



ISB

**Srini Raju Centre for IT
and the Networked Economy**

CODE - 2018

**Conference on the Digital Economy
(CODE, 2018)**

Book of Abstracts

LePondy – Puducherry

December 21-22, 2018

Conference on the Digital Economy

The Sridhar Raju Centre for Information Technology and the Networked Economy (SRITNE) at the Indian School of Business (ISB) is hosting the 12th edition of Conference on the Digital Economy (CODE) on December 21 - 22, 2018 at Le Pondy, Puducherry, India.

Detailed Program Agenda

Date: Dec 21, 2018

Hours	Description
8:00 am – 9:00 am	Breakfast
9:00 am – 9:05 am	Welcome Remarks by Conference Chairs
9:05 am – 9:30 am	Key Note Speaker – Dr. Thulasiraj, Aravind Eye Care
9:30 am – 11:00 am	Business Value of IT Business Method Innovations and Firm Value: An Empirical Investigation - Prof. Anandhi Bharadwaj Can the Mobile Internet Bridge the Digital Divide? A Large-Scale Empirical Investigation - Prof. Karthik Babu Nattamai Kannan, Prof. Sri Narasimhan , Prof. Eric Overby From Supply Chains to Demand Chains: Evidence from Field Research in The Medical Equipment Industry - Prof. Ravi Aron
11:00 am – 11:15 am	Tea Break
11:15 am – 12:45 pm	Technology and Consumer Behaviour Social Learning in Prosumption: Evidence from a Large Randomized Field Experiment - Prof. Ravi Bapna , Joseph Golden, Prof. JaeHwuen Jung, Prof. Tianshu Sun Harnessing Digitized Patient Engagement Capabilities in Healthcare Operations - Prof. Pankaj Setia Service quality & privacy concerns: insights from a survey of microenterprises in Sri Lanka, India & Bangladesh - Abhishek Chanda , Prof. Vigneswara Ilavarasan
12:45 pm – 2:00 pm	Lunch
2:00 pm – 4:00 pm	Platforms Platforms, Pricing and Piracy: Should Platforms Care about Piracy? - Prof. Ramnath Chellappa Turmoil in Entertainment Platforms: Chaos or a New Order? – Prof. Hemant Bhargava Content and Platform Pricing with Secondhand Market: The Case of Video Game Industry - Prof. Antino Kim, Prof. Rajib Saha , Prof. Warut Khern-Am-Nuai Examining the Antecedents of Purchase on Online Platforms - Prof. Indranil Bose, Neha Chaudhuri
4:00 pm – 4:30 pm	Tea Break
4:30 pm – 6:30 pm	Visit to Aravind Eye Hospitals, Puducherry
7:00 pm onwards	Gala Dinner (Le Pondy Resort, Puducherry)

Date: Dec 22, 2018

Hours	Description
8:00 am – 9:00 am	Breakfast
9:00 am – 10:30 am	Big Data Analytics Selecting Interactions in Multiple Regression Models Using Principle of Non-Additivity - Prof. Sumanta Singha Content Authentication: Issues and Challenges - Prof. Vasudeva Varma Firm Focus on Service Transition - Prof. Sudhir Voleti, Ashish Khandelwal
10:30 am – 10:45 am	Tea Break
10:45 am – 12:15 pm	Crowd Markets and the Gig Economy Dockless Bike Sharing: Convenience or Congestion? - Prof. Karthik Kannan , Yipu Deng, Prof. Zaiyan Wei Angles and Crowds - Prof. Anand Nandkumar, Prof. Deepa Mani, Prof. Prachi Deuskar, Abhishek Bhatia To Purchase or to Patronize? An Experiment to Investigate Technology Consumers' Support for Reward-Based Crowdfunding - Prof. Indranil Bose, Shankhadeep Banerjee
12:15 pm – 1:00 pm	Lunch
1:00 pm – 2:30 pm	Social Impacts of IS Smart Grids: Incentivizing Growth and Investment in Demand Response - Prof. Barrie Nault, Vaaran Vijairaghavan The Political Economy of Public Good Provision: Evidence from a Rural Electrification Scheme in India - Dibya Mishra , Ritika Sethi, Ishani Chatterjee Impact of Highly able Peers on Technology Enabled Learning and Education Performance - Prof. Deepa Mani, Prof. Rajib Saha, Prof. Sundar Bharadwaj, Sreevathsan Sridhar
2:30 pm – 3:00 pm	Closing Remarks – Prof. Deepa Mani

Business Value of IT

Business Method Innovations and Firm Value: An Empirical Investigation

Prof. Anandhi Bharadwaj, Goizueta Business School, Emory University

Abstract

We examine business method innovations that received patent grants in the US manufacturing, trade and distribution sectors from 1999-2013. We find that business method patents, on average, generate roughly 11% more market value (as measured by the abnormal returns around the patenting time window) than other types of patents in these sectors. They also have more citations by subsequent patents, those subsequent patents come from a wider range of technological classes, and owners of business method patents are more likely to pay renewal fees to delay their expiration. We also show two characteristics of business method innovations that are associated with higher value. First, business method patents that are novel to the firm, although not necessarily novel to the world, have higher market value. Second, business method patents that involve more aspects of a business (i.e., greater scope) also have higher market value. Overall, in spite of legal uncertainties surrounding the patentability of business methods, we find robust indications of private value of business method innovations in these industries. Our work provides empirical support for the yet to be substantiated conjecture in strategy that business method innovations are key drivers of firm performance.

Can the Mobile Internet Bridge the Digital Divide? A Large-Scale Empirical Investigation

Prof. Karthik Babu Nattamai Kannan, Cox School of Business Southern Methodist University

***Prof. Sri Narasimhan**, Scheller College of Business, Georgia Institute of Technology*

Prof. Eric Overby, Scheller College of Business, Georgia Institute of Technology

Abstract

Although access to the internet has become a de facto requirement for participating in our increasingly digital society, many households still struggle with limited internet access, particularly those in rural areas and of low socioeconomic status (SES). Closing this “digital divide” is an important public policy goal. Households in the “wrong” side of the digital divide are likely to use mobile devices and plans as their primary method of internet access, given lack of alternatives due to availability and cost. Thus, we study if improving mobile internet access impacts digital divide by examining the adoption of unlimited mobile data plans offered by a large telecommunications provider¹.

We exploit the “quasi-experiment” created due to staggered adoption of this plan. To account for the non-random assignment of treatment, we use a difference-in-differences strategy coupled with coarsened exact matching (Iacus et al. 2012). We find that adoption of an unlimited plan leads to a substantial increase in a household’s data consumption, with the increase being particularly large for rural households and those of low -SES as shown in Figure 1. Figure 2 shows that households in the Urban- High SES group increase their data use by 13.25 GB/month after adoption (or approximately 40%). Households in the Urban-Low SES, Rural-High SES, and Rural-Low SES group increase their use even more: by an additional 6.97, 9.99, and 10.60 GB/month, respectively. This suggests that unlimited plans help these households “catch up”, potentially narrowing the digital divide. We also study how households are using the additional data. Although most of the increase is accounted for by media and entertainment content (Figure 3), there is a significant increase in consumption of content likely to be socially beneficial: specifically news, education, and career-related content. We conclude that policy makers should encourage unlimited mobile data plans as a method to close the digital divide.

From Supply Chains to Demand Chains: Evidence from Field Research in The Medical Equipment Industry

Prof. Ravi Aron, Carey Business School, Johns Hopkins University

Abstract

We study the reasons for the acute shortages and oversupplies of consumable medical supplies in a developing economy, ASEAN country. Suppliers of consumable medical supplies face a difficult demand estimation problem resulting in frequent shortages and oversupplies of medical supplies. This problem is complicated as many smaller hospitals and community health centers in the country do not have electronic inventory management systems resulting in companies not knowing the extent to which medical supplies have been consumed and what is left in inventory. Local dealers, service agents and brokers have informal estimates of this consumption information. We use an Internet of Things based system that monitors the use of equipment in hospitals which serves as a proxy for consumption information. This information is combined with reports from dealers, service agents and brokers and fed into a set of Machine Learning (ML) algorithms. The algorithms use this data and past consumption data to generate an estimate of medical supplies consumed. The manufacturers aggregate these estimates across all regions and combine it into an SEM model to create an estimate of regional demand. We find that the use of this two-stage model has significantly reduced the extent of shortages and oversupplies over a 32 month period. This study makes two contributions to theory development: first it extracts demand signals embedded informal estimates that dealers have using ML techniques; second, we remedy a major deficiency of ML techniques – they are black boxes whose predictions cannot explain the impact of covariates on outcomes. We take the black box predictions from the algorithms and combine them with time series data from all regions to create an econometric model of effects. The black box predictions thus become one variable in a multivariate SEM-based econometric model.

Technology and Consumer Behaviour

Social Learning in Prosumption: Evidence from a Large Randomized Field Experiment

Prof. Ravi Bapna, Carlson School of Management, University of Minnesota

Prof. Joseph Golden, Schwob School of Music, Columbus State University

Prof. JaeHwuen Jung, Fox School of Business, Temple University

Prof. Tianshu Sun, Marshall School of Business, University of Southern California

Abstract

Digital technologies enable consumers to actively participate in the product design and production process for a wide range of products, leading rise to the concept of a 'prosumer'. A significant portion of the value for such products is generated through the prosumption process, and a variety of firms are investing in building such capabilities. However, a major, largely unexplored, friction in prosumption is the customers' effort involved to undertake a creative exercise of designing products and extracting value from it. In this study, we ask whether social learning, the act of showing the focal customer creations made by other customers, can ameliorate such friction. Arguably, by showing others' product designs to the focal customer, the firm may help the customers gain design ideas, garner knowledge about product features and calibrate expectations of product quality. Such an action is also likely to influence their belief about their own ability, namely, their self-efficacy, to design a valuable product that they would like to purchase. However, if not carefully done, displaying others' design may also be detrimental to prosumption. Certain designs or certain product features, for instance, may be perceived to be out of the creative reach of the focal user, and therefore reduce their likelihood of designing a product and purchasing it. We present a general theory of prosumption in creative industries that hinges on the interplay between feature knowledge, quality distance, and self-efficacy. We test our theory by means of large scale in-vivo randomized field experiments in close collaboration with an e-commerce platform specialized in customized photo products. We examine whether social learning affects the customers' decision to design a product, to purchase and product the dollar amount spent. Our analysis shows that under certain conditions, showing other users' design can be highly effective in influencing the purchase and design behavior of the focal customer, but firms must choose the right customers and carefully select the type of user design for display.

Harnessing Digitized Patient Engagement Capabilities in Healthcare Operations

Prof. Pankaj Setia, Sam M. Walton College of Business, University of Arkansas

Abstract

Healthcare operations are being heavily digitized, as hospitals develop advanced IT-enabled capabilities for creating and delivering healthcare services. More recently, information technologies (ITs) are becoming a key enabler for engaging patients in the process of creating and delivering healthcare services (HIMSS Foundation 2014). However, it is unclear whether a hospital's patient-side IT capabilities may influence service creation and delivery. In this research, we assess *how* digitized PE capabilities—hospital's healthcare information technologies (HITs) that engage patients in the creation and delivery of healthcare services—influence hospital outcomes. Even though the previous research studying HITs underscores variability in the performance effects across different types of IT, there is little previous assessment of patient-side ITs (Agha 2014, Aron et al. 2011, Menon and Kohli 2013, Setia et al. 2011). We address this gap. Specifically, we examine whether a) digitized PE capabilities have a positive impact on hospital outcomes and b) disentangle the effects of contextual contingencies that influence the relationship between digitized PE capabilities and hospital outcomes. We propose that patient population's accessibility to computing resources, along with hospital's digitized PE capabilities, build a more robust service platform that enhances hospital outcomes. Further, we argue that the effects of this platform on hospital outcomes are contingent upon the overall service ecosystem, comprising health insurance coverage of a hospital's patient populace.

Service Quality & Privacy Concerns: Insights from a Survey of Microenterprises in Sri Lanka, India & Bangladesh

Abhishek Chanda, Research Scholar, IIT Delhi
Prof. Vigneswara Ilavarasan, IIT Delhi

Abstract

This paper, based on survey data of 3180 micro-entrepreneurs in Bangladesh, India and Sri Lanka, attempts to establish that privacy concerns of the individuals are influenced by the quality of services they receive from different public and private service providers. Towards this purpose, this study examined the quality of telecom services and of business registration services by the government. The findings show that privacy concerns differ for some of the factors of service delivery and demographic attributes. The policy implications of the research are also highlighted.

Platforms

Platforms, Pricing and Piracy: Should Platforms Care about Piracy?

Prof. Ramnath K Chellappa, Goizueta Business School, Emory University

Prof. Rajiv Mukherjee, Cox School of Business, Southern Methodist University

Abstract

Piracy of digital goods has been studied in great depth wherein the impact of prices and protection efforts are considered to be well understood. However, extant research has generally ignored the underlying platform's role, e.g. that of a game console, on the piracy of a digital good such as a video game. Through a platform model of competition, our paper captures the intrinsic relationship between platforms, game developers and gamers and the impact of piracy protection. We investigate how platforms incorporate potential piracy of their developers' games in setting console and licensing fees.

Turmoil in Entertainment Platforms: Chaos or a New Order?

Prof. Hemant Bhargava, Graduate School of Management, University of California Davis

Abstract

The media and communications industries have witnessed significant upheaval across all levels in the last two decades. Consider Netflix, a company that is just a decade old, successfully pioneered “streaming” for consumption and distribution of video entertainment, and yet made a U-turn into content production, all within 5 years. Amazon's entertainment business has followed a similar path from distribution to content production. Conversely, content-only firms such as Disney, ESPN, and HBO have started streaming services. A similar outcome of vertical consolidation is sought by other firms through mergers across production and distribution of content. Meanwhile, AT&T, which primarily generated revenue as an internet service provider and distributor of content through traditional “TV bundles” began a streaming-based offering this year. Similarly, Comcast has started a streaming-only service, which runs against its cable bundle service as an own-goal response to all the new streaming offerings in the market. Collectively, these disruptions have spanned content creation, distribution, communication, and consumption, and have radically altered the nature of key players in the industry, their roles, their competitive dependencies and relationships, what products are offered, how products are consumed, and how profits are made and distributed across the supply chain.

We posit that these disruptive events represent transition from one equilibrium structure to another. We describe an approximate partitioning of the time period into 5 different eras, each characterized by technological innovations either in production or distribution of content. The timeline also emphasizes the erosion of the distinction between in-home and out-of-the-home entertainment. We will argue that the technology and economic forces representing each era imply a particular industry structure in equilibrium. As technological innovation occurs, a new equilibrium structure might be implied, but the transition into it from the prevailing structure leads to the sort of industry turmoil illustrated above. We hope that this analysis will be helpful in understanding and answering various questions and speculations surrounding the current turmoil in the industry, including: concerns about industry consolidation and concentration of power, both vertical and horizontal; effects on consumer welfare; the demise of fat bundles; potential for walled-garden competition between platform conglomerates (i.e., key content being excluded from competing platforms); etc.

Content and Platform Pricing with Second Hand Market: The Case of Video Game Industry

Prof. Antino Kim, Kelly School of Business, Indiana University

Prof. Rajib Saha, Indian School of Business

Prof. Warut Khern-Am-Nuai, Desautels Faculty of Management, McGill University

Abstract

Secondhand markets provide consumers with an opportunity to use durable goods at lower costs. However, this puts the manufacturer at a direct competition with the used version, eroding its monopoly pricing power and market share. Naturally, many manufacturers have tried to diminish secondhand markets. With this backdrop, what is happening in the video game industry is particularly interesting. While the manufacturers in this industry possess the ability to diminish---even completely eliminate---secondhand market, we observe that their response has been rather tepid. In this work, we investigate a video game manufacturer's strategy in the presence of a secondhand market through a game-theoretic model that captures some of the key characteristics of the industry and the associated secondhand market. From our analyses, we obtain several interesting insights. First, we find that the game console affords the manufacturer a highly effective strategic apparatus against the secondhand market. While the manufacturer's pricing power over the game diminishes as the secondhand market becomes more attractive to consumers, the price of the console increases, helping the manufacturer restore its profit; when the inherent value of the console is close to zero, the manufacturer prices its game and console in a way that it wipes out the secondhand market altogether. Second, when the console has some inherent value and provides additional utility to consumers, the manufacturer can extract some of the extra surplus generated from not only the consumers who purchase new games but also from those who purchase the used version. As a result, the manufacturer's profit is non-monotonic in the level of attractiveness of the secondhand market, be it for the sellers or the buyers. This illustrates that when the game manufacturer also sells a console with some inherent value, hammering down on the secondhand market may not be always desirable for the manufacturer. Third, as the inherent value of the game console increases, so does the relative importance of the console compared to that of the game, and the manufacturer may actually prefer to keep the secondhand market intact. As the value of the console increases, and it is above a certain threshold, the manufacturer is always better off with the secondhand market! Even when the console value is low, the manufacturer does better with the secondhand market if consumers find buying and selling used games sufficiently attractive. This console (i.e., platform) aspect is not present in many other information goods markets. Music and movies have been platform independent for some time. E-books, which were once device (i.e., e-book reader) dependent, can now be read on various devices like Kindle apps for phones, tablets, computers, etc. This is in stark contrast with the video game industry where consumers must also purchase the console to enjoy the games. It is because of this console aspect, the game manufacturers might have an incentive to tolerate the secondhand market and might even favor having it.

Prediction of Actual Purchase Behavior from Customer-Platform Interaction Analysis

Prof. Indranil Bose, IIM Calcutta

Neha Chaudhuri, Research Fellow, IIM Calcutta

Abstract

With the exponential growth of e-commerce business worldwide, research on online customer purchase behavior has gained immense interest. Extant body of literature has examined scholarship in the domain of customer's interaction leading to purchase on online platforms in two distinct streams (Janiszewski 1998; Moe 2003). The first stream examines customers' browsing behavior through their various forms of interaction (examples include click-stream data such as the number of times users logged in to an account, number of products clicked, session identifier, etc.) with the online platform (Moe 2003). The other stream of scholarship examines customers' characteristics in their interactions (examples include the lifetime of customer's account with the store, days elapsed since last order was made by customer) with the online platform (Kumar et al. 2004). But a concerted effort to link and examine these two dimensions is scant. Additionally, existing studies have primarily adopted customer purchase intentions on these platforms as their dependent variables. Although measures of purchase intention do possess predictive usefulness (Jamieson and Bass 1989) but these intentions do not always lead to actual purchase decisions. Hence, with this study, we address the above discussed two gaps by examining the actual purchase behavior of customers on online platforms as a consequence of their interactions with the platform. Correspondingly, we attempt to answer the following research question through our study.

Big Data Analytics

Selecting Interactions in Multiple Regression Models Using Principle of Non-Additivity

Prof. Sumanta Singha, Indian School of Business

Abstract

Given a set of features in a multiple regression setting, which interaction effects should be included in a model? This is a key research question in statistics. Detecting interaction effects in multiple regression models is a challenging task due to a few factors including spurious correlation, multicollinearity, and curse of dimensionality. Moreover, different meanings of interaction and diverse importance measures make the task of detection and interpretation highly complicated. One common approach to selecting interactions in multiple regression involves a brute-force technique that uses sequential screening and elimination of predictors based on p -values. This current approach has several limitations. Apart from being computationally intensive and intractable for large number of predictors, inference based on p -values is not very reliable and could be sometimes misleading. Further, the statistical interaction does not capture certain types of non-additivity that may arise for reasons other than effect heterogeneity, as commonly seen in epidemiology and public health research. Moreover, performance-driven metrics such as p -values and prediction error often lead to opaque and less interpretable models.

Given these key challenges, a more inclusive method that connects these two broad notions of interaction-epistemic and statistical- becomes necessary. While epistemic interaction describes a general form of non-additivity arising out of a complex 'web of causation' between interacting features, statistical interaction describes a special case of non-additivity that arises due to effect heterogeneity. Although either notion of interaction implies non-additivity, one does not necessarily lead to another. This paper addresses this important disconnect between two notions of interaction. We propose a novel method of detecting interaction effects in multiple regression using correlation-induced non-additivity. Correlation-based approach offers a few advantages. First, correlation between predictors is known to affect their joint explanatory power, thus creating synergy and redundancy. Second, correlation being one of the most widely understood linear dependence measures, lends greater transparency and meaningfulness in model formulation. The question we ask here is whether strongly correlated features are more likely to statistically interact and if so, when? Our hypothesis is that features which show significant correlation induced non-additivity are more likely to interact than others. Using correlation as a metric, we propose a new importance measure and a clustering-based algorithm to identify which interaction terms should be chosen, and their order of selection. Our approach aims at bridging the gap between epistemic and statistical interaction and integrating performance with interpretability. We test our proposed hypothesis using simulated and real datasets and compare with other interaction selection methods. Our results indicate that correlation-induced synergy and redundancy are a proxy of a potential interaction effect, and synergy is a more effective indicator of interaction effect than redundancy.

Content Authentication: Issues and Challenges

Prof. Vasudeva Varma, IIT, Hyderabad

Abstract

Be it news or other prolific digital content - social media feeds/conversations, blogs and other online sources have become the mainstay for content consumption. With ubiquity of such digital platforms, proliferation and propagation of misinformation and disinformation have also become uncontrollable. Misleading information – like fake news and hate speech; gets generated and propagated so rapidly before authentication can even keep pace with it.

Even in an enterprise setting, sourcing and spreading of wrong information - intentionally or otherwise; causes harm. Penalty paid by humans in enterprises or in a society with such wrongful proliferation can be enormous.

Manual intervention – validity of the content checked by experts; is not able to scale in step with the speed of propagation. These methods are also time consuming, error prone and heavily dependent on domain expertise of individuals.

In short, the manual verification will not suffice. We have used Natural Language Processing and Artificial Intelligence techniques to develop several content authentication models including Fake-O-Meter® - an automated fake news identifier.

How the Focus on Service Transition Drives a Firm's Market Value?

Prof. Sudhir Voleti, Indian School of Business

Ashish Khandelwal, FPM Student, Indian School of Business

Abstract

Product firms transition to service-based business logic and models in the hope for better business prospects. The literature on service transition in manufacturing sector informs that transition into services has an initial negative impact on firm value. However, many high-technology firms such as Adobe, Microsoft, etc. have successfully transitioned from product-based business models to service-based business models. While we witness a significant service transition in the high-tech sector after the introduction of Cloud technology, no empirical research investigates the transition phenomenon and its business impact in the high-tech sector. Thus, we propose to study the impact of a firm's intent on service-transition in the high-tech sector. We use System-GMM on a panel data of 1589 high-tech US firms for ten years to correct for various forms of endogeneity. Our results suggest that a high-tech firm's market value increases with a higher focus on service transition, albeit at a decreasing pace.

Crowd Markets and the Gig Economy

Dockless Bike Sharing: Convenience or Congestion?

Prof. Karthik Kannan, Krannert School of Management, Purdue University

Yipu Deng, Ph.D. Student, Purdue University

Prof. Zaiyan Wei, Krannert School of Management, Purdue University.

Abstract

Technology-driven sharing economy has been growing exponentially in the past decade. In this work, we study dockless bike sharing, which was proposed to provide affordable commuting and mitigate the escalating traffic congestion worldwide by replacing automobiles. However, anecdotal evidence suggests that the sudden expansion in bikes on road led to even slower traffic. Utilizing the variation in two leading companies' entries into major cities in China, we find that dockless bike sharing led to a higher level of air pollutants related to automobile exhaust, esp., NO₂ and SO₂. Using the staggered entry as a stimuli, we further estimate the elasticity of housing prices with respect to air quality indices. We find that a 10% increase in air pollutant concentration leads to about 0.3% - 0.6% drop in housing prices. We discuss the implications of these findings in the paper

Angles and Crowds

Prof. Anand Nandkumar, Indian School of Business

Prof. Deepa Mani, Indian School of Business

Prof. Prachi Deuskar, Indian School of Business

Abhishek Bhatia, *Research Associate, Indian School of Business*

Abstract

Our study aims to assess the impact of equity-based crowdfunding on the development of new firms. Specifically, we propose to examine a) venture selection by crowdfunders, b) the relation between crowdfunding and traditional venture capital, and c) the outcomes of crowdfunded startups relative to those funded by venture capital. Using manually collected data from AngelList, a leading equity crowdfunding platform in the U.S., along with data from VentureXpert and SDC Platinum, we find significant overlap between start-ups funded by the crowd and VCs, with the crowd more likely to provide early stage risk capital. Crowdfunded start-ups appear to be more sectorally diverse but geographically concentrated. Given that funding might be endogenous to performance, we use a sample of crowdfunded ventures and VC-funded ventures matched on location, sector, age and a proxy of quality to estimate performance effects of crowdfunding relative to venture capital. Overall, crowdfunded ventures receive more rounds of funding and less funding in the subsequent round than ventures funded by venture capitalists. Crowdfunding, however, is an effective substitute for low quality venture capitalists. Building on this analysis, we plan to: a) analyze the observable signals of venture quality that lead crowdfunders to select ventures, b) use a Heckman two stage model that better causally identifies the performance impact of crowdfunding relative to venture capital, c) analyse the hazard rate of receiving funding in the next round as well as the hazard of success or failure.

To Purchase or to Patronize? An Experiment to Investigate Technology Consumers' Support for Reward-Based Crowdfunding Innovations

Prof. Indranil Bose, IIM Calcutta

Shankhadeep Banerjee, Ph.D. Student, IIM Calcutta

Abstract

Crowdfunding refers to “the efforts by entrepreneurial individuals and groups—cultural, social, and for-profit—to fund their ventures by drawing on relatively small contributions from a relatively large number of individuals using the internet, without standard financial intermediaries” (Mollick, 2014). In this paper, we focus on the reward-based crowdfunding model, where the backers get some non-monetary reward from the beneficiaries in exchange of their contribution. Reward-based crowdfunding platforms have grown in popularity over last years and they have pumped billions of dollars into thousands of innovative projects; e.g. from its conception to mid-2018, Kickstarter has successfully funded 145K projects with 14M backers contributing US\$ 3.7B (Kickstarter, 2018). These projects can fall into several categories like Music, Film, Art, Food, Photography, Publishing, etc. and typically researchers even in the domain of Information Systems include all of them in studying crowdfunding phenomenon (Bretschneider & Leimeister, 2017; Kim, Por, & Yang, 2017; Zhao, Qin, Zhao, & Shi, 2018; Zheng, Xu, Zhang, & Wang, 2018). However, we choose to focus only on the category of Technology, because it is directly relevant to IS, and interestingly, it has got the lowest success rate of raising money (just 20% in Kickstarter compared to overall average of 36%) among all categories and hence deserves special attention.

Social Impacts of IS

Smart Grids – Incentivizing Growth and Investment in Demand Response

Prof. Barrie Nault, Haskayne School of Business, University of Calgary

Vaarun Vijairaghavan, PhD Student, Haskayne School of Business, University of Calgary

Abstract

The Smart Grid (SG) is an important example of a large investment in information technology to modernize and computerize the electric grid in order to drive energy productivity. One of the goals of the SG is Demand Response (DR) - the shift in energy consumption from peak to off-peak hours. We examine the question of what economic incentives are required to ensure investment by key players in DR, and how the policy maker can better drive customer adoption of DR. The challenge lies in the nature of SG technologies - individual investments in SG by firms in the electricity supply chain (generators, transmitters, distributors and consumers) are not as effective as coordinated investments across the supply chain. In other words, an investment by one utility, technology company or customer in a part of the SG may not deliver the expected benefits if complementary investments are not made.

The Political Economy of Public Good Provision: Evidence from a Rural Electrification Scheme in India

Dibya Mishra, Research Associate, Indian School of Business

Ritika Sethi, Research Associate, Indian School of Business

Ishani Chatterjee, Research Associate, Indian School of Business

Abstract

DDUGJY, a rural electrification programme in India, was launched in December 2014. By April 2018, all villages in India got electrified. Several states had assembly elections during this period. We argue that the provision of electricity as part of DDUGY was ridden with political influence. We use regression discontinuity estimation approach to test for spatial manipulation in the provision of electricity and a time series approach to test for temporal manipulation. We find evidence in favour of redistributive politics. Villages in aligned constituencies were more likely to be electrified before the next election. They got electrified with a shorter delay. Electrification was concentrated around election time. Using night-time lights data, the tangible outcomes for villages electrified close to election appear to be minimal, suggesting inefficient provision around election time.

Impact of Highly able Peers on Technology Enabled Learning and Education Performance

Prof. Deepa Mani, Indian School of Business

Prof. Rajib Saba, Indian School of Business

Prof. Sundar Bharadwaj, Terry College of Business, University of Georgia

Sreevathsan Sridhar, Research Associate, Indian School of Business

Abstract

The recent World Development Report on “Learning to Realize Education’s Promise” [World Bank, 2018] is the first dedicated entirely to education. Indeed, education powerfully and demonstrably advances the twin goals of ending poverty and boosting shared prosperity (Becker & Chiswick 1966; Peraita & Pastor 2000; Duflo 2001). In light of the economic salience of improving learning experiences and outcomes, the incorporation of technological interventions in classrooms to aid learning and teaching has garnered significant attention of researchers. Several educators and policy makers believe that technology-enabled learning remedies the shortage of qualified teachers to bridge gaps in access to education, supports self-directed learning, provides a dynamic learning experience that responds to the idiosyncratic learning needs of students, and aids students in developing critical thinking (Fu 2013). Yet, despite these potentially significant growth in use of technology in education, the majority of the general evidence on the performance effects of technological interventions in the classroom is ambiguous at best (e.g. Patterson & Patterson, 2017; Banerjee, Cole, Duflo, & Linden 2007 ; Bergman & Rogers 2017).

On the one hand, technology-enabled interventions in classrooms, including increasing in-school access to computers, in-school internet access, information technology budgets and home access to computers is found to either have no effect or worsen a student’s academic performance (e.g. Goolsbee & Guryan 2006; Leuven, Lindahl, Oosterbeek, & Webbink 2007; Malamud & Pop-Eleches 2011). For instance, using data from the “One Laptop per Child” program in Peru, Cristia et al., (2012) find no significant impact on Math and Language scores. Similarly, an examination of the Texas Technology Immersion Program, finds a positive but statistically non-significant effect of students using laptops (Shapely et. al 2009). On the other, there is also evidence to suggest that technology interventions have a positive impact in primary schools (Banerjee et al. 2007; Barrow, Markman, & Rouse 2009). Muralidharan, Singh, & Ganimian, (2016) find that a personalized technology-aided after-school instruction program yielded scores in Math and Hindi that were 0.37% and 0.23% higher than the control group respectively. They conclude that the use of computers, laptops and tablets in the classroom, have little to no impact on learning outcomes, pedagogy-focused software that allow students to review content at their own pace provide modest gains, and technology to personalize instruction interventions deliver the largest gains.