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INTRODUCTION

Introduction to the special issue in honor of John H. Kagel

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1 A brief note on John H. Kagel

John H. Kagel has played a leading role in the growth of experimental economics. He has left a deep and lasting mark on our discipline as an author, mentor, editor, and president of the Economic Science Association (ESA). It is with great pleasure and admiration that we present this special issue in honor of all of his contributions to our field.

All three of us have personally benefitted from John's mentorship, and we are just a small sample of the many economists that John has taught or mentored. On first meeting John, he can seem incredibly intimidating. John grew up on Long Island and comes across as the stereotypical New Yorker, blunt and direct. But once you get to know him, you realize that the surface impression is misleading. His energy and passion for economics are palpable and inspire you to become excited as well. He inspires by example: a tremendous work ethic, an unstoppable energy. However, it is not like John is always so serious. He has a cynical sense of humor that livens up every conversation. The way his face lights up while sharing a wry insight and his high barking laugh in response to a joke that he enjoys are unforgettable. John is one of the most caring and generous individuals that you will ever meet. He has an almost infinite willingness to invest his time and energy in helping his graduate students and junior colleagues learn and grow. This willingness is not limited to the time you are his student or his junior colleague, nor is it limited to narrow matters of research. Once you are John's protégé, he will always be willing to help you. There

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is always a tendency to measure an individual's value to the academic community solely by the papers they have published, but John's contributions go far beyond his admittedly impressive body of work.

That said, even if John Kagel had never done anything but write papers, his contributions to economics would be impressive. Three features distinguish John's work. The first is a consistent willingness to innovate. John's first experimental work was studying token economies at the Central Islip State Mental Hospital (Battalio et al., 1973). Inspired by his advisor Robert Basmann, John and his co-authors recognized that the possibility of controlling prices and budgets within the token economy provided a controlled way of testing fundamental concepts in economics, specifically the basic properties of demand functions, that could not be achieved using standard data from field settings. Natural field experiments (Harrison and List, 2004), which today are omni-present and frequently publish in the top-5 economics journals, became prominent in the mid-1990 s. But John Kagel was publishing field experiments twenty years earlier! He also published pioneering work featuring artefactual field experiments (Harrison and List, 2004), specifically experiments in which subjects had real world expertise in the environment being studied. Important examples of his work in this area include his use of construction executives to study the winner's curse (Dyer et al., 1989) and using Chinese textile and pharmaceutical executives to study the ratchet effect (Cooper et al., 1999). John has also introduced new techniques to experimental economics, such as his analysis of dialogues between teammates to gain insight into the thought processes underlying subjects' decisions (Cooper and Kagel, 2005). John's career began with a series of experiments where the subjects were animals, either pigeons (Battalio et al., 1981) or rats (Battalio et al., 1985; Kagel and Levin, 1986). While this approach has never really caught on in economics, perhaps we simply have not waited long enough. After all, John has often proved to be well ahead of the rest of the profession!

John Kagel's experiments are not only elegant and technically sophisticated, they keep a tight link between the theory and the experimental design. These characteristics of John's work allow his experiments to directly examine important theoretical issues. His classic 1986 paper on the winner's curse (Kagel and Levin, 1986) is a great example of these features. The phenomenon of systematic overbidding by the winners of common value auctions was already well known and prominent experiments (e.g., Bazerman and Samuelson, 1983) had previously been conducted. The problem with these early designs is that it is hard to pin down when behavior is irrational, as the process generating beliefs (as well as beliefs about others' beliefs) is unknown. Kagel and Levin introduced a simple setup that mimics the main feature of the field setting (each subject receives a noisy signal about the true value of an object) while making the process generating values and estimates common knowledge. This makes it possible to precisely establish when a bid is unambiguously irrational. They take the theory seriously while recognizing the limitation of the theory.

John's experimental work on legislative bargaining (Fréchette et al., 2005a, 2005b, 2005c) features a similar approach, and also illustrates John's penchant for further exploring the boundaries of the theory by adding realistic elements. By studying the effects of communication (Baranski and Kagel, 2015) or play by teams (Bradfield and Kagel, 2015), his work enhances our understanding of what drives

human behavior along dimensions where standard theory is often silent. A good experimental design should capture the most important features of the relevant issue while being sufficiently simple so that clear conclusions can be drawn. John Kagel has a knack for performing this difficult balancing act, enriching theory-driven designs with more realistic elements that increase the external validity of experimental work.

Finally, John Kagel's research features astonishing diversity. It is difficult to publish articles in the top five economics journals, a feat that John has accomplished many times. But how many researchers have achieved the triple crown of publishing an article in top journals for economics, political science (e.g. Fréchette et al., 2003), and psychology (e.g. Rachlin et al., 1980)? Many experimenters have conducted lab and field experiments. But how many have also conducted experiments with rats, pigeons, and border collies? John has tremendous intellectual curiosity and a willingness to reach outside the narrow confines of standard economics. He has published on agriculture, electricity, other-regarding preferences, learning, bargaining, and many other topics. He has even published a paper based on a Canadian marijuana experiment. He has a gift for making connections that lead to new and interesting research partnerships. The key connection for John's initial work on token economies came through his brother-in-law. For one of us, a research partnership that has lasted more than thirty years began over drinks in a bar. John Kagel has always believed in finding interesting ideas without much concern about whether they were the conventional thing for an economist to do. It is this attitude that makes him a great scientist.

2 A synopsis of the articles included in this issue

This special issue brings together a collection of 11 peer-reviewed scholarly articles received through an open call, each delving into different subjects on which John has contributed. Topics include auctions, political economy, learning and strategic reasoning, communication, and other-regarding preferences. In the following, we briefly summarize them and their connection to John's work.

The seminal experimental work on multilateral bargaining by John Kagel and coauthors has covered much ground: understanding the impact of the bargaining protocol (Fréchette et al., 2003), player asymmetries (Fréchette et al., 2005c), and strategic variables such as discounting and recognition probabilities affect bargaining outcomes (Fréchette et al., 2005a, 2005b). Complementing John's work, which has focused on structured games with a fixed timing of moves, as in Baron and Ferejohn (1989), Kamm and Siegenthaler (2022) in this issue investigate how voting share asymmetries affect payoff division under alternative bargaining rules. The authors find that when coalition membership is decided prior to the division of payoffs, and the decision is binding, proportionality is more likely to arise compared to when coalition formation and payoff division take place simultaneously. They argue that understanding the role of commitment in the formation of coalitions in bargaining can shed light on the reasons behind Gamson's law (Gamson, 1961), a theory that

finds support from the empirical observation that cabinet seats tend to be proportional to voting shares in parliamentary democracies.

In this issue, Baranski and Cox (2023) study the role of communication in bargaining behavior over an endogenous surplus.[1] Previous work by Baranski and Kagel (2015) revealed that proposers obtain a larger share when they are able to communicate via chat screens with voters. By identifying the cheapest player and voters competing for a spot in the winning coalition, the proposers extracted a better deal. When the surplus is endogenous, communication channels are used to lobby for equitable sharing, contrary to what occurs with an exogenous fund.

John's work in experimental political economy has also investigated the provision of public goods. Three experiments by Kagel and coauthors (Fréchette et al., 2012; Christiansen et al., 2014; Christiansen and Kagel, 2019) have advanced our understanding of how people trade off their own benefits versus those of the public in bargaining, mainly by exploring two-dimensional legislative bargaining games following the model by Jackson and Moselle (2002). In this issue, we have three contributions that build and expand upon this growing area of research. Alberti and Mantilla (2023) test a model by Van Essen and Walker (2017) in which players decide on the magnitude and funding of a public good by negotiating transfers. Duffy and Kim (2023) provide the first experimental study of a model by Bowen et al. (2014). They investigate the role of mandatory versus discretionary public good provision rules under high and low polarization depending on the divergence of preferences over the public good. Struwe et al. (2022) study a different class of mechanisms by which the funds for public good provision are elicited from third parties that cannot directly produce the public good themselves. In sum, the previous articles contribute to a research agenda in experimental political economy that seeks to understand how the institutional details through which provision decisions are reached affect economic efficiency. They also demonstrate the importance of theory-grounded experimental investigations, a feature that permeates John's body of work.

It is difficult to imagine what the economics literature on auctions would be like without John's contributions. His work on auctions, most of it with long-time collaborator Dan Levin, has been key in establishing our understanding of important behavioral phenomena, the most obvious being the winner's curse (Kagel and Levin, 1986, 2009). In so doing, he moved economics forward both substantively and also established important standards and methods of experimental economics. For instance, in his first paper on common value auctions (Kagel and Levin, 1986), he introduced the dual market procedure and defined the structure that would become the basis of almost all common value auction experiments in economics: a common value drawn from a known uniform distribution, and bidders receiving signals drawn from a uniform distribution centered at the true value, plus or minus ϵ. This framework is closely related to the one he introduced to study affiliated private value auctions (Kagel et al., 1987). Now, more than 35 years later, that same structure is used in the paper by Armantier and Holt (2023) where they study auction mechanisms for world relevant applications: multi-object, multi-unit auctions, with

[1] This article was mistakenly published in a regular issue.

a budget-constrained auctioneer who is uncertain of the values of the objects. The main insight is that the auctioneer can improve outcomes by incorporating information contained in submitted bids when setting reference prices.

The Revenue-Equivalence Theorem remains a seminal result in auction theory, showing that the auction mechanism matters surprisingly little for the revenue yielded by an auction. Much experimental work has cast doubt on this result, including work by John Kagel (e.g. Kagel et al. 1987, Cox et al. 1982). Bergmann and Konovalov (2023) address a related question in this special issue. Once budget constraints are added to the model, revenue equivalence no longer holds (Che et al., 2013) and the order of sale matters (Benoit and Krishna, 2001). Bergmann and Konovalov (2023) find some support for the basic theory in this environment. As predicted, the order in which objects are sold affects revenue and almost all individuals recognize the strategic value of letting a weaker bidder have the first item in order to deplete their budget. Revenue equivalence does not hold as sealed bid auctions yield higher revenue than the equivalent English auctions.

In auctions experiments, the seller is typically computerized, the implicit assumption being that the auctioneer is credibly committed to respecting the rules of the auction. But this assumption is not without loss of generality from a theoretical standpoint, as credibility is central to determining equilibrium bidding (Akbarpour and Li, 2020). In this issue, Dianat and Freer (2023) test the implications of allowing sellers in a second-price auction to both select the winner and to misrepresent the second highest bid. They find that subjects in the role of the auctioneer overcharge, but not at the level that it maximizes their revenue. Bidding behavior in non-credible second-price auctions tends to lie between the predicted bid functions in credible second-price (i.e., with a committed auctioneer) auctions and the first-price auctions.

Auctions being a challenging environment, John's designs were always clearly conceived with the need for subjects to have appropriate feedback and experience to learn. Subjects always played multiple auctions in a session, but often were brought back for sessions of experienced subjects (Dyer et al., 1989; Kagel and Richard, 2001; Casari et al., 2007). The importance of learning led to a broader interest in within-game learning as well as cross-game learning, commonly referred to as learning transfer. These issues were studied mostly in the context of limit-price entry games (Cooper et al., 1997a, b; Cooper and Kagel, 2008, 2009), but John's interest started in the context of auctions. Kagel (1995) explores learning transfer between first-price and English auctions. In this issue, Giebe et al., (2023) study learning transfer between first-price auctions and second-price auctions, a type of auction where overbidding has been well documented (this was first reported in 1987). The paper shows that for people in the bottom half of the cognitive ability measure, participating first in a first-price auction reduces overbidding in a subsequent second-price auction. Overall, the findings indicate that learning transfer may help people with lower cognitive ability.

Along with his longtime collaborator David Cooper, John Kagel introduced economists to the technique of having subjects make choices in teams (Cooper and Kagel, 2003, 2005). The comparison of individual and team choices has intrinsic interest; if team decisions systematically differ from those of individuals,

inferences based on experiments with individuals will not apply to the many environments where the decision-making agent is a team. Beyond this, team decision making offers a window into how subjects think through a choice situation. When teams must act as a single agent, their deliberations articulate their thoughts in a visible manner (the "poor man's fMRI"). This fits John's broader interest in understanding the mechanisms behind choices. Much of his work goes beyond *as-if* models by documenting why people do what they do. Understanding whether the logic of our models is in line with how subjects actually make choices is an important factor in determining whether a model's predictions are likely to be robust. A possible limiting factor for this approach is the observation that team discussions tell us how subjects think about a problem when they are in a team. Teammates point things out to each other that individually they may not have noticed. They articulate arguments meant to convince, and those too may be different from their thoughts in isolation. In this issue, Arad et al. (2022) show, in a series of experiments on three distinct types of tasks (one individual choice problem and two games), that team communications do not seem to distort the choice process. Team choices may differ, but simply because the more sophisticated choice typically wins in a team. Merely being part of a team, the possibility to suggest a choice, or the verbalization of ideas and thought processes do not distort choice processes. Hence, these experiments suggest that team communication can offer a useful window into individual thinking.

The study of other-regarding preferences has been one of the most important contributions of experimental economics to economics as a whole, and is yet another area where John Kagel has contributed important work. In a standard ultimatum game, the size of the pie being bargained over is common knowledge. This is not entirely realistic, and, starting in the 1990 s, a stream of papers relaxed this assumption. In Mitzkewitz and Nagel (1993), the responder did not know the size of the pie, a fact that proposers used to their advantage. Kagel et al. (1996) advanced this idea by allowing for the possibility that either the proposer or the responder might not know the value of chips (i.e. units of payments) to the other. For proposers, they find evidence of "self-serving" fairness, specifically a tendency to split the chips evenly when they have a high value for chips and to split the monetary payoffs evenly when they have a low value for chips. With responders, the results are consistent with inequality aversion. The problem with this literature is that no one paper looks at all four possibilities (none informed, proposer informed, responder informed, or all informed) in an otherwise fixed environment. Huang et al. (2023) in this issue, introduce a take-it-or-leave-it offer game that nests the ultimatum game and allows for all four possibilities. They find that unfairness increases whenever either player becomes less informed. Driving this result, buyers imitate low value types when they know sellers are uninformed, and sellers are more willing to accept low offers when they know that the buyers are uninformed. Fairness is most important when all agents are fully informed, suggesting that results from games like the standard ultimatum game may overstate the importance of fairness given the prevalence of asymmetric information in most field settings.

Declarations

Conflict of interest The authors have no financial conflict of interest

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