Research Statement

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I am a microeconomist with broad interest in information economics, comparative statics and classical revealed preference analysis. This broadness is reflected in my research, that spans from theory to applied microeconomics and industrial organization.

My multiple projects and explorations allow me to draw insights from different literatures, and take advantage of the common structure underlying seemingly unrelated problems. In the next section, I describe in more detail my research and the fields it contributes to.

The diversity of papers that I describe below also provides evidence of the value I put in coauthoring with theorists and applied economists alike. In my academic experience, I have learned the most from communicating with economists in diverse fields by internalizing the span of colors and lenses they use to observe and interpret the world.

Introduction to Research

In a first strand of research, my job market paper “Quantifying the Welfare Gains of Variety” develops a new revealed-preference approach for valuing changes in product variety, which depends on estimating a pair of sufficient statistics as opposed to estimating a full structural model of demand, and is valid for a general class of models.

In a second strand of research, represented by a group of three papers, I study the value of information and the comparative statics of information. First, in the single-agent setting or settings with limited strategic interaction, this is the case the paper “Acquisition and Disclosure of Information to a Monopoly”. Second, in multi-agent settings with strategic interactions, which is the case of the papers “Entry and the Value of Information in Auctions”, and “Ex-ante Comparative Statics”.

Finally, I would like to mention that I have also done some work on search and rational inattention (including a project with junior coauthors at leading universities in the US) and I plan to follow up on those ideas as soon as the projects hereby described have been all submitted to journals.

Revealed Preference Analysis:

Quantifying the Welfare Gains of Variety: A Sufficient Statistics Approach
(with Kory Kroft, Jean-William Laliberté, and Matthew Notowidigdo)

Quantifying the benefits to consumers from new products is important for a broad range of economic issues. In Industrial Organization (IO), it is central to whether markets provide an efficient level of product variety. In International Trade, it is crucial to a full accounting of the gains from trade.

In this paper, we develop a new revealed-preference approach for valuing changes in product variety. The change in consumer surplus resulting from a change in the number of available products can be represented graphically as the area between the inverse market demand curves before and after the change in product variety. Our approach is based on "Marschak's maxim" that says, "one should solve well-posed economic problems with minimal assumptions", and looks to strike a balance between fully non-parametric models of demand and specific structural demand estimation.

In this tone, our key contribution is to derive sufficient statistics to value changes in product variety using only "local information", that is, using elasticities of demand at the market equilibria (when variety is fixed and when it changes) as opposed to estimating a complete demand system. The first main result (Theorem 1) shows that in the symmetric model, the key to be able to extrapolate from local information (elasticities at the equilibrium) to changes in willingness-to-pay for the inframarginal quantities is that the inverse aggregate demands shift vertically in parallel.

A second result (Theorem 2) provides the microfoundations of the parallel inverse demands assumption. To understand this, first we note that the Nested Logit discrete choice model satisfies the parallel inverse demands condition. Then, results from Extreme Value Theory say that the distribution of the maximum of N of random utility shocks can only converge to one of the three extreme value distributions, one of which gives rise to the Nested Logit model. Extreme Value Theory also provides a precise characterization of the family of distributions for which the maxima converge to the one corresponding to the Nested Logit model. Finally, the theorem shows that for any random utility model with shocks within this family of distributions, the inverse demands become uniformly and asymptotically parallel.

Finally, the last of the theoretical results (Theorem 3) generalizes the approach for valuing changes in product variety to the case of asymmetric product characteristics and prices. The idea is that if an econometrician has at hand a shifter of prices which moves the prices of all varieties by the same amount, then it is enough to observe the effect of the price shift on aggregate quantity in both the short run (when variety is fixed) and the long run (when variety adjusts) to value the change in product variety.

On the empirical side, we illustrate the value of our approach by considering an empirical application to taxes. In particular, we show how one can implement our sufficient statistics formula using reduced-form estimates of the effect of taxes on variety and the effect of taxes on prices and quantities in two cases: where variety is held constant and where variety responds to a change in taxes through firm entry or exit. Combining retail scanner data from grocery stores in the U.S. with detailed local sales tax data and using within-store and between-store variation in rates and exemptions, we estimate a large effect of sales taxes on product variety.

Information Economics:

Auction Theory

"Entry and the Value of Information in Auctions"

In most of the auctions literature, the model assumes a fixed number of bidders with a fixed information structure. This modeling choice is unrealistic and carries strong implications: For example, participation is always valuable for the seller through increased competition and potential efficiency gains. However, an auction format that raises more revenue for a fixed number of bidders also induces less participation. An auctioneer that takes this effect into account will trade off some of the rent extraction to induce more participation.

One contribution of the paper is to show that a similar tradeoff is present when bidders choose the intensity with which they gather information. In fact, I show that the auctions that induce more information acquisition are also those that give more value to the bidders. Therefore, the auctioneer also needs to balance this tradeoff.

In terms of the theory, a basic problem is that we only know how to rank the value of information for two different auction formats when the number of bidders is fixed. I solve this problem by developing the tools to rank the value of information when participation is endogenously determined. The tools include introducing new orders in the space of bidder's utility functions and the space of information structures.

A notable implication is that (in common value auctions), for a class of ordered signals, the first price auction induces more entry and more information acquisition than a second price auction, but the second price auction raises more revenue. Several other results are provided for auctions with interdependent values and security-bid auctions where contingent payments are allowed.

Comparative Statics

Ex-ante Comparative Statics: Responsiveness to Information Quality (with Teddy Mekonnen). January 2017.

In this paper, we study how the quality of the agent's information structure affects the induced distribution of optimal action. Specifically, in a setting where the agent's action and the state are complements, we study how the mean and dispersion of the optimal action change when the quality of the information structure increases.

In the single decision maker model, an agent chooses an action after observing a signal that is informative of the state of the world. From an ex-ante perspective, the agent's optimal action is a random variable that depends on the signal realization. We study how the quality of information affects probability distribution of the optimal action. We show that as the quality of information increases, the agent tailors her actions to her beliefs more closely, and consequently the action is more responsive to the signal.

In the case of several agents, we extend our results to Bayesian games with complementarities, where optimal actions are now Bayes Nash Equilibria, and where we allow for the quality of information to change for several players.

Finally, in Bayesian games with one sided information acquisition we use the concept of responsiveness to characterize the value of transparency by providing a taxonomy of the value of information in the covert and the overt information acquisition games.

The paper advances the theory of Monotone Comparative Statics in several directions. First of all, we conceptualize how from an ex-ante perspective the optimal actions of an informed decision maker are endogenous random variables. A natural question then is to compare optimal actions as a function of the quality of the information of the decision maker, which we answer by stating that as the quality of information increases the dispersion of the distribution of optimal actions also increases.

More precisely, we give sufficient conditions on payoffs so that actions are more responsive to higher quality of information, which we also extend to the case of Bayesian games with strategic complementarities.

We expect that the methods developed in this paper will be especially fruitful when studying Bayesian persuasion with restricted information structures, signal jamming games, and models of rational inattention and search. Moreover, methods based on monotone responses have been particularly useful in the intersection of industrial organization and econometrics.

Monopoly Theory

Acquisition and Disclosure of Information to a Monopoly. July 2016.

In this paper, I characterize the jointly optimal information acquisition and disclosure policies in a buyer-seller game where acquiring information is costly. When a new product is introduced by a monopolist, an uninformed buyer can incur a cost to get a signal of her valuation from a family of available signals. At the point where the information acquisition strategy is chosen the buyer can also commit to disclose information: any signal weakly less informative than the one acquired can be transmitted to the seller. For any given information acquisition strategy, disclosure can increase informational rents to the buyer, therefore she must take into account the optimal disclosure policy for each signal to compute the real value of information. I introduce continuous and connected families of information acquisition strategies and cost, and I characterize the jointly optimal choice of the buyer. In the particular case when information acquisition is unrestricted: all signals are available to the buyer; and the cost function is increasing in informativeness, the optimal policy involves no disclosure of information to the monopolist.