Research Statement

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My research interests are in microeconomic theory and behavioral economics. I am mostly interested in understanding how people make decisions in dynamic situations, in both strategic and non-strategic settings. I investigate these questions both from a foundational perspective (e.g., what are the axiomatic underpinnings of models of dynamic stochastic choice, how can one distinguish different types of learning costs), as well as from a more applied theory perspective (e.g., how to optimally communicate over time non-instrumental information to a behavioral agent, when can learning be inefficient in negotiations). My recent work has focused on topics of endogenous learning, optimal timing of decisions, stochastic choice and mechanism design/game theory with behavioral agents.

Endogenous learning. Suppose a venture capitalist (VC) is contemplating whether to invest in a start-up located in an emerging economy. She can either base her investment decision solely on information she already possesses or she can acquire additional information at a cost. Even if investing is ex-ante efficient, new information may be valuable to the VC as a means to influence bargaining positions, besides its value for better decision-making. In my job-market paper ([1]), I study a general model of such a strategic situation. I show that the VC typically waits until she acquires new information, even though learning is costly and leads to additional delay. This suggests that inefficiencies in many negotiation situations might be due to agents actively acquiring information with the aim of influencing bargaining positions. I also show that both negotiation parties achieve non-extreme payoffs and trade occurs at non-extreme prices, whenever they interact frequently enough. Non-extremeness of payoffs and prices is a direct implication of the fact that learning is possible.

In [2] we consider an agent who can use a statistical experiment at a cost, either lump-sum or due to impatience, to learn about a state of the world before taking a decision. We assume that for various decision problems an analyst has access to data about choice frequencies and whether the agent uses the experiment. We give an axiomatic characterization of when such data are consistent with either model of information costs.

The two most popular interpretations of uncertainty reduction are costly generation of new evidence through statistical experiments and rational inattention towards already available information. It is a priori unclear whether they may overlap in some model of information acquisition. Simple examples show that the classical entropy costs cannot come from costly design/acquisition of experiments and in our work in progress [3], we aim to characterize those costs of uncertainty reduction that satisfy this requirement.

Mechanism design/game theory with behavioral preferences. Since [4] and more recently [5], models of reference-dependence have been widely used in economics to study agents who derive utility from changes in beliefs about future consumption (news utility). In [6] I show that news utility has novel implications for the design of mechanisms. In particular, the timeline of the implementation of the mechanism becomes a design variable. I show that it is always costly for the designer to delay the realization of uncertainty the agent cannot influence. In contrast, introducing delay between participation and play decisions may sometimes be beneficial for a revenue-maximizing designer.

In [7] we show that if an information receiver’s sensitivity to news diminishes with the magnitude of news, it is never optimal to resolve non-instrumental uncertainty in one-shot. We show it is typically optimal to give partial evidence of good news and conclusive evidence of bad news at a random time. We also show that if the sender of news lacks commitment and the receiver does not exhibit enough loss aversion, the sender cannot do better than babbling.
Optimal timing of decisions. Consider the research department of a large firm conducting market analysis before deciding whether to add a new production technology to the firm’s portfolio. When is it optimal to stop the analysis and take a decision? What are the choice and welfare implications of subsidizing such R&D activity (e.g. consequences of a subsidy on experimentation duration)? In [8] we study this type of question in an abstract setting assuming that an outside analyst has access to data showing joint frequencies of decision as well as decision time for various decision problems. We show that such data are sufficient for the identification of the costs of information and for performing welfare analysis, even if the analyst is oblivious of the technology of experiments the agent is using.

In [9] I study optimal stopping problems in environments with risk without making parametric assumptions on the risk preference of the agent. I study both naive and sophisticated agents and give a general recipe for characterizing stopping behavior for arbitrary risk preference.

Stochastic choice. Choice is stochastic. This paradigm in economic theory, recently reinvigorated after [10] attempts to connect observables in the form of choice frequencies to underlying economic variables which are unobservable to an analyst, e.g. preferences or private information. In [11], I build on [12] and study a general dynamic model of a population of Bayesian learners who use an experimentation technology to learn about objective, payoff-relevant states. In contrast to previous axiomatic work in stochastic choice, I study an observable which describes for each decision problem the joint frequency of choice and realization of states. In addition to enabling the identification of the ‘usual’ unobservables like prior, experimentation technology and preferences, this new observable allows to detect when the agents are misspecified learners and to compare datasets according to the degree of misspecification.

Finally, in the already mentioned [2] and [8] we showcase the identification power of stochastic choice data augmented with decision time data in settings in which the agent adapts the amount of information she acquires to the decision problem she faces.

References