

Research

My research contributes to the understanding of the consumer behavior by estimating structural parameters capable of explaining choices. My research draws tools from revealed preference and partial identification to interpret observed choices in a new light and give guidance for policy-making. The partial identification paradigm naturally complements standard revealed preference analysis by providing a statistical framework that can be used in models involving shape constraints. My research applies these tools to nonparametric and semiparametric models in both observational and experimental data sets. The application of a revealed preference analysis to original applications sometimes require methodological developments.

In Gauthier (2020), I am interested in set estimating the discount factor in the exponential discounting model. The discount factor is important for understanding intertemporal choices and appears in countless empirical applications. In Gauthier (2021), I turn my attention to the elasticity of price with respect to shopping intensity in a general model of price search. This parameter quantifies the effect of shopping intensity on prices paid and has implications for understanding consumption inequality and consumption variance. In a joint working paper, I am interested in risk-aversion which is crucial for decision-making under uncertainty such as in health economics and finance. In each of these studies, much consideration is given to the validity of the models studied to justify inference drawn from them.

Price Search and Consumption Inequality: Robust, Credible and Valid Inference

In this paper, I investigate whether price search mitigates consumption inequality by estimating the elasticity of price with respect to shopping intensity. Price search allows consumers to affect their own prices paid by taking advantage of coupons, deals, and price variations across stores. If low-income consumers use those channels more extensively than high-income consumers, then they can purchase a given bundle of goods at a lower cost. That is, price search may be a mechanism used by low-income consumers to increase their consumption level.

To quantify the effects of search on prices paid by income group, I propose a structural model and develop a revealed preference methodology to set identify the elasticity of price with respect to shopping intensity. The model imposes mild restrictions on preferences, allows for rich heterogeneity, and accounts for measurement error in prices. Furthermore, the model is designed such that changes in the expected average price must be due to changes in shopping intensity. To ensure the validity of the model and its causal interpretation, I statistically test its assumptions in the data. Given a panel of consumers, this test either accepts or rejects the model and constitutes a novel approach to evaluate the validity of structural models.

Using a panel of consumers from the Nielsen Homescan Dataset, I cannot reject that the data were generated by the model at the 95% confidence level. My set estimate implies that doubling shopping intensity decreases the average price paid by at least 19.1% but no more than 19.5%. I also document that shopping intensity and the effect of shopping intensity on prices paid are slightly larger for low-income consumers than high-income consumers. My results suggest that, while price search is a mechanism that helps mitigate consumption inequality, low-income consumers mainly achieve a comparable consumption level to high-income consumers by purchasing goods of lower quality.

Robust Inference on Discount Factors

The exponential discounting model is a predominant tool for analyzing dynamic choice in applied work. Its attractiveness rests in that time preferences are summarized by a single parameter—the discount factor. This allows one to tractably analyze a decision maker’s intertemporal choices, which is crucial in a vast range of applications. Accordingly, many studies have tried to recover its key time parameter. However, a common feature in this literature is the specification of the consumer’s preferences. This constitutes a potentially important limitation as erroneously specifying preferences may lead to spurious estimates of the discount factor.

In this paper, I use the concavity of the utility function to set identify individual-specific discount factors. As such, discount factors are not tied to any specific parameterization of preferences. In addition, I derive a novel methodology that allows me to evaluate the sensitivity of discounts factors with respect to measurement error in variables. In my empirical application, I apply my method to a checkout scanner panel data set on food expenditures. I show that consumers who are more educated, younger, or live in a larger household tend to have slightly higher discount factors.

Choice under Uncertainty: Expected Utility and Risk aversion

Risk aversion is the tendency of individuals to prefer payoffs with low uncertainty to those with high uncertainty. This feature is usually captured by a constant relative risk aversion (CRRA) utility function. Further, individuals are generally assumed to gauge the value of a payoff by the expected utility it provides. However, the equity premium puzzle documents that such assumptions yield a risk aversion parameter that cannot simultaneously explain high returns on equity and low returns on the risk-free asset observed in the data. Using data from a large-scale experiment, this joint project aims to provide new insights into the reasons for the equity premium puzzle by using a novel econometric methodology.

Future Work

In the next years, I plan to explore whether the rejection of price-seeking behavior in household choice is due to preference and search heterogeneity among individuals within the household. The development of a framework that accounts for this type of heterogeneity is important to understand how price search affects households and make adequate policy recommendations. In a different line of research, I plan to provide a new test for instrument validity that is applicable in general settings. Since instrumental variable (IV) does not always have empirical content, this project will also look for conditions that guarantee the refutability of IV. The usefulness of this test will be assessed by verifying the validity of instruments in applications of interest. Finally, I also intend on extending the application of revealed preference analysis to discrete choice environments often arising in demand analysis.