The substantive areas I am interested in include advertising, digital economy, online marketplaces, and consumer behavior and choice modeling. Methodologically, I focus on causal inference and structural modeling approaches. In this statement, I outline key themes in my current and future research.

1. Consumer Behavior and Choice Modeling

My first research stream focuses on modeling consumer choice with empirical applications in marketing and public policy. In my job market paper, I develop a model of store, category and brand choice. The model is novel from a technical point of view as it integrates all three decisions in a direct utility framework which makes it possible to conduct policy analysis and simulation. I apply the model to study the question of whether government welfare programs should be more flexible. Specifically, I look at the Food Stamps Program and my research finds that expanding food stamps to include household items would improve consumer welfare and better serve the program’s goals in terms of overall food spending. The main finding stems from the fact that more flexible benefits give access to a wider selection of items, inducing consumers to visit stores more frequently. I expand the analysis and provide structural estimates of key parameters for three types of subsidies: the regular food stamps benefits, tax rebate, and flexible food stamps benefits proposed in the paper. My findings are in-line with results based on natural experiments reported in prior research, yielding credibility to my structural modeling approach and the main finding. In addition, I explore the effect of further benefit restriction and consider excluding certain items or categories. I study how banning benefit use on sweetened soda affects consumption of soda and how consumers substitute across brands, categories, and stores. Results from counterfactual policy experiments suggest that consumers substitute across a wide range of different categories with no change to shopping frequency. These substitution effects are similar to the effect of enacting a 10 percent tax on sweetened soda.

In future research, I plan to consider the same model and data to study the extent of loss leader pricing in supermarket demand. The concept of loss leader pricing rests on the premise that a given brand or category can drive demand for all goods within the store. This means that the decision to feature a brand as a loss leader is a function of the interactions between the loss leader and other items, categories and stores. Therefore, the model of store, category and brand choice described above suits this application well. The effect of a price change, for example, can be decomposed into the effects that the price change has on the discounted item, other items in the category, other categories in the store, and on other stores. This level of detail makes it possible to measure whether the response to a price change arises from substitution effects within the store or from other stores – capturing the core idea behind loss leader pricing.

2. Digital Advertising

My second research stream studies methods to measure advertising effectiveness in display advertising with applications to data collection, field experiments, and budget allocation across digital publishers.
In my second project, I study how to use past results from display advertising campaigns to inform firm policy for future campaigns. Specifically, I study the problem of allocating advertising dollars across publishers when the marketing manager has access to a catalogue of past advertising campaigns conducted in partnership with different digital publishers. In addition to the traditional concern of internal validity, I also identify and address external validity as a potential concern. To address the first concern, I leverage quasi-experimental variation in the auction outcome to measure incremental lift in conversion. My identification strategy for estimating the effectiveness of display advertising is based on the fact that conditional on endogenous targeting and bidding behavior, the auction outcome depends on circumstances that are outside the control of both the advertiser and the user. The auction mechanism simulates an experiment with two groups of users: (i) users who are targeted and for whom the auction is won, resulting in displaying the focal ad, (ii) users who are targeted and for whom the auction is lost, resulting in displaying the competing ad. Both groups are targeted by the same campaign criteria and only differ in the ad they are served, which conditional on bidding behavior is an exogenous event. Crucially, the proposed strategy can be used on observational data which makes it possible to study variability of advertising effects across numerous campaigns. To address the second concern, I develop a decision tool using methods from the field of distributional robust optimization (DRO). With out-of-sample performance in mind, the optimization method enables to calibrate the budget allocation strategy to a desired level of conservativeness (or riskiness).

I am currently in talks with a major online retailer who is interested in collaborating on this project. In future research, I plan to conduct field experiments that compare out-of-sample performance of advertising campaigns when budget allocation decisions are made with the method proposed above, and when they are made using existing methods that rely on manual tuning. In addition, focusing on out-of-sample performance raises interesting questions about data collection. In particular, larger campaigns increase power to detect advertising effects while more numerous campaigns help address generalizability of advertising effects across campaigns. These trade-offs have important implications whether additional resources are invested into conducting experiments to eliminate confounding, or modeling parameter heterogeneity to account for the effect of context specific omitted variables. In sum, I think insights from answering these types of questions could be consequential since most work on advertising effectiveness has focused on modeling issues and internal validity, assuming external validity for future purposes.

3. Online Marketplaces
My third research stream studies platform design and consumer response in online marketplaces. In my third project, I study how review content affects consumer search and choice, with applications to ordering search results and reviews. Specifically, I look at the vacation rental market and study how consumers use reviews to learn about the general appeal (vertical quality) and personal match (horizontal quality) of a vacation rental. Similarly, I also study how consumers write reviews and how they convey their general visit experience and personal match in review text content. I develop a joint model
of consumer choice and review decision with the aim to order search results and reviews in a way that accounts for personal tastes. In practice, this means that users would be able to search results based on review content: for example, all top-rated vacation rentals in the destination of choice that have reviews mentioning a well equipped kitchen and a quiet neighborhood. To estimate the parameters of interest, I identify several sources of quasi-experimental variation in the marketplace to help overcome endogeneity concerns. For example, (i) the dynamic nature of the marketplace provides exogenous variation in available inventory and consumer consideration sets which helps estimation of demand side parameters, (ii) sudden price changes induced by pre-determined calendar-pricing schedules and unexpected vacations provide exogenous price variation in the price variable, (iii) weather shocks provide exogenous variation to overall trip experience and affect review valence and likelihood to leave a review.

I have located a suitable dataset for this project and have also spent time at the sponsoring site. However, I still need to obtain a non-disclosure agreement to be able to publish this work. I plan to obtain legal clearance at the existing site or at a new site. In future research, I want to use the model above to study how personalized order for search alternatives and reviews affects consumer learning with implications to conversion, firm revenue, and consumer satisfaction. Another topic of interest is review inflation – the phenomenon that consumers only tend to leave reviews for extreme events – and using field experiments (e.g., giving a coupon) to measure the extent of review inflation in the marketplace and its implications for consumers and the platform.

Conclusion
In summary, my research tackles both methodological and substantive questions and aims to make both types of contributions. A key feature in my empirical research has been collaboration and partnership with private sector firms to answer questions of both managerial and academic interest and I plan to maintain that link in my future research. In the next couple of years, I aim to publish several papers based on my existing projects and further advance my research agenda at the intersection of quantitative marketing and digital economy.