 North High Street
Columbus
OH 43210
USA

T +1 614 292 4812
E kagel.4@osu.edu

www.econ.ohio-state.edu/kagel

JOHN KAGEL is the University Chaired Professor of Applied Economics and Director of the Economics Laboratory at Ohio State University. He attained a BA in Economics from Tufts University in 1964, before gaining an MPA in Economic Development from the University of Pittsburgh in 1966. In 1968 he received an MS in Economics from Purdue University, which he followed with a PhD in Economics in 1970. He is a Fellow of the Econometric Society.



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thereby achieving the most effective possible outcome for problem solving.

INVESTIGATING INTERACTIONS

The results have wide-ranging implications that extend beyond simply updating and enhancing management styles. Much of Kagel's recent work has targeted strategic decision-making, including bargaining, markets with small numbers of firms, and the asymmetric information scenario with advisors and advisees. All of these are being approached using similar experiments, placing pairs in laboratories with conditions designed to mimic these environments. The researchers have two major goals; the first of these is to better understand decision making processes, as Kagel explains: "Because team mates must talk to coordinate their decisions, using team chats provides a real-time accounting of agents' thought processes". The resulting dialogues can be used by the researchers to analyse competing explanations for the observed behaviour, ultimately allowing them to develop more realistic models. The second part of their work relates directly to field settings. Most decisions, such as those made in central banks around the world, are made by committees. It is often claimed that such an approach is more efficient. Such claims can be carefully probed in these studies.

GREATER COMPLEXITY

The differences between laypeople, students and experienced economic agents responsible for making decisions at national and international levels is often cited as a major problem in terms of generalising results from the lab to the field settings. There are several potential solutions to this problem: recruit professionals to come to the lab to participate in an experiment, and/or look for parallel outcomes between the lab and field setting of interest. Moreover, having reported a set of lab results, the burden of proof is shifted to those

who do not believe the results will generalise to field settings to articulate the reasons why they don't believe the results will generalise (eg. what is the difference between the lab environment and the target environment?), and then perhaps to conduct additional experiments to explore the impact of the differences specified. Finally, many economic models have applications to environments populated by ordinary people in their everyday lives; in which case the absence of specialised training or experience is not an issue.

PROGRESS THROUGH PARTNERSHIP

The project is founded on a highly collaborative approach, which has been an essential element in delivering the results achieved thus far. In addition to working with large numbers of graduate students, Kagel has received support from his OSU colleague Professor Hal Arkes, who has contributed a psychology-based methodology. Furthermore, Professor David Cooper of Florida State University has played a fundamental role in examining the theory underlying the investigation, conducting data analysis and writing up the results.

Kagel has a significant second line of research studying auctions in which he and his colleagues have made major contributions to both the academic and public policy literature on the topic. He has been supported in this line of work with a long running collaboration with Professor Dan Levin, and recent studies with Dr Paul Milgrom, one of the world's leading auction theorists, which has produced a number of exciting results.

The wide range of experts, each representing the numerous disciplines that contribute to experimental economics, has been a significant factor in the success of Kagel's studies, which have contributed to a paradigm shift within economics, leading to more efficient and informed decision-making in the near future.