UNIVERSITEIT VAN AMSTERDAM

Communication-by-Action and Market Design

Additional Funding Research Priority Areas 2015

Research Priority Area Behavioral Economics

1. Summary Research Priority Area

The Research Priority Area Behavioral Economics (RPA-BE) is at the forefront of improving understanding of economic behaviour and decision making, with effective applications in governance, institutional arrangements, and policy. By integrating developments in and insights offered by adjacent disciplines such as psychology, sociology, and biology, it has already advanced critical insights into, e.g., how to design effective auctions, the importance of other-regarding preferences and social ties, the ironic and sometimes adverse effects of institutional arrangements and sanction systems, and the conditions under which coordination and cooperation break down and conflict emerges.

Relying on a delicate mix of tight (field)experimental research and sophisticated game-theoretic modelling, the RPA-BE hosts a critical mass of internationally renowned scientists (CREED, CeNDEF, Markets & Organization, Human Capital: PI's Gneezy, Hommes, Offerman, Oosterbeek, Plug, Schram, Shalvi, Sloof, Sonnemans, van Veelen), and has established itself as a key player internationally in advancing insights into economic behavior, in integrating its core business with adjacent disciplines located at the UvA (e.g., Psychology; Law; Biology), and in developing and expanding networks of internationally renowned scientists and their laboratories (e.g., Max Planck Institute for Collective Goods; UZH-Zurich; GATE Lyon; UAB Barcelona; CESS NYU; Rady School UCSD). Graduates of the RPA-BE have taken on leadership positions in academic research (e.g., Prof Jacob Goeree, director ESEI center for Market Design, president of the Economic Science Association, UZH Zurich), as well as in private businesses and public policy/governance (e.g., Adrian de Groot Ruiz, Director True Price Foundation).

Better understanding of how market design, usually through incentives, interacts with communication could help solve major problems. For example, the seminal work of Al Roth (2012 Nobel Prize and honorary doctorate at the UvA) on matching revolutionized the way kidney transplants are handled in the United States, increasing the number of transplants. A key element in the new market design was creating efficient incentives that provide a mechanism for information exchange by actions.[1] This example demonstrates that understanding how players in the market interact, and what their actions communicate to other players is often an alternative to costly systems of governance (e.g., sanctions, law enforcement). Communication is also key in many forms of economic trade and complex (multi-issue) negotiations within and between groups, communities, and organizations.

Accordingly, and to further innovate the economic sciences, RPA-BE targets communication as a core modulator of market design, and its applications to economic decision making, trade, and dispute resolution. We set two interrelated goals: (i) to reach out to, and integrate existing insight and expertise from adjacent disciplines (Psychological, Political, or Communication Sciences) that have much to say about various aspects of communication, and (ii) to construct a state-of-the-art laboratory fitted to study the modulating role of communication (e.g., coordination; tacit cues; implicit emotional signals; promises and threats; explicit verbal exchange of information). This *communication and market design lab* will allow us to study individual and (inter)group decision making settings that mimic and model economic systems such as work organizations or public institutions, creating a unique position for the UvA within the field of Behavioral Economics, promote the interdisciplinary outlook and impact of the RPA-BE, and as such be pivotal in making a significant contribution to both BE and adjacent disciplines.

2. Academic casus

There are a series of important questions on the interplay of communication and market design that will shape the future of the research agenda of RPA-BE. An important theme concerns the extent to which institutions are needed to complement the possibilities offered in communication processes. In many circumstances free communication between actors facilitates beneficial outcomes for society. In social dilemmas and coordination games, psychological factors like shame and guilt may enhance the credibility of promises and threats. At the same time, game theory predicts that there are clear limits to the extent to which communication will be self-signaling. In particular very little is known about the effectiveness of communication in large groups. In such circumstances, communication processes may need to be backed up by formal institutions. For instance, matching market institutions may substantially enhance societal outcomes when free communication fails.

In other circumstances, communication between the relevant actors is potentially harmful to society. Examples include the possibility (i) that firms agree to charge high prices at the detriment of consumers; (ii) that lobbyists bribe politicians to take actions that favor a small group at the expense of the silent majority; or (iii) that companies bidding

[1] By "communication-by-action," we mean that people can often express their intentions by means of the actions they take, rather than by words. See later for some other examples of this.

for licenses in the telecom market collude to avoid paying high entry fees. In each of these cases, it is imperative to know the harm done by free-form communication and the effectiveness of institutions designed to counter the costs to society. Accordingly, we will also investigate the effectiveness of communication in political science applications. How will teams compete when they can internally communicate, or how does a leader communicate in a team if she has the possibility to exclude some of the members from participating in the communication? And what reputational consequences does leader communication and coalition formation have? How do complex negotiations proceed when emotion signaling and tacit maneuvering within and between groups is enabled or turned off, and what communication channels work well in group decision making where communication cannot be face-to-face (as in Command-and-Control teams during military operations)? It is these and related questions that RPA-BE needs to address, to advance scientific understanding but also to provide calibrated and evidence-based advice for policy, institutional design, and governance. Accordingly, we aim to set up the *communication and market design laboratory* that will be fully equipped to study communication and institutions in large groups. This requires a lab with a large number of computers (20) that are connected on a local network, and in which subjects are seated in soundproof cubicles equipped with cameras and microphones. The communication lab will further consist of an observation room and a conference room (with cameras and microphones), with a one-way mirror in between these rooms.[2]

To promote fruitful integration between neuroscientific (e.g., *f*MRI, TDCs, neurohormonal modulation) and (social) psychological insights into communication processes on the one hand, and behavioral economics on the other, a small part of the funding will be used to add De Dreu (Psychology UvA) as part-time PI. De Dreu is an expert on the neurobiological and social psychological underpinnings of communication processes (i.e., emotion signaling, tactical maneuvering, and information exchange and processing) in bargaining, dispute resolution, and cooperative group decision making (e.g., *J Pers Soc Psych, 2000, 2004, 2006, 2010; Pers Soc Psych Rev, 2008; Science 2010*; *PNAS* 2011-a, 2011-b, 2014; *Psychol Bull, 2014*). His work and expertise nicely complements various lines of research on communication-in-action within RPA-BE, some of has already been very influential. Gneezy and colleagues (e.g., *Science*, 2010, 2014 (R&R); *PNAS* 2011, 2012, 2013, 2014; *Mngmt Sci* 2014; *J Marketing Res*, 2014) study the importance of signaling on economic decisions. The overarching conclusion from this research is that the way markets are designed influence the effectiveness of signaling—which is a key element in understanding communication. For example, in a field experiment involving hundreds of thousands of observations from a Disney theme park, it was shown that by changing the traditional pricing scheme to a "pay-what-you-want" one a company communicates to its customers that it trusts them: The action of letting customers decide about the price serves as a signal of trust. This communication by action is important because simply telling customers "we trust you" is not credible. As the results show, customers reward such signals of trust when paying for the product.

Offerman and colleagues have studied the effectiveness of communication-by-action versus communication-by-words in a series of studies (e.g., *GEB*, 2011; *Exp Econ*, 2014; *J of Law, Econ Org* forthcoming; *Mngmt Sci* R&R; *IER* R&R). The main finding is that people primarily effectively communicate by words and that senders only start using costly messages when their private information is so extreme that it can no longer be credibly communicated in words. In another line of research, Offerman and colleagues investigate institutions that allow sellers to fight collusion in auctions (e.g., *JET*, 2011, *IJIO*, 2011; *Exp Econ*, 2013). Recently, Offerman and colleagues have started to investigate the extent to which people can distill information from minimal cues. In a simple bargaining game, they find that people have the skills of detecting an "angry button" in others from a photo. A substantial proportion of 71% of the responders is accurately predicted to (not) reject an unfair offer, well above the 50% chance rate. The precise mechanisms that allow people to do so, and the extent to which the ability to predict behavior from minimal cues generalizes to other games and cultures, will be the subject of future research.

Schram and his co-authors have studied the importance of information transmission between individuals. One set of studies (*Eur Econ Rev* 2010, *J Econ Behav Org* 2010 and *Soc Networks* 2013) involves information exchange within employer networks during recruitment decisions. An important conclusion is that the efficiency of recruiting is enhanced when some employers bypass the market and use their networks to communicate information about prospective workers' trustworthiness. A second set addresses the effects on the voter turnout decision of information about voting behavior by one's neighbors (*Am Pol Sci Rev* 2006) or the party preferences of the electorate (*Am J Pol Sci* 2010). Such information has large effects on turnout rates in elections, especially when communicated directly by one's peers.

[2] Some FMG laboratories are also equipped with such features but are too small to investigate communication in or between (large) groups. For some more specialized applications we can make use of those labs (e.g., eyetrackers can be used to track social preferences and the effectiveness of social and emotion signaling).

Hommes and colleagues (e.g., *AEJ:Micro* 2012; *EER* 2013; *Rev. Fin. Stud.* 2005; *JEDC* 2012, 2011, 2009; *JEBO* 2013, *J.Evol.Ec.* 2012) study how the aggregate behavior in macro experiments depends on the interactions of individual decisions and the market feedback structure. The main conclusion is that in positive feedback macro systems –where more optimistic expectations lead to higher prices say—the market does not settle down to the rational expectations equilibrium but rather fluctuates persistently around it. An important topic for future work is how communication and market design can mitigate instability and enforce convergence in macro systems. This is particularly important in the current discussions about transparency and forward guidance in monetary and fiscal policies that can enhance macro-financial stability.

3. Innovation casus

The new communication lab will put RPA-BE in a unique position to study how market design, and in particular how incentives in such markets influence the interpretation of signals, including emotion cues, reputation building, pricing, and competition, as well as more direct information exchange. As we are interested in analyzing situations where (groups of) people interact strategically, we need a large lab. Existing large labs, like our current lab, are typically equipped with open cubicles, and not suited to study different types of communication in a controlled way. Labs that are equipped with soundproof cubicles tend to be small and do not allow for experiments in which groups of people interact strategically with each other. Moreover, since communication can be very rich, the sample sizes should be fairly large, and with a small lab this imposes prohibitively high costs in terms of research time to collect data. Thus, our proposed program is innovative in that it enables:

- The study of communication-by-action within and between larger groups of people that are interacting strategically;
- Understanding the impact of (non)verbal communication channels (incl. image, sound, and options to exchange text or video messages;
- Creating studies that have reasonable sample sizes of participants that are needed to study communication,
- Specific testing of existing theories of communication and developing and improving novel theoretical models.