Session 1: Transportation, Public Utilities, and Industrial Organization (3,26,28,30)

Chair: Mark Jamison

1.   Towards a Theory of Market Power

Mark Jamison, University of Florida, mark.jamison@warrington.ufl.edu

Abstract: This paper analyzes the question of market power. Longstanding definitions and analytical tools are inadequate because they conflate conditions under which a firm has unbeneficial control over its markets (market power) with situations where firms are successful because they are superior in how they serve customers (expanding consumer welfare). Furthermore today's fast-changing markets make current antitrust approaches invalid because the information decays as circumstances rapidly change. This paper develops a more rigorous definition of market power and proposes new tests. The proposed definition seeks to isolate damaging market control and the tests examine the extent to which investors, actual rivals, and potential rivals act as if market power is present.

2.   Contract Renegotiation in Public Procurement

Hojin Jung Chonbuk, National University, hojin.jung@jbnu.ac.kr
Georgia Kosmopoulou, University of Oklahoma, georgiak@ou.edu
Robert Press
Richard Sicotte, University of Vermont, richard.sicotte@uvm.edu

Abstract: Ex post changes to procurement contracts are common and costly for governments. We examine the factors that contribute to renegotiation through an empirical analysis of change orders to road construction contracts in Vermont. We find that project characteristics associated with uncertainty and project complexity are valuable predictors of contract renegotiations. Engineer's expertise can reduce the incidence of change orders. The number of subcontractors is a powerful predictor of renegotiation, affecting the likelihood and the level of cost. Despite indications of market concentration, controlling for project characteristics, we do not find significant evidence that firms with the greatest market share renegotiate more frequently.

3.   Competition with Complements and Substitutes

Yinqi Zhang (University of Southern California) yinqizha@usc.edu

We study price competition in settings where final products are combinations of necessary components supplied by different multi-product firms. We use the airline network to illustrate this kind of market. We provide conditions for the existence and uniqueness of pricing equilibrium under the demand system developed by Nocke and Schutz (2018) which nests both Constant Elasticity of Substitution (CES) and Multinomial Logit (MNL) demands. We focus on evaluating the impact of a merger on consumer welfare in this more complex setting. We show that a merger between complementary products may not always lead to price reductions and consumers may be worse off after the merger depending on different network structures.

4. Supply and Demand in the Chinese Automobile Market: A Random Coefficients Mixed Oligopolistic Differentiated Products

Yuan Chen, Shanghai University of International Business and Economics, yuanchen_suibe@163.com.
C.-Y. Cynthia Lin Lawell, Cornell University, clinlawell@cornell.edu

Abstract: We develop a structural econometric model of a mixed oligopolistic differentiated products market that allows different consumers to vary in how much they like different car characteristics on the demand side, and that allows state-owned automobile companies to have different objectives from private automobile companies on the supply side. We estimate our model using a comprehensive data set on the sales, prices, and characteristics of the majority of vehicle makes and models in China. Our model incorporates two notable features of the Chinese automobile market: some automobile companies in China are state-owned, and some automobile companies in China form international joint ventures. Results show that Chinese car companies that form international joint ventures with car companies in the U.S. and Japan have lower marginal costs of technology-related vehicle characteristics. We use the model to simulate counterfactuals regarding state-ownership and international joint ventures to analyze the effects of privatization and banning international joint ventures on firms, consumers, and welfare. Results show that privatizing all firms will decrease firm profit; and that banning all international joint ventures would increase alternative vehicle market share, but at the cost of increasing the mean marginal cost of alternative vehicles and decreasing consumer surplus.

Discussants: Georgia Kosmopoulou
                Mark Jamison
                Yuan Chen
                Yinqi Zhang

Session 2: Electricity Markets (19, 17,5)

Chair: Nehan Naim, State University of New York – ESF, nenaim@esf.edu

1.   **Identifying the Effect of Coal Plants on Air Pollution**

Kanishka Kacker (Assistant Professor) <kIndian Statistical Institute – Delhi kacker@isid.ac.in>;
Eswaran Somanathan (Indian Statistical Institute - Delhi) <som@isid.ac.in>;
Sagnik Dey (Indian Institute of Technology-Madras) <sagnik@cas.iitd.ac.in>;
Rishabh Choudhary (World Bank)

Abstract: India is experiencing deathly levels of air pollution. Identifying the source of this pollution is a critical policy target. In the past 15 years, India has also witnessed a dramatic rise in the construction of coal fired power plants. Recent work has shown this rise to have high negative impacts on health, but the direct impact of coal burning itself on pollution levels has been less explored. Using a panel of Indian power plants spanning six years from 2011 to 2016, we estimate the marginal contribution of an additional unit of coal to particulate matter emissions of a diameter less than 2.5 micrometers (PM2.5), a particularly harmful pollutant, measured from satellite gridded data. Coal burning is endogenous in the regression of PM2.5 on coal burnt as there are many unobserved background variables that will correlate with both increased pollution and increased plant use or construction. To resolve this problem, we use plant starts, unscheduled stoppages and closures as instruments for coal burning. Our identification assumption is that at a high frequency – our data is at the plant-month level – stoppages and starts will affect pollution levels only through coal burning. On average, increases in coal burnt by one standard deviation raises pollution levels by 0.25 standard deviations but in winter months this goes up to 1.76 standard deviations.

2.   **Regulation and Power Generation Firms' Productivity: Panel Estimation with Time-Invariant Variables**

Maria Chiara Derrico, University of Perugia, mariachiara.derrico@unipg.it
Paolo Polinori, University of Perugia, paolo.polinori@unipg.it
Simona Bigerna, University of Perugia, simona.bigerna@unipg.it

Abstract: Internal and external institutions play a crucial role in the firms' decision-making process and their productivity. Along with internal institutional features, such as the legal form and the board independence, the external institutions of market and environmental government policies shape the framework in which firms operate.

An extensive literature on the determinants of firms' productivity provides yet mixed evidences; our paper contributes to this strand of literature by exploring the role of these determinants and their interactions in affecting the total factor productivity growth of the power generation firms in 30 European countries during the 2010-2016 period. Since the effects of structural reforms are often complex and ambiguous from a theoretical perspective, new empirical analysis is carried out. Using the cross-country firm-level Orbis Europe dataset (Bureau Van Dijk), we first assess the productivity changes over time of power generation companies using Data Envelopment Analysis.

Then, Dynamic Panel Linear model, with unobserved country-specific effect, correlate the productivity indexes to policy indicators from OECD Database and the set of firm-level control variables. The policy indexes, that depict the stringency of regulations, are almost time-invariant. Fixed Effect or Random Effect models lead to biased estimates, if the time dimension is too short or the time-invariant regressors are correlated with the country fixed effects.

We propose a new identification strategy for the regulatory variables' coefficients: the Two-Stage estimation procedure. We first estimate the coefficients of the time-varying explanatory varables; subsequently, to identify time-invariant coefficients, we regress the first-stage residuals on the time-invariant regressors by using instrumental variables, and we correct the second-stage standard errors to account for the first-stage estimation error. This new method provides partial insurance against model miss-specification because the first-stage estimates are unaffected by the choice of instruments used in the second stage to identify the coefficients of the time-invariant regressors.

3. Title: Entry and Expansion: Case of Capacity Markets

Nehan Naim, State University of New York – ESF, nenaim@esf.edu

Abstract: "Capacity markets were introduced by the northeastern Regional Transmission Organizations (RTOs) in the US to compensate for the 'missing money' in electricity generation, in return for commitment of resources needed for satisfying the future demand for energy. While existing analyses of capacity markets have focused on the aggregate flow of capacity payments to specific electric power sources, this paper explains electric utilities' and generators' response to these payments. Using firm level data for entry proposals in the US electricity generation, I present evidence that incumbent firms with presence in regions offering capacity remuneration have greater incentive to propose expansion in capacity regions compared to regions without capacity payments. I also exploit a feature of capacity markets where comparable support is extended to existing generation of incumbent firms as is to the new capacity added. I find that as more of existing installed generation becomes eligible for capacity remuneration, it suppresses the actual size of capacity expansion announced by incumbent firms as well as new investment by entrants in regions with capacity markets."

Discussants:

Nehan Naim
Kanishka Kacker
Maria Chiara Derrico

Session 3: Broadband and Internet Markets and Regulation (20, 29, 1, 2)

Chair: James Alleman, University of Colorado - Boulder

1. **Measuring the Effects of Municipal Broadband**

Sarah Oh Technology Policy Institute soh@techpolicyinstitute.org

Does municipal broadband stimulate broadband adoption or employment growth? To answer this question, I conduct an empirical study of American towns that have installed municipal networks. Using data from the FCC's Form 477 and the U.S. Census Bureau's American Community Survey, I track broadband deployment, adoption, and employment statistics for these towns from 2013 to 2017. A town's decision to install a municipal network in the first place is not random, however. To deal with selection effects, I apply coarsened exact matching to compare results from the treatment group with a weighted control group of similar towns and two-stage least squares regression. I do not find statistical evidence that municipal broadband causes benefits in broadband subscription rates or employment growth.

2. **How Platform Components Impact Ecosystem Value: The Case of the iPhone and Mobile Broadband**

MARK A. JAMISON, Public Utility Research Center and Digital Markets Initiative, University of Florida, mark.jamison@warrington.ufl.edu
PETER WANG, University of Florida, peter.wang@warrington.ufl.edu

Abstract: Did the unveiling of the iPhone in 2007 lead to higher mobile broadband adoptions? It has long been suspected that the open application development environment of the iPhone led to a paradigm shift of what a mobile does and a drastic increase in demand of not only mobile smart devices but also mobile broadband subscriptions. This paper builds a simple model to explain the impact of Apple's entry into the mobile handset market on mobile broadband adoptions, and uses a panel of countries from 2004 to 2017 to address the question empirically. Results show that iPhone introduction explains 70% of the average rising trend in mobile broadband penetration rate in our sample of countries.

3. **Multisided Markets and Platform Dominance**

James Alleman, University of Colorado – Boulder, james.alleman@colorado.edu
Edmond Baranes, University of Montpellier, edmond.baranes@umontpellier.fr
Paul Rappoport, Temple University, paul.rappoport@temple.edu

Abstract: The internet giants – Facebook, Amazon, Apple, Microsoft, and Google – have transformed society with both positive and negative effects. The negative effects have been stark. There have been huge disruptions caused by e-commerce. More recently, subtler, but even more serious negative effects are only now being recognized: threats to democracy, violations of privacy, and monopolistic behavior.

By traditional measures Facebook and Google are highly concentrated. Each has obtained *de facto* monopolistic or oligopolistic power with little concern on the part of government.

Facebook and Google and other internet giants are multisided markets (MSM); their economic rents are "hidden" from the public. On the user-side of the market, prices are zero – "free." On the other side of the market, Facebook's and Google's revenues are derived from advertising which appears when the users click on advertisers' web sites. Facebook and Google can extract exorbitant prices for ads, since they are virtually the only source that can target ads directly to potential customers. This is where the economic rents are not so obvious.

This paper addresses the monopolistic aspect of the internet giants. In the single-sided market, monopoly pricing is well defined – as well as tests for predatory behavior; not so with multisided markets. Since the definition of markets is central to the legal enforcement of antitrust statutes, the paper examines non-transactional multisided markets for their potential for determining consumers' harm and welfare effects, as well as defining monopoly and predatory pricing in this context. Initial estimates of Google's and Facebook's social cost in terms of consumers' welfare loss are $54 and $33 billion, respectively, an increasing cost to consumers of at least $87 billion dollars including the dead-weight loss. It demonstrates and quantifies that dominant internet platforms can create three major harms to consumers:

- Increasing prices to consumers *via* added costs to the products being advertised,

- Elimination (or non-emergence) of competition in markets to the products being advertised,
- Increasing prices to consumers beyond the cost of advertising *via t*he market power of the *remaining* firms in the market of the products being advertised.

The paper outlines potential remedies to ameliorate the problems.

4. **Applying Antitrust in Digital Markets: Foundations and Approaches**

Mark Jamison, University of Florida, mark.jamison@warrington.ufl.edu

Abstract: This paper analyzes the conflicts that arise when trying to apply traditional antitrust principles in the context of digital markets. Antitrust has both political and economic foundations. The political approach emphasizes populist themes that ultimately harm economic development, while economic approaches focus on characterizations of and remedies for market power. Digitization of markets thwarts current antitrust tools by adding complexity and rapid change. A number of authors suggest populist approaches for antitrust in digital markets, but these lack rigor and fail to address central challenges. This paper suggests that antitrust should return to its earliest roots and directly address features in the economy that create market power.

Discussants:

Mark Jamison
Sarah Oh
Mark Jamison
James Alleman

Session 4: Vehicles: Congestion, Pollution and Health (13, 21, 22, 14)

Chair: Margaret Bock, West Virginia University, mbock1@mix.wvu.edu

1. **Air Pollution and Infant Mortality: A Natural Experiment from Vehicle Registration Restriction**

Shuhei Nishitateno, Kwansei Gakuin University, shuhei0828@kwansei.ac.jp

Abstract: The introduction of Automobile NOx/PM Law induced sharper reductions in air pollution in designated areas than in non-designated areas for 1992-2016 in Japan. I exploit this exogenous variation in levels of pollution at the municipality-month level to estimate the causal effect of air pollution on infant mortality. The results suggest that a 1-percent reduction in suspended particulate matter (SPM) led to a 0.35 percent decline in the infant mortality rate, implying that 2500 fewer infants died from 1992-2016 than would have in the absence of the SPM reductions. There is no evidence for disproportionate effects on neonatal mortality, but for an increase in the number of infants with comparatively low birth weight and length.

2. **Stuck in Traffic: Measuring Congestion Externalities with Negative Supply Shocks**

Roberto Mosquera Universidad de Las Americas roberto.mosquera@udla.edu.ec

Abstract: Traffic congestion is one of the most challenging issues of urban agglomeration. Congestion costs are often higher than their socially optimal levels, and little is known about the key parameters needed to design optimal congestion policies. This paper addresses this issue exploiting an exogenous reduction in for-hire vehicle supply in New York City. I estimate the effect of a vehicle on congestion and document substitution patterns to other transportation modes. A 9.1 percent reduction in the number of active vehicles decreases congestion by 0.46 minutes per mile. As vehicles leave the streets, for-hire trips decrease, resulting in increased waiting times and people switching to other transportation modes. Welfare increases for those who travel by vehicle because travel time is reduced. However, welfare decreases for those who face increased wait times or switch to a less-preferred transportation mode. A calibration exercise suggests daily net welfare gains between $8 and $13 million.

3. **Medium to Long Run Effects of CAFE Standards on Vehicle Miles Travelled**

Diya B. Mazumder, Soka University of America, <dmazumder@soka.edu>

CAFÉ standards in the US have emerged as the predominant environment policy aimed to reduce fossil fuel consumption from the private automobile industry. Many prior studies have estimated the effects of these standards on vehicle choice as well as on miles travelled, reporting that a 1 percent fuel economy increase raises driving 0.1 to 0.8 percent, with many recent estimates falling toward the lower end. Most of these papers focus on short run effects pertaining to a few years after the policy change. Klier and Linn (2012) show that firms have different responses to the CAFÉ standards depending on the time frame available to them. Most of the short run responses to the first CAFÉ standards in the United States lasted till the early 1980s and involved making minor changes to the weight and power or to the interior design of the vehicle. The medium to long run responses to the policy standard, on the other hand, involve undertaking major changes to a vehicle's power train technology. Our paper examines consumer responses to the CAFÉ standard on fuel consumption via miles driven and on other discrete changes in vehicle choices, after firms

have had adequate time to respond to the policy. Our purpose is to examine whether the medium to long-run rebound effect in the US automobile market in response to the fuel economy standard implemented in the late 1970s is greater or smaller than the short run estimate of 10% stated above. Our data comes from the Consumer Expenditure Survey for the years 1983 to 2005, supplemented by data from Ward's Automotive to obtain a richer set of vehicle attributes for new and used vehicles.

4. **Country Roads: Impact of the Appalachian Development Highway System on Mortality**

Margaret Bock, West Virginia University mbock1@mix.wvu.edu

Quantifying the effects of roads and highways is vastly understudied, particularly from causal inference perspectives. Specific attention to federally-funded transportation infrastructure is even more sparse to due the implicit endogeneity concerns about road placement decisions for the sake of rural development and market exposure. Hoping to fill this void using newly digitized maps, this work aims to examine the effects of the Appalachian Development Highway System (ADHS), one of the largest and most expensive federally-funded transportation infrastructure projects in the United States, on health outcomes in the region. Specifically, using restricted geo-coded vital statistics from the National Center for Health Statistics (NCHS), this study hopes to uncover a causal link between ADHS segment construction on mortality outcomes since construction began in the late 1960s until the present day.

Discussants:
Roberto Mosquera
Shuhei Nishitateno
Margaret Bock
Diya B. Mazumder

Session 5: Air Transportation: Congestion, Alliances, Mergers (7, 8, 18, 10)

Chair: Andreas Knorr, German University of Administrative Sciences Speyer, knorr@uni-speyer.de

1. **AIRLINE ALLIANCES AND THE SUSTAINABILITY OF AIRLINE COMPETITION IN INTERNATIONAL MARKETS**

    Andreas KNORR German University of Administrative Sciences Speyer
    Alexander Eisenkopf, Zeppelin University *alexander.eisenkopf@zu.de*

    Deregulation and liberalization have fundamentally changed the airline industry worldwide. In particular, the industry has been undergoing a substantial reorganization and consolidation process. It has been driven by a combination of bankruptcies, merger and product innovation through the emergence of new business models (e.g. LCC). For cross-border air travel, the most important change was the proliferation of codeshare arrangements and, most of all, the creation of the three global strategic alliances (Star Alliance, SkyTeam and oneworld) and joint ventures which typically enjoy antitrust immunity in key international transport market such as the North Atlantic. Currently, the three big alliances handle about fifty per cent of global air traffic (in passenger miles).

2. **RETHINKING THE ALLOCATION OF SLOTS AT CONGESTED AIRPORTS: A PROPERTY RIGHTS PERSPECTIVE**

    Andreas KNORR German University of Administrative Sciences Speyer, knorr@uni-speyer.de
    Alexander Eisenkopf, Zepplein University *alexander.eisenkopf@zu.de*

    Air transport services cannot be provided without complementary ground and air-side infrastructures. In particular, capacity limitations of an airport's runway system create a major supply-side bottleneck for the delivery or air transport services. The right to use an airport's runway systems is contingent upon the availability of an airport slot which, on flight safety grounds, precisely defines the time period in which the aircraft movement (take-off or landing) is allowed to occur at the respective airport. Whenever slot demand exceed supply, an allocation procedure is required. However, worldwide, no market mechanism exists for the primary allocation of airport slots. Instead, allocation is based upon administrative procedures in accordance with the international guidelines of the *International Air Transport Association*'s (*IATA*) *Worldwide Airports Slot Group*. The basic principle of slot allocation is the first come, first served rule. As long as airlines do use the slots allotted to them regularly (so-called 'use-it-or-lose-it-rule'), these will be automatically reallocated to them in the next scheduling period (so-called 'grandfathering'), creating a very effective entry barrier for newcomers to the respective airport. Only very few countries, e.g. the UK, permit airlines to resell excess slots on the secondary market. Evidence from these secondary markets –especially for slots at London's Heathrow Airport – clearly shows that the current slot allocation system has produced substantial scarcity rents to the benefit of the incumbent airlines at slot-constrained airports.
    The existing literature has focused on the potential anticompetitive effects and antitrust implications of alternative allocation schemes for capacity-constrained airports, in particular 'grandfathering' and secondary markets for slots. Our paper contributes to this literature by

adding a property rights perspective to the analysis. Our starting point is that airlines are not legal (though nevertheless de facto) owners of airport slots (which are just a right-to-use which is temporarily conferred to them by a government agency). However, our analysis will not just address the antitrust implications of the existing slot allocation regime(s). In addition, we will assess, in a comparative manner, the potential effects on competition of reassigning (de facto) slot ownership from the incumbent airlines to the operators of congested, slot-constrained airport.

3. **Optimal Promises: An Examination of Airlines and Beyond**

Daniel H. Simon, Indiana University, simond@indiana.edu
Jeffrey T. Prince, Indiana University, jeffrey.t.prince@gmail.com

Abstract: When making a purchase decision about a service or product, customers routinely must form expectations about the, ex ante, unknown quality of available choices. In many markets, sellers provide an essentially costless input for customer expectations in the form of a promise or estimate concerning the performance (quality) of their service (product). These sellers face a tradeoff whenever they provide such a promise prior to purchase: A better promise (1) increases demand today, but (2) reduces the likelihood of achieving the promised performance (quality) level, which reduces future demand.

Firms face this situation in a wide variety of settings: (1) home builders providing estimates of construction time or cost estimates; (2) Online retailers providing shipping time estimates; (3) Service providers giving price and work time estimates (mechanics, plumbers, doctors, contractors, etc.); (4) restaurants estimating wait times for walk-in customers. In all of these cases, the firm must weigh the short-term demand increase from promising better performance (lower costs, shorter time), versus the longer-term demand reduction resulting from the increased likelihood of failing to meet the promised performance level.

In this paper, we empirically examine the optimal promise problem through the lens of airline scheduling. The scheduled time for a flight is a performance promise by the airline. Hence, airlines face the above tradeoff when choosing the scheduled time for a flight: ceteris paribus, shorter scheduled times (1) increase demand today, but (2) also increase delays (potentially causing passengers to miss connecting flights), which reduces future demand.

Airlines are an attractive setting to analyze optimal promises for two primary reasons. First, over the past few decades, we have observed a shift in scheduling, from a tendency to systematically overpromise to a tendency to underpromise (Mayer & Sinai 2003a, Forbes et al. 2017, Zhang et al. 2018). Second, the airline industry provides high-quality, public data on scheduling and performance over an extended period of time, in addition to many other variables. Such data allow us to empirically examine not just the tradeoffs in choosing scheduling time, but the factors that influence these tradeoffs.

4. **Quality Provision of a Smaller Major Airline Merger**

Shih-Hsien Chuang, Northwest Missouri State University, chuang@nwmissouri.edu

Junpyo Park, University of Northern Colorado, junpyo.park@unco.edu

Abstract: This paper examines the recent merger in the airline industry between Alaska Airlines and Virgin America and estimates the effect of it on quality provisions. A difference-in-difference mechanism is employed to test whether the merger has a positive effect on on-time performance such as arrival delay, departure delay, carrier-related delay, late aircraft delay, and the flight cancelation ratio. Using data from the Bureau of Transportation Statistics, our results indicate that the merger has a significant positive effect on improving carrier-related delay and late aircraft delay, which suggests that consolidation of the flight network has allowed carriers to streamline operation more efficiently. However, arrival delay and departure delay have both increased following the merger. Taken together, the merger between the two airline carriers results in consumer gains and losses associated with quality provisions.

DISCUSSANTS:
>   Daniel H. Simon
>   Junpyo Park
>   Andreas Knorr
>   Andreas Knorr

Session 6: Urban Transportation (23, 15, 12, 9)

Chair: Ke Yang,

1. The Effects of Media Coverage on Vehicle Recalls on Corrective Behavior

Yong-Kyun Bae (Professor) Pusan National University econbae1@gmail.com

Abstract: This paper investigates media coverage on vehicle recalls and owners' corrective behavior. In particular, it identifies whether vehicle owners respond to media more than owner notification letters. It also focuses on how effectively recall information on defective vehicles is transmitted from manufacturers to vehicle owners and how quickly vehicle owners repair defects when they have new information on defects of their cars. To see what informational channels vehicle owners use in order to remove defects, we use the US recall data from year 2014 to year 2017 using Unbalanced Panel Regression Models. According to our preliminary estimation results, we find that the recall notification letter plays an important role in correcting defects. In particular, detailed information on risks and consequences contained in the letter makes car owners react. Regarding the media coverage, the more media coverage there is, the higher the correction rate is. However, the impact is marginal in our preliminary result.

2. Minneapolis by Bus: Short-Run Impacts of the Minimum Wage Ordinance on Bus Ridership

Tyler C. Schipper, University of St. Thomas, schi0195@stthomas.edu

We investigate whether Minneapolis' Minimum Wage Ordinance impacted bus ridership in the Twin Cities metro area. Our ridership data covers all bus boardings from the primary bus system one year prior to and six months after the ordinance went into effect. We estimate several variants of a differences in differences in differences (DDD) model, utilizing the median income level of the

surrounding census block group as an additional treatment criteria. In our preferred specification, we estimate that bus ridership in Minneapolis increased between 2019 and 2685 riders per day relative to non-treated cites. Our analysis also highlights heterogeneity in treatment effects across bus stops depending on the income level of the census block group where it is located. Treatment effects are generally higher in lower- to middle-income census block groups. These results underscore both important changes in the demand for public transit, but also the far reaching impacts of changes in the minimum wage.

3. **Effects of the Honolulu Rail Transit Project on Property Values Nearby and Sustainability on Oahu, HI**

Peiyong Yu University of Hawaii, West Oahu pyu@hawaii.edu

Abstract: This study assesses the impact of proximity to the Honolulu Rail Transit (HRT) on the single-family and condo values on Oahu, Hawaii. The data includes more than 44,000 single family homes and 66,000 condos between 2006 and June 2019. The results indicate that after the ground-breaking event for HRT in 2011, this event leads to a positive spillover effect: houses located one mile closer to the HRT line, the single family housing prices increase by 0.3%. However, this positive effect is at the costs of the regional single family home owners: houses located within a 0.5 mile radius of the HRT line, the housing prices drop by 6.7% and houses located between 0.5 and 1 mile radius of the HRT line, the housing prices drop by 4.0%. The condo market reacts differently: there is no significant distance spillover effect but one significant regional effect – houses located between 1 and 2 mile radius of the HRT line enjoy a 4.8% price appreciation after the ground-breaking event. After the construction events started in 2015, the condos located within a 0.5 mile radius of the HRT line has a property value increase by 5% and condos located between a 0.5 and 1 mile radius of the HRT line has a property value increase by 3.2%; and condos located between 1 and 1.5 mile radius of the HRT line has a property value increase by 1.7%; and condos located between a 1.5 and 2 mile radius of the HRT line has a property value increase by 0.8%. The significance lost beyond the 2 mile radius. This study contributes to the literature by investigating Hawaii's first transit and using semi-parametric hedonic pricing model rather than just parametric models. Oahu's notorious traffic congestion, limited land mass, growing population and attempts to diversify the economy require innovative public transit solution to promote the state of Hawaii's plans for sustainable growth. Though the HRT is still under the construction, it is projected to lower the impact on climate and environment than most other transport modes.

4. **Inverse Probability Tilting with Heterogeneous Average Treatment Effects**

Jeffrey P. Cohen, University of Connecticut, Jeffrey.Cohen@business.uconn.edu
Ke Yang, University of Hartford, kyang@hartford.edu

Abstract: There are many applied empirical studies, including those in health, development, and real estate, that have data that are "missing at random". We extend the Inverse Probability Tilting (IPT) estimator by developing a nonparametric, geographic (GIPT) estimator that allows for average treatment effect (ATE) heterogeneity and addresses "missing data" problems. GIPT re-weights twice: using propensity scores that equate moments across treated (and untreated) sub-samples with the entire sample, as in IPT; and also, down-weighting observations far from each target point. This allows for heterogeneous ATE estimates. In large samples, the ATE surface is

smooth with GIPT, whereas using IPT in several different locations would result in discrete jumps in such a surface. Monte Carlo simulations validate the strong small sample performance of GIPT. Among many possible applications of GIPT, we demonstrate how a severe storm leading to an extended water-boil advisory, imposed much longer on sub-sections of Metro-Vancouver Canada (the "treatment"), impacted individual commercial property prices (the ATEs) differently

Discussants:

Ke Yang
Yong-Kyun Bae
Peiyong Yu
Tyler C. Schipper

Session 7: Transportation and International Trade (16,11,24, 4)

Chair: Tobias Sytsma, Rand Corporation,

1. **The Jones Act: An Anchor on the Economy of Hawaii**

   John R. Dunham John Dunham and Associates jrd@guerrillaeconomics.com

   A legacy of the roaring 20's limits the ability to ship products by water throughout the United States. These effects are significant and have led to a number of unintended consequences. In fact, rather than achieving any of the goals set forth in 1920, the Jones Act has severely hampered the development of the merchant marine and shipbuilding industries in the United States, has reduced waterborne coast-wise trade, has increased prices, harmed the environment, and over time has measurably harmed the Hawaiian economy.These higher costs not only impact importers in Hawaii, but they flow throughout the economy, effecting manufacturers, businesses and consumers. Using a geographic gravity model, the price of shipping cargo to Hawaii is $654.0 million higher, and prices are $1.2 billion higher than they would be without the Jones Act limitations. This is equal to over $870 per resident annually. Because of this, Hawaii has almost 9,850 fewer jobs than it would have were there a free market for ocean freight. These jobs would pay residents $414.1 million more in wages, and would result in over $1.35 billion in increased economic activity.

2. **Technical Efficiency of Container Ports in the United States**

   Neela Manage, Florida Atlantic University, manage@fau.edu

   Abstract: The objective of this paper is to identify factors that determine efficiency of container terminals at major U.S. seaports using stochastic frontier estimation. Growth in global maritime trade and the recent Panama Canal expansion project have resulted in important infrastructure upgrades at U.S. seaports that handle containerized cargo. This study plans to assess how these changes in their capital structure and the resulting increase in capacity had an impact on the productivity and efficiency of U.S. seaports. Seaports have an important impact on local businesses and job creation and are thus critically linked to the economic development of metropolitan areas where they are located.

   The empirical analysis utilizes panel data for the top twenty-five container seaports in the United States during the period 2015 to 2019. The data provide detailed measures of port throughput (i.e., the amount of cargo a port handles in a given year) and a variety of factors that influence port capacity. This study estimates fixed-effects and random-effects panel stochastic frontier production models to obtain estimates of port efficiency.

3. **Port Choice and International Trade in Agricultural Products**

   Tobias Sytsma, Rand Corporation, tobysytsma@gmail.com
   Wesley W. Wilson, University of Oregon, wwilson@uoregon.edu

   Abstract: In this paper, we analyze the role of ports in the flow of international trade. To do this, we derive a model in which ports are chosen based on port-specific attributes and spatial characteristics of global demand. We estimate the parameters of the model using data on US

port-level exports of agricultural commodities between 2003 and 2017, port attributes, and shipping costs. Using the results of the model, we calculate shippers' willingness to pay for cost-reducing port attributes, and elasticities with respect to changes in port and route attributes.

4. **Trump's Tariff War and the US Iron, Steel and Aluminum Imports: Short Term Effects and Causes**

Cong S. Pham, Deakin University, cong.pham@deakin.edu.au

Abstract: Using U.S. quarterly iron, steel and aluminum imports for the period spanning April 2017 and March 2019 this paper evaluates the short-term impact of the U.S. increased tariffs in April 2018 on the U.S. steel and aluminum imports. We document robust evidence that Trump's tariffs significantly reduce U.S. steel and aluminum imports from China, Russia and European countries. Yet, Argentina, Brazil, Australia and South Korea that received Trump's tariff exemptions did not benefit greater access to the US market, which is in line with the fact that the United States asked those countries to apply quantitative restrictions in return for the tariff exemptions. Taken together, the results are consistent with a game-theoretic framework in which the United States, the hegemon in decline have increasing concern for relative gains especially vis-à-vis its rising challengers or potential challengers like China, the EU and Russia. Looking into what drives the US trade war we find evidence that the US tariffs significantly reduce the imports of the swing states in the 2019 US presidential elections but not the imports of other states. These results provide support to the hypothesis of the electoral strategy by the Trump administration. Finally, we do not find evidence that the Trump administration started the trade war in order to make up for political contributions/support of US iron, steel and aluminum producers to the GOP.

Discussants:
Neela Manage
John R. Durham
Cong Pham
Tobias Sytsma

Session 8: Transportation Infrastructure and Agents (6, 25, 27)

1. **The Industrial Organization of The Ohio and Erie Canal**

David Meyer

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Abstract: The Ohio and Erie from Cleveland to Portsmouth in Ohio opened the state of Ohio to the commerce of the world by creating an all water route from the canal's hinterlands to the Atlantic Ocean at New York City. The actual canals were developed and operated by the state.

However, the backbone of canal transportation was the canal boat. These boats privately owned and operated. The movements of freight through the canal system thus resembles the operations of modern motor carriers which employ private vehicles across a publicly provided right of way to provide transportation.

This paper uses data from The Boats of the Ohio Canal: 1839 – 1855 to analyze the extent and significance of competition and monopoly. The book is compiled from records of the Ohio Canal Commission. It consists of registration information for each canal boat operating on the canal over a period of sixteen years. These registrations contain the names of owners, their principle place of residence, the name of the boat. Combining this data with data from other canal records permits the assessment of the industrial organization of this industry.

2. Exit Decisions in Canadian Grain Elevator Industry

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Grain elevators are a central component in the movement of grain to market and are critically important to rural agricultural communities. Over the last three decades the industry has experienced a major decline in the number of elevators. In this paper, I develop and estimate a model of exit in the Canadian grain elevator industry, using data from 1999 to 2016 at the individual elevator level. Over the time period, the total number of elevators has declined from 1033 to 419. I use these panel data to explain exit using traditionally used variables such as multiplant ownership and capacity, but I also incorporate measures of vertical linkages (elevator linkages to the transport market) and spatial competition. These include measures of local and supply conditions as a measure of spatial competition. The results provide strong evidence that exit is affected by whether the elevator is an entrant, size (measured by capacity), vertical linkages, local demand, and spatial competition which are each statistically and economically significant.

3.   Driver Turnover in the Trucking Industry: What's the Cost of Reducing Driver Quit Rates?

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Abstract: This paper empirically examines the personal characteristics of truck drivers that are associated with a greater probability of driver turnover. Exploration of this phenomenon is significant in part because knowing who is likely to leave a trucking company helps decision makers in trucking firms identify effective measures needed to reduce driver turnover. Estimation results of a discrete driver quit choice model along with findings from estimating a driver wage equation are used to predict the driver compensation needed to mitigate high driver turnover. These findings show that at the mean, drivers who stay on the job receive $45.39 (2018 dollars) more per week than drivers who leave, which translates to $2,360.45 annually and is 4.81 percent above the mean wage of drivers who leave their job. The value of this annual wage differential is less than the mean value of $12,376.25 (2018 dollars) computed in past research as

the per driver cost of truck driver turnover. We interpret these results to suggest that it is cost effective for trucking companies to increase driver compensation. Indeed, truck driver wage trends do show a recent pattern of wage gains.

Discussants:

James Nolan
Steven Trick
John Brown