Application to attend the graduate student tutorial held by the NBER project on the Economics of Digitization on February 28, 2018 for Mohammed Alyakoob, PhD candidate at the Krannert School of Management, Purdue University

Contact Information

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University: Purdue University, Krannert School of Management

Coursework Pursued During Graduate Work

PhD Area: PhD in Management with a specialization in Management Information Systems

Year: 4th Year

Major: Management Information Systems

Minor: Finance, Computer Science

Coursework: Econometrics 1 & 2, Micro econometrics, Bayesian Econometrics, Micro Economic Theory 1 & 2, Advanced Game Theory, Labor Economics, Experimental Economics, Management Information Systems Doctoral Seminar Series (7 courses), Corporate Finance Theory Doctoral Seminar, Advanced Data Mining, Stochastic Models in Operations Research, Discrete Optimization Models and Algorithms.

Coursework Description: I have completed PhD level coursework in Economics and Management (Information Systems and Finance). My focus has been on obtaining an understanding of economics (with a focus on micro economics and econometrics) that can be utilized in Management research, specifically research on the Economics of Information Systems. I have supplemented these courses with Graduate level course work in Computer Science and Industrial Engineering to broaden my toolkit to include machine learning and optimization techniques.

Description of General Research Interests

My research focuses on the heterogeneous impact of online platforms on local markets. Online platforms, such as Amazon, Airbnb, and Uber, present both the providers and consumers of products with new opportunities. These include a potential reduction in inventory costs (i.e., online retailers), a more efficient use of underutilized local inventory (i.e., Airbnb), and access to market participants that are not constrained by geography (i.e., crowdfunding). However, online platforms are also constrained by limitations associated with potential trust issues (i.e., Airbnb, Uber) and the inability to provide a customer the opportunity to assess the product sold (i.e., online retailers). The impact of these online platforms on local market has included individuals and industries. My research objective is to assess the role of local market conditions on the impact online platforms have on local economies, and specifically, how this impact is not homogeneous for all markets. There are two broad themes that I assess. The first considers the interactions of the financial market structure and online financial products recently introduced in the FinTech era. The second focuses on the impact that sharing platforms (such as home sharing and car sharing services) have on the markets that they operate in.

My first research project analyzes the competitive dynamics between local credit providing institutions and online lending platforms such as Peer-To-Peer (P2P) lenders. We find evidence that offline market factors (such as the number of local banks, credit unions, and other credit offering institutions) cannot be ignored even in a market, the P2P lending market, which can theoretically remove the historical geographic boundaries within which credit offering institutions traditionally operate. We combine data from multiple sources (including P2P lending platforms, U.S. Census Bureau, Bureau of Labor Statistics, U.S. Department of Housing and Urban Development, and FDIC) using GIS software (ArcGIS) to provide an in-depth and granular analysis of the geographic differences that define the evolving role of local financial institutions. The depth of our platform data (i.e., we have detailed data on lender behavior that includes every instance a lender decided to provide a borrower with funds) and the granular nature of our geographic data enable us to utilize machine learning techniques to create a pseudo experimental design and further validate the underlying mechanisms behind our results.

In an extension of this initial project, a second study pursues to understand the role of local determinants in the penetration of peer-to-peer lending. Despite the implied notion that FinTech

product are able to transcend beyond geographic boundaries, we find evidence that local characteristics (i.e., local market structure and local customer intermediation momentum) play a significant role in the success or failure of P2P lending. We specifically focus on the heterogeneity of the demand for P2P products associated with local economic factors and assess the often inefficient matching of markets that need these recourses with markets that are actually demanding these recourses. Often times these mismatches result from a lack of awareness and understanding of the product in certain local communities.

Going beyond the FinTech markets, I also research the role of sharing economy products such as Airbnb in shifting the demand dynamics of local markets. Specifically, we focus on how the use of underutilized room capacity by Airbnb hosts introduces visitors to areas of cities which they otherwise would not have accessed. This is due to the fact that these areas might not have enough demand to encourage hotels to undertake the high fixed costs associated with establishing a location in that area. However, room sharing platforms, such as Airbnb, allow the residents of these areas to utilize their current spaces, which brings new customers to these markets. We specifically study how these new dynamics impact local businesses, and specifically the capacity to spur new entrepreneurial efforts. In this study, we utilize data from multiple sources such as Airbnb, Yelp, TripAdvisor, and the U.S. Census Bureau.

Another Airbnb project is concerned with ascertaining the rental income that is generated by Airbnb hosts. As the debate regarding Airbnb's impact on housing prices, rental prices, community safety, and community regulations accelerates, the question of how profitable Airbnb hosts, relative to long term leasers becomes important. The negative externalities associated with home sharing, specifically those homes where the host rents out the property on Airbnb throughout the year, are often imposed on the local communities. Therefore the profitability for home owners to use Airbnb relative to other options becomes important in assessing the continuing viability of these type of properties.

Overall, my research is focused on the heterogeneous manner by which digital platforms impact local markets. As the sharing economy, which is empowered by digital platforms, becomes a larger part of consumers' everyday transactions, it is important that regulators obtain an understanding of how markets are impacted differently.