**NBER Digitization Tutorial**

**Applicant : Karthik Babu Nattamai Kannan**

1. **Please provide contact information, including email.**

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1. **Please provide a short description of the course of study pursued during graduate work, including the type of course work pursued, major and minor focus of study, year of advance, and so on.**

I am a 3rd year PhD student with concentration in Information Technology Management at Scheller College of Business, Georgia Tech. I have close to 10 years of work experience as a technology and process consultant during which time I have consulted for clients such as Johnson and Johnson, GE, Citigroup and The Home Depot. I am also an American Society for Quality (ASQ) certified Six Sigma Black Belt.

In this PhD program, I have taken courses covering the foundations of economics, econometrics & research design, theory construction and seminars. I have also participated in 2 workshops – causal inference workshop organized by Nortwestern Law School in July 2014 and Structural Modeling Workshop organized by Carnegie Mellon University in August 2014.

While I focus on the economics of information systems, I use econometric analysis, field experiments and analytical modeling for analyzing these problems.

Selected coursework: Econometrics, Multivariate statistics, Advanced econometrics, Survival analysis, Microeconomics, Industrial organization, Game theory, Theory construction, PhD seminar – experimental methodology, PhD seminar – operations strategy, PhD seminar – e-commerce, PhD seminar – identification strategies for casual reasoning.

Software: Java, Python, SAP, Stata, R, Matlab

Courses taught: Business Analytics – Fall 2014

1. **Please provide a short description of general research interests or other projects pursued. If the student has proposed a dissertation, and formed a committee, please provide a short description, expected date of completion, and general details.**

I am interested in studying the economics of information systems. I am studying many interesting research questions such as how does social media impact demand of product and services? ; What are the drivers of customer churn in the wireless service industry? ; How can promotion of complementary wireless service reduce customer churn? ; How to predict diffusion of new products released online in flash sale?

My first research project was to understand the impact of social media on product sales. In this article we examine the role played by social media and social network in promoting sales of new products in eCommerce site that use a limited time period flash sale business model. We explore two different research questions: First, what is the causal impact of social media activity on product sales? Second, how does increase in sale duration impact product sales? We collected both sales and aggregate social media data for all new products launched from June 1st, 2013 to July 31st, 2013 by a popular e-commerce platform that specializes in introducing products made by local artisans and craftsman to the national market. This data covers more than 20,000 products that were on sale for either three or seven days. Our initial results suggest that having 7-day sales leads to a higher quantity of products sold. We also find that the social media activities pertaining to Facebook, Pinterest and internal Faves have different magnitude of impact on current period product sales. I presented this work at the 2014 Winter Conference on Business Intelligence, Utah and a revised version at the 2014 INFORMS session at SFO. I am revising the paper based on all the feedback received so that we could submit this to a journal by early next year.

My advisors – Professor Jeffrey Hu and Sri Narasimhan – and I are partnering with a leading provider of wireless service in the US[[1]](#footnote-1) to study the factors that drive customer churn. Given that customers are extremely sensitive to price of wireless service that covers minutes and data plans, we explore the different factors that could reduce churn. We first look at how introduction of advanced technology like LTE or Voice Over LTE impacts churn. We utilize the exogenous variation created by the staggered release of the technology to estimate causal impact. We also examine how providing complementary wireless services changes customer’s behavior both in terms of churn and in the actual usage of the wireless plan. We are developing a field experiment to manipulate the promotion as well as availability of complementary service to study their impact. The next line of research is to examine the choice and usage pattern of wireless subscription plan by customers. We seek to understand how change in usage impacts choice of plans and the customer behaviors associated with this.

1. The firm wishes to remain anonymous and we do have an NDA covering specific terms and conditions of the collaboration [↑](#footnote-ref-1)