

Research Statement

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My Profile

I am an applied economic theorist with broad interests. The common theme in all my research is a focus on information: How people acquire it, how they strategically communicate it, and how it shapes their beliefs and their beliefs about other people. I am mainly interested in understanding mechanisms and getting new perspectives on topics with practical relevance such as privacy, internet debating, financial rumors, or the stability of regimes. This means that my work is most often theoretical, as it formally describes a mechanism, shows how it works and how the argument is internally consistent. However, I think that different methods may be appropriate depending on the question, and I have also worked empirically and with agent-based modeling. The ultimate goal of my work is to develop “thinking tools” that can give economists, our students and policymakers a different and better understanding of the economy and society.

My Approach to Research

What I am interested in

In my view, economic theory is best when it gives us an unexpected new perspective on something that we think we know. For example, everyone knows the phenomenon of warranties on everyday products, and we often think of them as a kind of insurance. But once we study information economics, we suddenly understand that warranties are also an informational tool, used by sellers who are desperate to prove the durability of their products but are unable to do so with words.

Several papers from my own work try to achieve a similar shift in perspective. You may think of privacy as an information asymmetry that benefits some at the cost of others – but privacy can actually make everyone better off. You may think that rumors matter in financial markets because people believe they may be true – but actually people may find rumors inescapable even if they know them to be false. And you may be worried about the destructive effect of segregated debate on society – but actually segregation is a symptom, not a cause, and may mitigate the damage done by polarized preferences and uncertainty.

Some Remarks on Methods and Incentives

Since my main interest is in developing new ways to think about mechanisms of behavior and about welfare effects, most of my work is theoretical. But it is the questions that determine

the methods, not the other way around. (Similarly, it is the questions that determine which literature is relevant.) Economists do very good and useful work that is motivated by wanting to use a certain method, or wanting to plug a hole in the literature – but I do not think that all research should advance this way, and mine does not. Accordingly, I have worked with a variety of tools in economic theory – from global games to cheap talk to concentration inequalities – as well as with empirical data (which I collected myself) and with agent-based modeling. I remain committed to using whichever method can be helpful in investigating a question.

After economists have been analyzing principal-agent models for a few decades, the lives of academic researchers are now also interlaced with a web of incentive structures – involving journal publications, hiring committees, tenure reviews, grant decisions and lots and lots of referee reports. This may or may not make us all more productive, but I am certain that these incentives *on their own* do not guarantee that economics is moving in the right direction and at the right pace. Just as a world in which everyone follows incentives can produce inefficient and perverse outcomes, so it is no guarantee that social science will advance best if everyone optimally responds to incentives and tries to publish as well as possible.

Ultimately, doing successful research means to engage in an impossible balancing act. On the one hand, it requires building on the work of others, and benefiting from the comments and criticisms of your colleagues. On the other hand, it calls for freeing one’s thinking from the constraints of previous work, and from the fashions and preconceptions that even one’s most enlightened colleagues may at times be subject to.

My Research Interests

Informational Barriers: Secrecy, Privacy, Segregation

Together with Christoph Schottmüller, I have written what is, so far, a trilogy of papers on the theme of efficient informational barriers. The papers are quite different in what they focus on, but they each make use of a somewhat new model to make a theoretical point about a problem with practical relevance. I will briefly discuss them in reverse chronological order.

In my job market paper “[Why Echo Chambers are Useful](#)”, we argue that it can be optimal for people to segregate into homogeneous groups for debating, instead of debating with a large and diverse set of others. This is because differences in preferences can make the exchange of information impossible. If left on their own, people can often segregate efficiently – but in other cases there may be too little segregation in equilibrium.

In “[An Informational Theory of Privacy](#)”, we show how and when information asymmetries can be Pareto- or welfare-optimal. Popular debate and previous information-theoretical work has often focused on the inefficiency of privacy as an information asymmetry, or the redistributive aspects of privacy (as it benefits those who have it but not those against whom it protects). We construct a simple model which incorporates the competing informational and

welfare effects – the loss for those who lose their privacy, their resulting changes in behavior, the gain of those who now have more information – to show that privacy can (weakly) increase everyone’s welfare.

Our paper “[Why are vulnerable regimes stable? Defending against coordinated attacks through unpredictability](#)” is at the intersection of my interests in information barriers and multiple equilibria (see below). We consider a variant of a regime-change game with one simple addition: a defender who can choose his own strength at a cost (instead of the usual stochastic “state of nature” in such models). This radically changes the structure of the game if the attackers are unable to see the strength that the defender has chosen. In fact, there is now a unique Nash equilibrium (where usually models need all kinds of refinements to get rid of equilibrium multiplicity) in which the defender uses almost no resources and the attackers almost never attack. This equilibrium is also Pareto-superior to the selected equilibria in all other information structures, which suggests that secrecy benefits everybody (even though it mostly benefits the defender).

This work is, of course, far from done. The most drastic and exciting transformations of the economy and society in the 21st century are due to the ease with which information can be transmitted, collected, stored and aggregated. But there will always be informational barriers: Until society can (forcibly) look into everyone’s head, people will hold back and manipulate information because they want to persuade or mislead – and many people will do better work, or will be more honest, if we can guarantee them some privacy. It is hence not helpful to think of an imaginary first best in which there is no asymmetric information, but rather we have to choose between different second best information structures, where welfare is not monotone in the number of information asymmetries. There is much more work to be done in this area – both to understand the welfare effects of information asymmetries and how and when they arise, and ultimately also how we can construct mechanisms that may paradoxically induce more information revelation by giving guarantees of privacy.

Higher-order Beliefs and Multiple Equilibria

In many economic settings, people do not just care about their own knowledge, but also about what others know, what others know about what they know, and so on. This is at the core of game-theoretic solution concepts such as rationalizability, but it is especially relevant in problems that require coordination of some sort. Several of my papers have dealt with problems of higher-order beliefs and equilibrium multiplicity in various ways.

In “[Is Beauty Contagious?](#)”, I consider how market dynamics create a need for coordination among informed traders in an asset market: Each trader only wants to trade on his information if he is sufficiently sure that enough others do so as well. But such coordination is fragile, and I show how higher-order uncertainty created by rumors can destroy it so that no informative trading takes place. Rumors do not drive the market price because anyone believes them, but because everyone knows about them and hence finds it impossible to ignore them. This kind

of belief contagion in Keynes' beauty contest (hence the title) suggests that mass media can impair the ability of markets to aggregate information.

Another project in this area is the [paper on why vulnerable regimes are stable](#) – see above. While this is an area where hundreds of papers have analyzed the role of higher-order beliefs and information structures, our paper shows that by simply considering the strategic behavior of the defender (and not just the attackers) in regime-change games, we can derive equilibrium uniqueness in a way that may explain why regimes that appear to be vulnerable at first glance are surprisingly stable.

My work on higher-order beliefs in financial markets also led to another paper ("[Correlated equilibria in homogeneous good Bertrand competition](#)", published in the Journal of Mathematical Economics 2015). While I was working on issues of pricing, I became interested in the question of whether there are informational mechanisms that would allow prices to deviate from marginal costs in a simultaneous pricing game – commonly known as the Bertrand model. Together with Christoph Schottmüller, I showed that this is not the case, and that hence the thousands of papers that rely on the Bertrand result can also work if we allow players to have correlation devices.

Another paper that roughly falls into this category is my work with Benjamin Bossan and Peter Hammerstein (both biologists) on learning strategies and their evolution. (Published as "[The evolution of social learning and its economic consequences](#)" in the Journal of Economic Behavior & Organization, 2015.) Using agent-based modeling and evolutionary modeling methods, we consider how different learning strategies fare in a changing environment. While social learning (i.e. learning from others instead of from observing nature) does very well, it also has detrimental side effects: It increases the lag between changes in the state of the world and changes in strategy, and it ultimately decouples behavior from reality. We argue that this describes, at a high level of abstraction, the long chains of asset prices that were calculated using other asset prices that were calculated using other asset prices ... in the run-up to the financial crisis of 2008. As in our model, what little information there was got passed around without end, and too little new information entered the system.

These issues continue to fascinate me, and I am conducting further work in the area. The next logical step is to get a better understanding of the importance of higher-order beliefs for the liquidity of assets and, ultimately, the value of money. I have been working on models describing the self-fulfilling nature of asset liquidity, and thinking about ways to model equilibrium selection models of financial markets by thinking about which narratives people find compelling (and believe that others find compelling).