The Institute for Economic Development

Research Review
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The Institute for Economic Development (IED) is a research center within Boston University's Department of Economics focusing on development economics and related fields of finance, trade, foreign investment, health, education, political economy, organizations and economic history.

Boston University

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BOSTON UNIVERSITY

IED Welcomes Three New Faculty Affiliates

David Lagakos
Associate Professor of Economics

David Lagakos conducts research in the fields of macroeconomics and development economics, focusing on the determinants of sectoral productivity levels, human capital accumulation, structural transformation, and cross-country differences in labor market outcomes, among other topics. His research has appeared in the American Economic Review, the Journal of Political Economy, the Quarterly Journal of Economics and other prominent academic journals. He currently serves as an editor of the Review of Economic Dynamics and a co-editor of the Journal of Development Economics. Since 2016 he has worked as the lead academic for the International Growth Centre in Ghana, helping to foster policy-relevant academic research on economic growth. Lagakos is a research affiliate at the NBER and is a co-organizer of the annual NBER conferences on Economic Growth and Macroeconomics Across Time and Space. Before joining the faculty of Boston University, Lagakos was an associate professor with tenure at the University of California San Diego, and held previous positions at Arizona State University and the Federal Reserve Banks of Minneapolis and New York. He received his PhD in 2008 from UCLA and his BA in 2001 from the University of Rochester.

Natalia Ramondo
Associate Professor of Economics

Natalia Ramondo received her BA in Economics from Universidad de Buenos Aires in 1997, her MA in Economics from Universidad Torcuato di Tella in 2000, and her PhD in Economics from the University of Chicago in 2006. She was an Assistant Professor in the Department of Economics at the University of Texas from 2006 to 2010, a Kenen Fellow at Princeton University in 2009-2010, and an Assistant Professor at Arizona State University from 2010 to 2013. In 2013, she became an Assistant Professor of Economics in the School of Global Policy and Strategy at the University of California, San Diego, and was promoted to tenured Associate Professor in 2017. She joined the Department of Economics at BU in 2020. Ramondo is a trade economist whose research is focused broadly on issues of globalization, particularly with respect to the role of multinational firms. Ramondo is part of a new wave of economists using quantitative models and detailed datasets to understand the welfare gains (and losses) from various forms of economic openness. Her research is theoretically rigorous, timely, and relevant for policy.

Siddharth George
Assistant Professor of Economics

Siddharth George received his BSc in Econometrics and Mathematical Economics from the London School of Economics in 2011 and his PhD in Economics from Harvard University in 2019. He was an Assistant Professor of Economics at Dartmouth College in 2019-20 before joining Boston University. He has also worked in the Ministry of Trade and Industry in Singapore (2011-12) and the Office of the Chief Economic Advisor of India (2015-16). His research interests are in development economics, political economy, and labor economics. For example, he has explored the economic effects of political dynasties in India since 1862.

IED Affiliated Faculty COVID-19 Research

Understanding pneumonia, influenza and COVID-19 infections: the role of weather, public school openings and closings, public transportation, outdoor activities, and team sports.

A proposal for research funding is currently pending with the Agency for HealthCare Research and Quality (PI: Randall P Ellis)PI: Randall P Ellis, PhD

Tentative Abstract of working paper in progress

This project is using very large insurance claims datasets from the United States to study patterns of infection and treatment of infectious respiratory diseases such as pneumonia and influenza, with an ultimate goal of furthering our understanding of COVID-19 infections and public policies that might influence its transmission. We are currently using two sources of data: the IBM Marketscan Commercial Claims Database© from 2010-2018, and the Health Care Cost Institute (HCCI) Symphony database from May 2019 to the present (currently, August 10, 2020). Our primary goal is to use diverse social and environmental variables to understand their role in influencing rates of influenza, pneumonia, and COVID-19 infection rates, which vary seasonally by factors 10 to 50 fold, with different patterns apparent by year, month, age group, and geography region. Variables that we will including in the model are: weather information (temperature, heating degree days, cooling degree days, humidity, air pressure); air pollution; pollen count; monthly tourism activity as proxied by monthly hospitality industry employment; monthly public transportation use; time spent in various activities outdoors (from the American Time Use Survey); exact public school opening, closing and vacation dates; and levels of team sports activity as inferred from reported sports injuries on claims. Our greatest effort is in collecting historic openings, closing, and vacation break information for each of over 400 MSA school systems in the US for as many years from 2010 to 2020 as possible. For identification we are using annual and monthly variation (all variables), patient age (school session dates, and sports activity) and gender variation (sports participation), and differences in infection rates between preschool, school-age, and college age adult ages.

We are initially using 8 years of Marketscan data for an under 65 year old commercially insured sample to conduct both graphical and regression-based analyses of seasonal patterns of existing infectious diseases (pneumonia, and influenza). After examining similarities and differences of infection patterns for influenza and pneumonia in the Marketscan and Symphony data, we will then use the same covariates to model recent COVID-19 data in order to contrast its seasonality, age, and gender infection rates in the US in recent months. Ideally, by modeling infection rates by age, gender, geography and disease while controlling for weather, we can help inform policy makers on the effects of school age attendance, outdoor activities, school and college sports activities, and air pollution on the spread of COVID-19.

Firm-level Exposure to Epidemic Diseases: COVID-19, SARS, and H1N1

By Tarek Alexander Hassan

IED Working Paper 340. For further details, see page 16

Abstract

Using tools described in our earlier work (Hassan et al., 2019, 2020), we develop text- based measures of the costs, benefits, and risks listed firms in the US and over 80 other countries associate with the spread of Covid-19 and other epidemic diseases. We identify which firms expect to gain or lose from an epidemic disease and which are most affected by the associated uncertainty as a disease spreads in a region or around the world. As Covid-19 spread globally in the first quarter of 2020, firms' primary concerns relate to the collapse of demand, increased uncertainty, and disruption in supply chains. Other important concerns relate to capacity reductions, closures, and employee welfare. Financing concerns were mentioned relatively rarely in the first quarter but appear to become a more important concern in the second quarter. We also identify some firms that foresee opportunities in new or disrupted markets due to the spread of the disease. Finally, we find some evidence that firms that have experience with SARS or H1N1 have more positive expectations about their ability to deal with the coronavirus outbreak.

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3566530

How Should Policy Responses to the COVID-19 Pandemic Differ in the Developing World?

By: Titan Alon, Minki Kim, David Lagakos, and Mitchell VanVuren

IED Working Paper 350. For further details see page 23

ABSTRACT

This paper quantitatively analyzes how policy responses to the COVID-19 pandemic should differ in developing countries. To do so we build an incomplete-markets macroeconomic model with heterogeneous agents and epidemiological dynamics that features several of the key distinctions between advanced and developing economies germane to the pandemic. We focus in particular on differences in: age structure, fiscal capacity, healthcare capacity, informality, and the frequency of contacts between individuals at home, work, school and other locations. The model predicts that blanket lockdowns are less effective in developing countries, saving fewer lives per unit of lost GDP. In contrast, age-specific policies are even more effective, since they focus scarce public funds on shielding the smaller population of older individuals. School closures are also more effective at saving lives in developing countries, providing a greater reduction in secondary transmissions between children and older adults at home.

Exposure of Chinese Firms to the Covid-19 Shock: Assessing the Role of Production Clusters and Hometown Entrepreneur Networks

By: Ruochen Dai, Dilip Mookherjee, Yingyue Quan, and Xiaobo Zhang

ABSTRACT

We use weekly firm registration data to examine impacts of the covid-19 shock on entry flows in China. Counties with a higher presence of production clusters were less adversely impacted after the Chinese New Year between February and April 2020, after controlling for county, industry, week and year dummies. This cannot be accounted by difference in social connectedness of entrepreneurs. Data from entrepreneur phone surveys in February and May confirm these results, indicating that the main sources of greater resilience of clusters were fewer disruptions to commodity supply chains, owing to geographical proximity to stable suppliers, better access to trade credit, and low capital intensity.

http://www.bu.edu/econ/files/2020/07/EDI-note-June-24.pdf

Rugged Individualism and Collective (In)action During the COVID-19 Pandemic

By: Samuel Bazzi, Boston University NBER and CEPR Martin Fiszbein, Boston University and NBER, Mesay Gebresilasse, Amherst College

ABSTRACT

Rugged individualism—the combination of individualism and anti-statism—is a prominent feature of American culture with deep roots in the country's history of frontier settlement. Today, rugged individualism is more prevalent in counties with greater total frontier experience (TFE) during the era of westward expansion. While individualism may be conducive to innovation, it can also undermine collective action, with potentially adverse social consequences. We show that America's frontier culture hampered the response to the COVID-19 pandemic. Across U.S. counties, greater TFE is associated with less social distancing and mask use as well as weaker local government effort to control the virus. We argue that frontier culture lies at the root of several more proximate explanations for the weak collective response to public health risks, including a lack of civic duty, partisanship, and distrust in science.

http://www.bu.edu/econ/files/2020/08/BFG_Individualism_COVID.pdf

Professor Lucas speaks at the United Nations Urban Forum

Professor Lucas presented on two panels at the UN Habitat conference in Abu Dhabi in February. Both talks drew upon his new book, *Crossing the Rural-Urban Divide: A Compilation of Evidence from Low-Income Countries* (forthcoming with Oxford University Press). One presentation was on the role of rural-urban migration in reducing the rural-urban divide. The other drew together material on women in migration from his book, which was presented to the Women's Round Table. (Professor Lucas is featured with fellow panelists and attendees in the back row of the photo below)

IED Affiliate Mahesh Karra Named Max Planck Sabbatical Award Laureate for 2020

Mahesh Karra, Associate Director of GDP Center's Human Capital Initiative and Assistant Professor of Global Development Policy at the Frederick S. Pardee School for Global Studies and IED affiliate, has been appointed as a Max Planck Sabbatical Award Laureate for 2020.

Karra plans to be at the Max Planck Institute for Demographic Research (MPIDR) during his sabbatical in 2021 and hopes to begin a new project related to his ongoing research on the Demographic Dividend and the effect of demographic transitions on human capital and economic development.

2019-20 IED Working Paper Summaries

Regimes Of Fiscal And Monetary Policy In England During The French Wars (1793-1821)

By: Pamfili Antipa and Christophe Chamley

Discussion Paper 327

The fiscal and financial shocks of the French Wars of 1793-1815 forced the English authorities to establish a war tax to supplement debt financing and suspend the convertibility of the notes of the Bank of England. These changes brought about by the war were part of a commitment to long-term policy and led the Bank of England to transition to its public role as the lender of last resort. The authors of this paper show how England's overall commitment to fiscal and price stability provided some flexibility in the practical implementation of policies in response to the unexpected shocks during this period. As evidence of the authorities' flexibility, the authors document four sharply different policy regimes used during the French Wars.

Before explaining the policy differences between the four regimes, the authors document the Bank of England's initial role as a private financial institution to facilitate government financing of the new parliamentary regime. They explain how the Bank eventually established itself as the main debt-holder while maintaining the convertibility of the British note throughout the wars of the 18th century. In 1792, the French National Assembly declared war on the Austrian emperor. The authors show how the financial market anticipated England's eventual entry into the war which took place the following year. Based on the assumption that the conflict would end soon, policy makers saw no reason to change course and continued with a tax-smoothing policy with debt finance. By 1797, military expenditures and the primary deficit had surged. This instability led to a bank run.

The bank run marked the beginning of the second regime in which the Bank of England suspended the gold convertibility of its notes and expanded their quantity by discounting private securities. The authorities also established a war tax to replace the tax-smoothing and deficit financing of the first regime. The authors show that these policies provided sufficient liquidity and moderate interest rates given the context. When the war intensified, the Bank replaced the Real Bills policy with a price support of the short-term government bills. The authors show this policy was successful in keeping the interest rate in the short-term credit market below 5 percent. The authorities also reaffirmed their fiscal commitment through large refinancing operations of Exchequer bills that issued long-term bonds funded through earmarked taxes with parliamentary sanction.

Four years after the war, the Bank of England resumed the convertibility of the pound. The authors show that the pound immediately regained its gold value on the internal market and appreciated in the exchange market and the GDP deflator fell to its pre-suspension level after a few years. They conclude that this experience showed policy makers the effectiveness of temporary convertibility suspensions and strong fiscal commitments.

The Promise And Pitfalls Of Conflict Prediction: Evidence From Columbia And Indonesia

By: Samuel Bazzi, Robert A. Blair, Christopher Blattman, Oeindrila Dube, Matthew Gudgeon, Richard Peck

Discussion Paper 328

Recent research on conflict has improved upon large-scale, cross-country comparisons to understand its micro-level causes, processes, and consequences using subnational data. These micro data along with recent advances in computing techniques could be used to better predict when and where violence will occur and/or escalate. With this information, governments, police, and peacekeepers would be able to target resources to prevent conflict. The authors of this paper use machine learning methods and high-quality data from Colombia and Indonesia to understand whether or not this is a real possibility.

Colombia and Indonesia are unique in that they have both experienced substantial violence while also producing high-quality local data. Since the fall of Suharto's authoritarian regime in 1998, Indonesia has experienced conflict due to separatist movements, religious and ethnic tensions, natural resources, political and economic shocks (Bazzi and Gudgeon, 2017; Pierskalla and Sacks, 2017), and climate change. Colombia's civil war involving left-wing guerilla groups, the government military, and right-wing paramilitary groups has resulted in 220,000 deaths and 25,000 disappearances. It has also forcibly displaced over five million civilians (Historical Memory Group, 2013). These countries' recent histories and their rich subnational data make them ideal settings for conflict prediction. The data the authors assembled provides hundreds of covariates including those commonly associated with conflict onset and escalation (Blattman and Miguel, 2010) along with information on several different types of conflict.

To leverage the best new computational methods, the authors deploy four machine learning methods (LASSO, Random Forests, Gradient Boosted Machines, and Neural Networks) and also take their weighted average using an Ensemble Bayesian Model Average (Beger et al., 2016). They train the algorithms on six to fourteen years of data and predict local conflict the following year. To evaluate their models, they measure the probability that a randomly chosen pair of observations is correctly ordered in terms of predicted risk of violence. With this measure, the authors do not have to specify a probability threshold above which they predict violence will occur. In practice, this would likely depend on a policymaker's tolerance for false positives and negatives.

The ensemble method is more effective at identifying "hot spots", defined as five or more incidents in a single year, relative to previous exercises of this sort. This strong performance is driven by predicting where, not when, violence is likely to occur. The authors find that detailed and disaggregated histories of violence perform much better than a simple lagged dependent variable model suggesting that it is not enough to know where violence occurred in the past. The most predictive risk factors tend to be slow-moving or time invariant while predictive accuracy improves little when they add time-varying factors. The models do not predict annual deviations from average levels of violence but do predict conflict across space.

These consistent patterns across the two countries show both the promise and pitfalls of local violence forecasting. The authors show that it is possible to predict where violence will occur but not necessarily when, even with some of the richest and most systematic subnational panel data in the developing world. One way to interpret these results is that local conflict prediction is unrealistic. A more hopeful conclusion is that conflict prediction may still be feasible with longer conflict time series, higher-frequency data, or more data on new risk factors.

Deterring Illegal Entry: Migrant Sanctions And Recidivism In Border Apprehensions

By: Samuel Bazzi, Sarah Burns, Gordon Hanson, Bryan Roberts, John Whitley

Discussion Paper 329

In 1990, there were 3.5 million undocumented individuals living in the US. By 2007, this number had increased to 12.2 million (Passel and Cohn, 2016). This occurred during a time of intensified enforcement at the US border. Migration patterns changed in 2007 as both the overall number of apprehensions and the number of undocumented Mexican migrants began to fall (Passel and Cohn, 2016). The Great Recession and demographic changes in Mexico can explain part of this initial shift (Hanson et al., 2017) but do not explain why these numbers have not rebounded after the US recovery. The timing of this change coincided with the US Border Patrol's Consequence Delivery System (CDS), a system which imposed penalties on illegal border crossings. The authors of this paper study whether this system can account for part of the drop in undocumented immigration during this period by deterring the re-entry of individuals previously caught attempting to cross the border.

Before CDS, nearly all individuals apprehended while trying to cross the border unlawfully were granted voluntary return whereby an individual forgoes the right to appear before a judge and agrees to depart the US after transport to the border. In doing so, the individual avoids formal removal and escapes legal repercussions. To deter new and repeated border crossings, the US Border Patrol established the CDS in 2008. Now, nearly all apprehended migrants are sanctioned by the CDS. The administrative consequences involve a formal removal tied to the individual's fingerprint records which prohibits them from applying for a legal entry visa for at least five years. This is particularly costly as many of these individuals have applications for a US green card. The programmatic consequences involve repatriating apprehended Mexicans through locations far from their initial entry point. Lastly, these migrants are subject to criminal prosecution in the US which lead to sentences of up to 180 days for first-time offenders and two years for individuals with many prior apprehensions.

While implementing the CDS, the individual Border Patrol sectors had discretion in delivering sanctions and these decisions were influenced by backlogs of migrants and space in detention facilities (Capps et al, 2017). This discretion and the variation in capacity constraints provide quasi-random variation in the assignment of penalties for comparably similar apprehended migrants. With rich data on the universe of apprehensions, the authors compare individuals that are sanctioned to others with the same birthplace, birth cohort, apprehension location and day, and previous history of apprehensions. They find that exposure to penalties reduced the 18-month re-apprehension rate for males by 4.6 to 6.1 percentage points which imply that sanctions can account for 28 to 44 percent of the observed decline in recidivism in apprehensions. The authors show that this drop was associated with a reduction in attempted illegal entry. They also show that the administrative sanctions of formal removals are equally effective at reducing recidivism as sanctions which involve costly criminal prosecutions or relocation of migrants

The Institutional Foundations Of Religious Politics: Evidence From Indonesia

By: Samuel Bazzi, Gabriel Koehler-Derrick, Benjamin Marx

Discussion Paper 330

Throughout history, religion has driven social and political change. Though much is known about how religion shapes human behavior and development, relatively less is known about why religious politics has grown in some parts of the world and not in others. The existing literature has focused on the failure of the state to uphold traditional values in the global era (Almond, Appleby and Sivan, 2003; Habermas, 2008). This paper focuses instead on the role of institutions. In particular, the authors study the effects of religious land trusts on contemporary religious politics in Indonesia, the world's largest Muslim country.

In the 1960s, the Sukarno regime attempted to expropriate and redistribute large landholdings. This land reform, known as the Basic Agrarian Law (BAL), provided a policy loophole which exempted religious lands held in Islamic charitable trust, known as waqf, from redistribution. The policy set the maximum size of holdings to 5 hectares (ha) in districts with more than 400 people per square kilometer as opposed to 9 ha in districts with less than 400 people per square kilometer. This meant that the effect of the land reform would be higher in districts with many lands between 5 and 9 ha. The authors use this policy variation to identify the causal effects of the land reform using a difference-in-discontinuities approach. Specifically, they compare the effect of the land reform for districts with few 5-9 ha holdings to its effect for districts with many 5-9 ha holdings. The estimates of these effects are provided by the discontinuities at the population density threshold. The estimated effect of the land reform is the difference in the discontinuities between districts with many and few 5-9 holdings.

Using this approach, the authors show that more targeted areas during the land reform show more pervasive waqf land and institutions today. These endowments established in the 1960s continued to grow afterwards as the initial resources allowed for their expansion. These areas also show more support for Islamist political parties, sharia law, Islamic courts, and vigilante activity by Islamist organizations. Despite this increased support for Islamism, individuals in more affected areas do not display higher levels of personal piety. However, they are more likely to scrutinize the religion and religiosity of politicians. Politicians respond by running on more explicitly Islamist themes. The authors also find greater politicization of schools, highlighting the influence of Islamists beyond the ballot box.

The authors end by discussing why these institutions cause such continued support for Islamism. They explain that lands held in waqf provided a secure and steady stream of revenue for conservatives allowing them to compete with more moderate Islamic movements. These lands are also often used to support Islamic boarding schools which have the option to remain outside the government-mandated education system. This allows the teachers, many of whom have strong ties to Islamist political parties, to teach and promote more Islamist ideas. These schools are also often privately funded which could potentially lead to alliances between elites and religious interest groups that influence law and policymaking.

China's Housing Bubble, Infrastructure Investment, And Economic Growth

By: Shenzhe Jiang, Jianjun Miao, and Yuzhe Zhang

Discussion Paper 331

Since China's market-oriented housing reforms in the 1990s, its real estate market has experienced a persistent boom with macroeconomic consequences. The authors of this paper document several of these consequences during the period 2003-2013: (1) high GDP growth rates that declined over time, (2) high housing price growth rates and low rental growth rates, (3) high residential investment, government land-sale revenue, and infrastructure investment to GDP ratios that increased over time, and (4) high returns to capital that declined over time. They also provide a two-sector overlapping-generations (OLG) model to explain these facts.

The model features both housing and non-housing sectors. Its first key ingredient incorporates rational expectations of lower returns to capital in the long run. This leads entrepreneurs to seek alternative investment opportunities such as housing which they anticipate to have strong demand in the future. The second incorporates China's land policies. In China, land is owned by the state. Local governments collect fees through land sales and a certain fraction of this revenue must be spent on infrastructure investment.

This can generate a housing bubble, leading to two possible scenarios. It could lead to increased infrastructure investment which facilitates production and raises non-housing firms' productivity thereby raising GDP and economic growth. Alternatively, it could harm economic growth due to the reallocation of capital and labor and the traditional crowding-out effect on capital accumulation (Tirole, 1985). Moreover, in their two-sector model, capital and labor flow into the housing sector from the non-housing sector in the wake of rising housing prices. This resource reallocation effect lowers the non-housing sector's output and raises residential investment. When the housing sector accounts for a small share of the economy, a housing bubble causes GDP to decline in the long run.

The authors show that a calibrated version of the extended model explains the stylized facts mentioned above. They also show that the decline of GDP growth during the period is due to the decline of non-housing sector growth, driven mainly by the decline of capital growth which flowed instead into the bubbly housing sector. Without the bubble feature, a standard model implies housing price and rents growing at the same rate in the long run. Thus it does not generate the persistent boom in housing prices with low rent that China has recently experienced. As a result, the standard model also has difficulty explaining the rapid growth of land-sale revenue, residential investment, and infrastructure investment.

To shed light on the recent concerns about China's housing bubble, the authors conduct a counterfactual experiment which supposes that the housing bubble collapses in 2025. The authors show that China's GDP growth rate would decrease from 5% to 2.6% in 2025. After a few years, it would recover and rise above the level in the counterfactual scenario without a bubble collapse. This is due to labor and capital moving to the non-housing sector which increases output and makes up for the lost value of new houses.

Finally, they provide some insights into likely effects of a property tax. In a counterfactual experiment in which the government imposes a permanent 1.5% property tax starting in 2025 which is used to refinance infrastructure investment, the bubble decreases in size immediately due to the lower after-tax returns of housing. GDP would also fall immediately but would eventually recover and after 30 years be 18.5% higher due to capital accumulation and capital moving into the non-housing sector.

The Global Impact Of Brexit Uncertainty

By: Tarek Alexander Hassan, Stephan Hollander, Laurence van Lent, Ahmed Tahoun

Discussion Paper 332

Corporate executives and stock-market participants have had to question how the various Brexit proposals might affect the corporate world, financial markets, and the economy in general. Many commentators, business leaders, and politicians have pointed to the high economic costs of this uncertainty. Exposure to Brexit could come from many interdependent sources. This, along with the fact that it has been a prolonged political process, make quantifying the direct and indirect effects of Brexit on non-UK-based firms difficult. The authors of this paper address these challenges using a text-classification method (Gentskow et al., 2019; Hassan et al., 2019) to identify which firms expect to gain or lose from Brexit and to estimate its effects on firm-level outcomes.

To identify the exposure of firms to Brexit, the authors count the number of times it is mentioned in a given firm's (quarterly) earnings conference call with financial analysts. These calls typically include an earnings release, a presentation by management about the current affairs of the firm, and a Q&A session in which analysts probe management on the challenges the firm is facing. Given the call participants are the foremost experts on the firm's business, any significant impact of Brexit will likely come up in conversation. This allows the authors to measure the variation in Brexit exposure across firms over-time. They also adapt the Hassan et al. (2019) (HHLT) method of measuring firm-level political risk and sentiment to classify Brexit exposure into first-(BrexitSentiment) and second-moment (BrexitRisk) scores.

With these measures, the authors show that concerns about Brexit explode for not only UK firms but also for international firms as far afield as the United States, South Africa, and Singapore. Both UK and non-UK firms overwhelmingly expect negative consequences from Brexit. A human audit of text snippets from conference calls that mention Brexit show that the most common concerns include regulatory divergence, reduced labor mobility, limited trade access, and heightened uncertainty. In the most optimistic text snippets, managers expect little exposure to Brexit or expect windfalls from the Brexit-induced depreciation of the British Pound.

After documenting these concerns, the authors show how Brexit exposure affects firm-level outcomes through risk. They document large, negative effects of BrexitRisk on investment and employment decisions as well as on contemporaneous stock returns. For example, the average Irish firm decreased its investment rate by 3.9% and reduced its employment growth by 4.2% relative to the mean in every year since the Brexit referendum. For US-based firms, reductions in average investment and employment growth rates are 0.4% and 1.2% respectively as these firms are less exposed to Brexit relative to Irish firms. In the UK, where firms obviously had significant exposure, constituents who lived closer to the UK firms most negatively affected by Brexit tended to vote to remain in the EU. This supplemental evidence shows that voters understood the potential negative effects of the uncertainty that would result from Brexit.

Finally, the authors show that stock prices quickly incorporated both the mean and variance of firm-level exposure after the 2016 referendum. Financial markets thus anticipate the negative effects of uncertainty as well as the direct negative effects of Brexit itself.

This evidence leads the authors to caution against the conclusion that a speedy resolution is necessary to minimize the negative effects of uncertainty. Instead, they explain that a dramatic rupture between the UK and the EU may have direct consequences for investments and employment that outweigh those associated with Brexit uncertainty alone.

Uneven Growth: Automation's Impact On Income And Wealth Inequality

By: Benjamin Moll, Lukasz Rachel, Pascual Restrepo

Discussion Paper 333

In the past forty years in the US, the incomes of the lower half of the distribution have stagnated while those at the 95th percentile have doubled. Those at the top 1 percent have tripled. Technical change, in particular the automation of tasks performed by labor, is a potential driver of these trends. The literature in macro and labor economics has studied how technology and automation affect the distribution of labor incomes. However, they often neglect to recognize the importance of capital income, especially at the top of the distribution. Given automation involves substituting labor with capital, it's important to understand how the resulting additional capital income is distributed and how this affects wealth inequality. To better understand these distributional effects, the authors of this paper develop a theory linking technology to not only personal income, but also to wealth distributions.

There are two key arguments which motivate their model. First, automation increases the demand for capital relative to labor which permanently increases the returns to wealth. This then directly contributes to income inequality and the concentration of capital ownership. Second, relative to theories in which returns are unaffected, in this framework wages are more likely to stagnate as the productivity gains from automation accrue to owners of capital in the form a higher return to wealth.

Deviating from a textbook neoclassical growth model, the authors adopt a perpetual youth structure with imperfect dynasties and let individuals differ in their skills. In the perpetual youth structure, cohorts are born with their labor income but inherit no assets. This structure provides well-defined steady-state distributions for wealth and income. Unlike representative household models, their model generates a long-run supply of capital that is less than perfectly elastic. The upward sloping supply curve determines the equilibrium impact of automation on returns to wealth (prices) and the amount of capital used in production (quantities). By abstracting from other important elements in quantitative theories of the wealth distribution, the authors obtain analytical solutions for steady state aggregates and distributions of wages, incomes, and wealth.

This author provides two main analytical results that illuminate how automation affects inequality in their theory. First, the steady-state return to wealth exceeds the discount rate by a premium. Because this premium determines the equilibrium gap between the return to wealth and the discount rate, it also determines the speed at which individuals accumulate wealth during their lives. Second, conditional on wages, individuals' total incomes follow an exact Pareto distribution in steady state and top tail inequality equals the net capital share. This channel differs from the common argument that a rise in the capital share leads to higher inequality because capital income is more unequally distributing than labor income (Meade, 1964; Pikkety, 2014).

Their theory features the standard mechanism that automation affects the relative wages of different skill types; however, its novel predictions concern wage levels. In their theory, some of the productivity gains from automation accrue to capital owners. The higher cost of capital permanently limits the expansion of investment and output in response to this technological improvement leading to stagnant or falling wages in the long run. This is in contrast to representative household models in which the supply of capital is perfectly elastic. In those models, automation leads to a substantial increase in capital accumulation and higher average wages in the long run (Acemoglu and Restrepo, 2018b; Caselli and Manning, 2018).

Armed with the model and their main analytical results, the authors conduct a numerical evaluation which studies how the automation of routine jobs contributed to overall income inequality. They infer changes in automation at each percentile of the wage distribution by computing its exposure to routine jobs. They find that the automation of routine jobs explains about sixty percent of the observed changes in relative wages. The model also is able to generate a pattern of uneven growth reminiscent of that observed in the US over the last forty years. Their model produces this pattern by generating a decline in real wages at the bottom and middle of the income distribution. It also generates a rising concentration of capital income at the top of the distribution.

Unpacking Skill Bias: Automation And New Tasks

By: Daron Acemoglu, Pascual Restrepo

Discussion Paper 334

The skill-biased technological change (SBTC) model of Katz and Murphy (1992) and Goldin and Katz (2008), which builds off Tinbergen (1974), has been the standard approach to modeling inequality. It assumes factor-augmenting technologies and technological change biased in favor of skilled workers. Though this approach has been successful in conceptualizing and documenting the race between technology and education, it is restrictive in a number of crucial respects. The authors of this paper extend this framework by modeling the allocation of tasks to factors and allowing richer forms of technological changes — in particular, automation that displaces workers from tasks they used to perform, and the creation of new tasks that reinstate workers into the production process.

As argued in Acemoglu and Autor (2011), the SBTC framework does not explain the occupational trends in the labor market of most advanced economies, whereby, rather than general skill upgrading, we see the disappearance of middle-skill occupations, such as production and clerical jobs. More importantly, as pointed out in Acemoglu and Restrepo (2019), the economic mechanism in the canonical SBTC model is the substitution of the tasks and goods produced by skilled workers who are becoming more productive for those produced by less skilled workers. This implies that the canonical SBTC model cannot account for major changes in the US labor market without technological regress. Without technological regress, the SBTC model predicts that real wages of unskilled workers would be rising-when in fact they have declined over the last four decades. Even if the factor-augmenting technology for unskilled workers were constant, the model could only generate the rise in the US college premium between 1963 and 1987 with a growth of 11.3% per annum in the factor-augmenting technology for skilled workers. But this would translate into at least a 1.9% increase in TFP, whereas the US TFP over this time period grew only by 1.2% per annum.

To address these issues, the authors develop a flexible version of the task-based model proposed by Acemoglu and Autor (2011) and Acemoglu and Restrepo (2018, 2019) which allows for richer forms of technological changes. These changes include automation which displaces workers from tasks they used to perform and the creation of new tasks which reinstate workers into the production process. At the center of the framework are (1) the allocation of tasks to different factors of production (skilled labor, unskilled labor and capital); and (2) new technologies that affect the productivity of factors in specific tasks and, as with automation, change the task content of production. In this framework, the impacts of technology on productivity and wages are decoupled and new technologies can easily reduce wages for some workers.

With this model, the authors show that factor prices depend on the set of tasks that factors perform. They also show that automation powerfully impacts inequality, can reduce real wages, and can generate realistic changes in inequality with small changes in productivity. New tasks, on the other hand, can increase or reduce inequality depending on whether it is skilled or unskilled workers that have a comparative advantage in these new activities. The authors then test this model empirically using industry-level estimates of displacement driven by automation and reinstatement due to new tasks. These results show that displacement is associated with significant increases in industry demand for skills both before 1987 and after 1987, while reinstatement reduced the demand for skills before 1987, but generated higher demand for skills after 1987. The combined effects of displacement and reinstatement after 1987 explain a significant part of the shift towards the greater demand for skills in the US economy.

Competing With Robots: Firm-Level Evidence From France

By: Daron Acemoglu, Claire Lelarge, Pascual Restrepo

Discussion Paper 335

Automation performs tasks previously performed by labor which reduces the latter's share of value added and increases value added per worker. The overall effects on employment and wages depend on whether or not this higher productivity increases labor demand by enough to outweigh automation's displacement effect (Acemoglu and Restrepo (2019a)). Acemoglu and Restrepo (2019b) show empirically that the introduction of industrial robots across US labor markets decreased employment and wages which suggests that the displacement effects were significantly larger than the productivity effects. In this paper, the authors continue this line of study by empirically assessing the firm-level implications of robot adoption.

To estimate these firm-level effects, the authors construct a data set of robot purchases by French manufacturing firms. Their sample includes 55,390 firms that were active from 2010 to 2015 in the French manufacturing sector. They collect data on sales, value added, employment (total hours of work), share of production workers, wages, and export prices and quantities. The authors identify 598 firms which purchased industrial robots during this period by checking several sources, including a survey by the Ministry of Industry, client information from French robot suppliers, customs data on imports of industrial robots, and the French fiscal files. These firms tend to be larger and account for 20% of total manufacturing employment.

With this high-quality firm-level data, the authors first estimate the association between robot adoption and firm-level changes in value added, productivity, the labor share, employment, and wages. They control for baseline firm characteristics and industry- and commuting zone-fixed effects. Consistent with their theoretical predictions, they find that robot adoption is associated with a 20% increase in value added, a 4.3 percentage point (p.p.) decline in the labor share, and a 1.6 p.p. decline in the production worker share of employment. The authors also show that employment and hourly wages rise in firms adopting robots. These positive effects are a consequence of the reallocation of output and labor towards firms that reduce their costs relative to their competitors. Firms whose competitors adopt robots experience significant declines in value added and employment. In fact, the overall impact of robot adoption is negative which is consistent with the negative market-level effects documented in the literature.

Finally, the authors use their data to study the decline in the French manufacturing labor share. As in Autor et al. (2019), they find that this decline is explained by a lower covariance between firm-level value added and labor share. However, in their data, this pattern is explained not so much because expanding firms had lower labor shares (or higher markups), but because firms adopting robots are large and expand further as they experience significant relative declines in their labor share.

Asset Bubbles And Monetary Policy

By: Feng Dong, Jianjun Miao, Pengfei Wang

Discussion Paper 336

Large movements of asset prices are often attributed to the emergence and collapse of bubbles as they cannot be explained entirely by fundamentals (Shiller, 1981). The effects of asset bubbles on the real economy and the role of monetary policy in responding to these bubbles have been the subject of a heated debate in the literature. Some argue that monetary policy should not respond to asset prices as asset bubbles are highly unpredictable and including asset prices in monetary policy rules may result in only slight gains (Bernanke and Gertler, 1999, 2001). Others claim that central banks should "lean against the wind", acting preemptively to prevent bubbles from forming by raising interest rates or decreasing money supply to appropriate levels.

This debate is due to the fact that the literature has yet to agree on a theoretical framework for understanding the formation of asset bubbles and the mechanism of how asset bubbles interact with the economy and monetary policy. The authors of this paper contribute to this debate by providing an infinite-horizon model of rational asset bubbles in a dynamic new Keynesian (DNK) framework.

In a frictionless Arrow-Debreu economy, movements of asset prices reflect changes in the underlying economic conditions and rational bubbles cannot emerge. In this type of economy, central banks do not have to worry about asset prices. The authors introduce credit constraints and heterogeneity among entrepreneurs (or firms) in their investment efficiencies. With credit constraints, an intrinsically useless bubble asset can provide liquidity and command a liquidity premium. If all agents believe the bubble asset is valuable, this belief can be self-fulfilling and the bubble asset can raise its owner's net worth. Efficient entrepreneurs sell the bubble asset to inefficient ones to finance investment. The inefficient entrepreneurs buy the bubble asset for precautionary reasons because they may become efficient in the future. The net effect on aggregate investment is typically positive as efficient entrepreneurs raise their investment while inefficient ones must hold the bubble and thus will not invest.

To introduce money and monetary policy, the authors also incorporate a banking system in which banks must meet reserve requirements. Reserve requirements generate a spread between the lending rate and the deposit rate. Households and entrepreneurs can save by making deposits in banks and banks can lend to investing entrepreneurs. The central bank changes the money supply by changing reserves (high-powered money or monetary base). Monetary policy is conducted by following an interest rate rule. In this case money supply is endogenous. To allow monetary policy to have a large impact on the real economy, the authors also introduce monopolistic competition and sticky prices as in Calvo (1983).

In this model, monetary policy can generate, fuel, and prick bubbles. Raising (lowering) the inflation target by raising the money supply erodes (increases) entrepreneurs' real balance and hence their net worth, generating a larger (smaller) liquidity premium for holding a bubble asset. This increases (decreases) the likelihood that a bubble emerges or fuels (depresses) an already existing bubble. The authors also show that a higher inflation target is associated with a higher steady-state size of the bubble. Expansionary monetary policy can raise the initial size of the asset bubble which generates a large amplification effect. The coefficients in the interest rate rule affect the volatility of the bubble and inflation. Lastly, proper monetary policy depends on the interest rate rule adopted by the central bank and on the type of exogenous shocks hitting the economy. Their calibrated model shows that the central bank should cut interest rates in response to positive productivity or investor sentiment shock.

Curse Of The Mummy-ji: The Influence Of Mothers-In-Law On Women In India

By: S Anukriti, Catalina Herrera-Almanza, Mahesh Karra, Praveen Kumar Pathak

Discussion Paper 337

Networks provide a range of benefits and services to their members, especially in countries where markets are missing or imperfect. However, in traditional patriarchal societies, women may have limited ability to access and benefit from existing networks due to restrictive social norms and strategic constraints that are imposed on them by their family members. One such family member, the mother-in-law (MIL), has been shown to play an especially significant role in shaping women's decision making in such societies (Gram et al., 2019). In this paper, the authors study how co-residence with the MIL affects women's access to and use of networks in rural Uttar Pradesh, a north Indian state where women have extremely low levels of empowerment and patrilocality is the norm (Malhotra et al., 1995; Duflo, 2012; Jaychandran, 2015). They also show how these effects on a woman's network have reproductive health consequences.

To study the inter-generational power dynamics within marital households, the authors collect primary data on the social networks of 18-30-year-old married women in Jaunpur district, Uttar Pradesh, in 2018. They find that the women in their sample are quite isolated with few (if any) peers with whom they can talk about reproductive health, fertility, and family planning. These women also are limited in their mobility. Only 14 percent of the women are allowed to go alone to a health facility and only 12 percent are permitted to visit the homes of friends or relatives in their villages by themselves. Finally, the authors show that the social network of their sample of women displays homophily by caste, gender, marital status, and religion.

Compared to a woman who does not reside with her MIL, a woman who lives with her MIL has fewer peers with whom they can talk about issues related to health, fertility, and family planning. The negative relationship is stronger if the MIL does not approve of family planning, wants more children than the daughter-in-law (DIL) desires, or if she wants her DIL to have more sons than she already has. This suggests that the MIL restricts the DIL's mobility to control her fertility and family planning behavior. These restrictions appear to be effective, as the authors find that women with fewer close peers who live outside their households are less likely to visit health facilities to receive reproductive health, fertility, or family planning services, and are less likely to use contraceptive methods.

To identify the causal effect of close outside peers on a woman's family planning outcomes, the authors adopt an instrumental variables (IV) strategy. They instrument a woman's number of close peers outside the household with the interaction of two variables: (1) the proportion of married women in a woman's village who belong to her caste group, and (2) an indicator for whether a woman co-resides with her MIL. The first variable serves as a proxy for the pool of individuals from which a woman's outside peers can be drawn since social interactions in India tend to be gender- and caste-based, which is demonstrated in their data and has been documented in the literature (Hoff and Pandey, 2006; Munshi and Rosenzweig, 2006; Mukherjee, 2017; Kandpal and Baylis, 2019). The second variable serves as a proxy of women's access to their potential pool of peers. Their IV estimates imply that having an additional close peer outside their home increases a woman's likelihood of visiting a family planning clinic by 67 percentage points, relative to the 30 percent probability among women without close peers outside their home in their village. The authors show that peers drive this result by providing information and companionship to women to travel to facilities to seek care.

Lending To The Unbanked: Relational Contracting With Loan Sharks

By: Kevin Lang, Kaiwen Leong, Huailu Li, Haibo Xu

Discussion Paper 338

According to Chaia et al. (2010) there are more than two billion adults worldwide who are defined as "unbanked". Many of these individuals depend on unregulated and, sometimes, illegal lenders. These underground lending markets represent an extreme example of relational contracting as lenders are unable to pursue legal action against borrowers and borrowers are unable to seek protection from law enforcement or the courts. Despite the vast size of underground lending markets, little is known about their inner workings. The authors of this paper provide some basic evidence about the characteristics of borrowers from illegal moneylenders (or loan sharks) in Singapore, the nature of the loan contracts, and the methods used by lenders to enforce repayment. Drawing on this information, they then develop a simple model of the relationship, which they use to predict the effect of enforcement crackdowns on the relational contracts between borrowers and unlicensed moneylenders. Finally, they return to the data and examine this issue empirically.

To collect data on this market in Singapore, the authors hired 48 Singaporean enumerators who had previously been involved in the unlicensed moneylending market. The enumerators helped design the sample of "business locations" and generated contacts with borrowers. The authors collected data in two waves from over 1,000 clients. In the first wave conducted during 2011-2013, enumerators collected information on borrowers' characteristics and their transactions starting in 2009. In the second wave conducted in 2015 and 2016, enumerators re-interviewed nearly of the borrowers from the first wave and collected information on additional transactions after 2013. Both waves resulted in data on 11,032 loans or an average of roughly ten loans per borrower.

Borrowers were overwhelmingly male and generally fell in the lower end of the income distribution. Many were gang members or had spent time in prison. They had particularly low savings. In Singapore, the savings rate averaged 48 percent during their period of study while nearly two-thirds of their sample reported saving less than ten percent of income and only six reported saving more than thirty percent. This big spending stemmed from the fact that many borrowers drank frequently or regularly, used drugs, gambled, and paid sex workers. The borrowers are thus heavily dependent on loans, particularly from loan sharks. The authors also show that borrowers have high discount rates, especially when they have higher debts.

The contracted interest rate in their sample of loans is very high and far in excess of the cap set by Singapore's usury law. The authors show that both the loans asked and the loans granted increase with the number of prior contacts. Though most loans weren't repaid on time, almost all loans were eventually repaid in full, although sometimes the borrower paid by working for the lender. Borrowers reported relatively few incidents of significant harassment when they repaid on time. When they failed to pay in full and on time, harassment almost always ensued. Typical forms of harassment included harassing phone calls, letters, or verbal threats and in more serious cases public harassment, vandalism, and threatened or actual use of the Singapore Pass, a unique online identity the government assigns to every citizen, for illicit purposes.

Their model predicts that increased enforcement increases the contracted interest rate when borrowers have bargaining power. This would make it more difficult for borrowers to repay their loans on time. The model implies no effect on harassment activities conditional on not repaying the debt on time. Consistent with the model, they find that a crackdown on illegal moneylending in Singapore in 2014 raised the interest rate and lowered the size of loans. The increase in the nominal interest rate, from 20 to 35 percent for six weeks, suggests that police activity was successful in making illegal moneylending more difficult and that the bargaining power of borrowers is nontrivial. Somewhat inconsistent with the model, there was an increase in the mildest forms of loan enforcement such as possibly menacing reminders, phone calls, and letters.

Immigration, Innovation, And Growth

By: Konrad Burchardi, Thomas Chaney, Tarek Alexander Hassan, Stephen Terry, Lisa Tarquinio

Discussion Paper 339

Endogenous growth models predict that immigrants bring different ideas, skills, and effort into the research process and/or stimulate demand for new inventions that will stimulate growth (Romer 1990; Jones, 1995). The resulting innovations or growth will also affect local measures of economic dynamism. Despite this theoretical consensus on its potential positive economic effects, immigration is becoming an increasingly contentious political topic. Quantifying its causal impacts is difficult as immigrants are likely to choose destinations that offer the best prospects for them and their families. If these areas are also more innovative, economically dynamic, and fast-growing, then naïve regressions would provide spurious correlations. The authors of this paper address this issue by proposing a formal identification strategy which allows them to identify the causal impact of immigration on local innovation and dynamism.

To identify these effects, one possibility would be to construct a “shift-share” instrument in the spirit of Card (2001), predicting immigration flows using the interaction of pre-existing foreign ancestry shares in a given destination county with the total number of migrants arriving in the US from that origin country. The authors point out that this strategy may not be valid in this context as factors which made US counties more innovative may have attracted many migrants from specific sets of origin countries in the past. This would make the pre-existing ancestry shares endogenous. Given this possibility, the authors instead isolate quasi-random variation in the pre-existing ancestry composition of US counties by taking advantage of the relative attractiveness of different destinations within the US over time and the staggered arrival of migrants from different origins. Specifically, the authors predict immigration to US counties over several periods between 1890 to 1975 using the interaction of these two measures. They use the sum of those predicted flows from origin countries to destination US counties to predict each US county’s 1975 ancestry shares. The authors then predict contemporaneous immigration after 1975 by interacting this pre-existing ancestry composition instrument with each period’s immigration flows.

Using this strategy, the authors find that immigration spurs innovation. The arrival of 10,000 additional immigrants increases the flow of patents over a five-year period by one patent per 100,000 people. It also increases economic dynamism and growth at the local level. A one standard deviation increase in local immigration increases the job creation rate by 7%, the job destruction rate by 11%, the job growth skewness by 3%, and local wages by 3%. These positive effects on innovation and growth diffuse over space, but this spatial diffusion dies out quickly with distance. The indirect effect is 30% smaller for immigration 100km (60 miles) away, 80% smaller at 250km (150 miles), and statistically indistinguishable from zero beyond 500km (300 miles). Lastly, the authors show that the arrival of more educated migrants has a larger positive effect on local innovation and wages.

Firm-Level Exposure To Epidemic Diseases: Covid-19, Sara, And H1ni

By: Tarek Alexander Hassan, Stephan Hollander, Laurence van Lent, Ahmed Tahoun

Discussion Paper 340

Stock markets around the world crashed on March 11, 2020, the day the World Health Organization declared the outbreak of the Covid-19 virus a pandemic. Later that day, US President Trump attempted to calm the markets in an Oval Office address. Instead, major stock indices fell another 10 percent the following day. Understanding how the corporate sector will continue to respond requires knowing which firms are/will be most affected by the disease itself and which ones will be hurt most by the associated uncertainty. In an effort to aid evidence-based policy responses, in this paper, the authors construct a time-varying, firm-level measure of exposure to Covid-19 and other epidemic diseases.

To measure this exposure, the authors introduce a general text-classification method. They identify the exposure of firms to an outbreak by counting the number of times the disease is mentioned in their earnings conference call with financial analysts. The idea behind this approach, which has been used and validated in Hassan et al. (2019, 2020) to measure exposure to other risks/shocks, is that these calls are a venue in which senior management has to respond directly to questions form market participants about the firm's prospects. As in Hassan et al. (2019, 2020), the authors also measure firms' sentiment and risk regarding the epidemic disease which capture their first and second moments respectively. In most countries, these calls are held quarterly which allows the authors to track changes in firm-level exposure to the disease over time.

After constructing the new firm-level epidemic disease exposure measure for Covid-19, SARS, MERS, H1N1, Ebola, and Zika, the authors present patterns which not only validate the measure but are also interesting in themselves. They show that the time-series pattern of exposure to certain diseases follows their infection rates. They also show how countries differ in the average impact of an outbreak and how some sectors are more responsive than others.

The authors then document the most common concerns as of the first quarter in 2020. These include decreasing demand, the disruption of the supply chain and closure of production facilities, and increased uncertainty. In the second quarter, concerns about supply chains appear to ease somewhat, while concerns relating to financing and labor increased. Firms with a higher measured exposure, negative sentiment, and risk to Covid-19 had lower short-window call returns and first-quarter cumulative returns. A smaller subset of firms sees opportunities arising from the disruption of competition in their markets. For these firms, the shock to demand can even be positive. Some firms (especially early on in the pandemic) argue that their business is not affected by the disease. The authors also show that firms which previously experienced an epidemic disease generally have more positive expectations about how the disease will affect future cash flows than firms without such experience.

In sum, this paper provides new data and first evidence on the extent to which epidemic diseases (and in particular the Covid-19 outbreak) affects the corporate world. The data show that the scale of exposure to the coronavirus is unprecedented by earlier outbreaks, spans all major economies and is pervasive across all industries. It also highlights the variety of issues firms and markets worry about amid the coronavirus outbreak. While uncertainty about the consequences of the outbreak is prevalent, it is foremost the firms' expectations about reductions in future cash flows that catch the limelight in earnings calls and explain the stock market's response.

Political Beta

By: Raymond Fisman, April Knill, Sergey Mityakov, and Margarita Portnykh

Discussion Paper 342

It is very common for multinational firms to cite political exposure as a rationale for geographic diversification. Such concerns are exemplified by discussion of Russian oil companies' efforts to broaden their export options as the country's political relations with Europe – its traditional market – have deteriorated. A pipeline to the east has facilitated export opportunities in Asia and China is now its second-largest market (after Germany). The Russian oil companies' expansion is in line with portfolio theory as China's political frictions are relatively uncorrelated (or possibly even negatively correlated) with those of Europe. Motivated by this and other examples, the authors of this paper frame a firm's management of such international political risks as analogous to an investor's portfolio choice problem.

In the model, they formalize this "political hedging" intuition, focused on export decisions, which correspond to their empirical application. They assume that exporting to a destination has two benefits – it increases current revenues, and also serves as "investment" by lowering costs in the next period. Political relations between the home and destination countries also affect profits, and the firm must make current export decisions with no knowledge of future political conditions. Their model yields the straightforward prediction that exports are positively correlated with the warmth of political relations. It also yields a more nuanced "political hedging" result, which is that export behavior responds less to changes in political relations with countries whose political ties are less positively (or even negatively) correlated with those of the firm's other export markets.

To test the model empirically, the authors use firm-by-destination-country administrative data from Russia for all exporting companies during 2001-2011, combined with a measure of bilateral political relations based on United Nations voting records (Gartzke, 2010). With an augmented gravity trade model, they first show that as political relations between Russia and a given country deteriorate, companies decrease their exports to that country. The authors then calculate a firm-specific "political β" which is defined as the regression coefficient of political relations for a given export destination with the (weighted) average political relations of all export destinations for a given firm. As with the standard asset pricing β, their measure captures how much a given "holding" (in their case an export market) adds to the firm's total systematic/non-diversifiable risk (Sharpe, 1964; Lintner, 1965).

Consistent with their model, they find that shifts in political relations with a given market lead to significantly smaller changes in exporting to low political β destinations, since these markets provide a political hedging benefit for the firm's export portfolio. This result highlights the importance of the interaction of country-level political risk in a given firm's (political) portfolio. Notably, as in standard portfolio theory, they find that it is not the volatility of political relations with a given country, per se (political σ), that has an effect on firm's exporting behavior, but rather the non-diversifiable (at the firm-level) component of that country risk (political β). That is, idiosyncratic/diversifiable (at the given firm-level) political risk does not matter.

Finally, they present results based on an aggregated version of their trade data to demonstrate that the political risk management and diversification patterns that they uncover from their firm-by-destination-level analysis cannot be detected using more aggregated trade data. The intuition behind this need for firm-level data is that destination-specific political risk cannot readily be traded among firms within the same country. As such, the risk characteristics of a given market derived from country-level data are unlikely to reflect the (differential) assessment of that risk by individual firms.

Hometown Favoritism And The Quality Of Government Monitoring: Evidence From Rotation Of Chinese Auditors

By: Jian Chu, Raymond Fisman, Songtao Tan, and Yongxiang Wang

Discussion Paper 343

A common prescription to limit theft from and mismanagement of public projects is the threat of ex-post evaluation and audit. Preexisting relationships between the auditor and those under investigation may allow corrupt or inept officials to avoid detection and/or punishment. Conflict-of-interest rules can restrict the most obvious relationships between monitor and target, such as family ties or business relationships. Other less visible or diffuse ties may still facilitate audit-target collusion and compromise the objectivity of oversight. In this paper, the authors examine how such ties affect the findings of provincial auditors of municipal fund expenditures in China. In particular, they focus on the provincial chief auditor's city of birth as a potential connection to audit targets.

To test the "hometown favoritism" hypothesis, the authors look at the outcomes of audits in 277 Chinese prefectures during the years 2006-2016. The frequent rotation of the chief officers of province-level audit departments provides variation for identifying whether lead auditors show greater leniency for audits of their hometown governments. With city fixed effects, the authors find that audits turn up 38 percent fewer suspicious expenditures when the lead auditor is investigating his hometown.

This decrease in suspicious expenditures could be the result of hometown auditors being relatively more informed and thus more effective at deterring misbehavior. If this were the case, then the relationship between hometown audits and suspicious expenditure should be muted early in an auditor's tenure and decrease over time as local governments adjust to the stricter enforcement. The authors do not find any evidence of a differential effect in the auditor's first year, or, as a function of the auditor's tenure more generally. They also find that when the Audit Department is overseen by a powerful provincial department, the hometown auditor effect is halved. This is consistent with the department constraining the chief auditor from engaging in hometown favoritism.

To complement the city-year analyses, the authors also examine whether questionable accounting practices of state-owned enterprises are more common in the presence of a hometown auditor. Unlike the audit outcomes, favoritism and deterrence yield different productions for real activities manipulation. A firm will engage in more questionable accounting practices with a lenient auditor and will avoid accounting red flags when anticipating greater scrutiny. Another benefit of these firm-level analyses is that the SOE sample allows for a more disaggregated analysis, so that the authors can better account for attributes of potential audit targets. Finally, it allows the authors to examine whether the hometown audit effect manifests itself in public expenditure audits as well as evaluations of quasi-public state enterprises. They find results which are consistent with the view that auditors show greater leniency toward hometown officials as real activities manipulation is higher in the presence of a hometown auditor.

These findings highlight the importance of accounting for a wider range of potential conflicts-of-interests in the assignment of monitors. They also have implications for researchers in political economy in modeling the role of social ties in bureaucracies.

Rules, Discretion, And Corruption In Procurement: Evidence From Italian Government Contracting

By: Francesco Decarolis, Raymond Fisman, Paolo Pinotti, and Silvia Vannutelli

Discussion Paper 344

Governments and bureaucracies have to weigh the benefits and costs of constraining the decision making of lower level officials. If given too much discretion, these officials may exploit it for their own personal gain. Constraints may limit this corruption but they can also limit the officials' informational advantage and thus result in inefficient outcomes. In this paper, the authors study the determinants and consequences of discretion in the context of government procurement in Italy.

In the mid-2000s, Italian regulations that govern public procurement underwent a large-scale reform. This was motivated by the government's attempt to stimulate the economy by reducing the procedural times to award public contracts and to improve procurement performance. Before the reform, discretionary contracts could only be deployed for small projects (under 300,000 Euros). By 2011, this limit had been raised to one million Euros. This increased the fraction of auctions conducted via negotiated procedures from less than 20 percent of all auctions before 2008 to nearly 80 percent by 2016.

To estimate the effects of this increase in procurement discretion on corruption, the authors match confidential data on individuals investigated for corruption with firm-level data in procurement auctions during 2000-2016. They show that when this threshold was raised there was not an accompanying increase in the fraction of contracts in the newly discretion-eligible price range that were won by firms investigated for corruption. There is also no discontinuity in the fraction of contracts won by firms investigated for corruption at the discretionary contract threshold. These two results suggest that there was not a discretion-corruption relationship in the Italian procurement process.

Though there is no significant average discretion-corruption relationship, the authors show that there are certain contexts in which discretion is more likely to lead to corruption. First, auction arrangements with few invited bidders or those that involve (potentially subjective) non-price criteria are more likely to result in a corrupt winner. Second, discretionary auctions conducted by investigated individuals are more likely to have these corruptible arrangements while those in locales where suspected corruption is present they are less common. The authors reconcile these results with the classic model of delegation pioneered by Holmstrom et al. (1982) of a principal and agent with no transfers. If the choice of auction design is one of the primary means of oversight by a (non-corrupt) central monitor, then less discretion will be allowed in locales where the probability of corruption is higher and more corrupt officials will deploy discretion to the benefit of corrupt firms.

The authors conclude by providing further evidence consistent with a framework in which a central monitor manages the discretion-corruption tradeoff. The authors show that the average proportion of auctions administered by each official is lower in municipalities with at least one investigated official which suggests that turnover is used to curb corruption. They also show that regions with more corruption are more likely to implement tighter subcontracting rules. This is due to the fact that subcontracting is likely a mechanism for self-dealing as firms investigated for corruption subcontract more often and often subcontract to other investigated firms.

Air Pollution, Affect, And Forecasting Bias: Evidence From Chinese Financial Analysts

By: Rui Dong, Raymond Fisman, Yongxiang Wang, and Nianhang Xu

Discussion Paper 345

Though investment analysts are well-educated, well-trained, and well-motivated to make accurate assessments of corporate earnings (Beyer et al, 2010), environmental conditions may cloud (both literally and figuratively) their judgement. Recent work has shown the link between pollution and trading behavior and stock prices with mood posited as the mediating channel (Levy and Yagil, 2011; Leopori, 2016; Huang et al., forthcoming; and Li et al, forthcoming). In this paper, the authors use the variation in pollution across geographies and time in China to study its effects on earnings forecasts made by investment analysts.

Since 2009, the Shenzhen Stock Exchange has required that all site visits be disclosed. These data allow the authors to identify 3,824 earnings forecasts made by 726 investment analysts across 105 cities in the weeks following corporate site visits during 2009-2015. Consistent with higher pollution leading to increased pessimism, the authors find that a city's air quality index (AQI) on the date of a site visit is negatively correlated with the visiting analyst's subsequent earnings forecast, relative to realized earnings. Since analysts' forecasts are positively biased overall, pollution-induced pessimism brings forecasts closer to unbiasedness.

To identify potential channels through which pollution impacts forecasting bias, the authors start by examining the factors that accentuate the relationship between AQI and the earnings forecast. First, the authors show that the link between pollution and forecast bias dissipates with the time elapsed between visit and forecast, as would be expected if the link between pollution and forecast pessimism were driven by analyst mood during a visit. They also find that the negative pollution-forecast relationship is driven by longer-term forecasts, which involve more guesswork and speculation by the analyst.

The authors then explore how the pollution-pessimism relationship is affected by characteristics of visiting analysts. Most notably, the pessimism associated with pollution disappears for cases in which analysts from different brokerage firms visit the same site on the same date (there is no direct effect of multiple analysts on forecast bias), possibly suggesting a de-biasing effect of multiple perspectives. There is no significant difference in the relationship between pollution and forecast bias across individual analyst attributes that reflect ability or experience. There is, however, a difference in this relationship across where the analysts are based. Forecasts from analysts based in high pollution cities are relatively unaffected by site visit pollution which suggests that analysts acclimate to severe pollution.

Hall Of Mirrors: Corporate Philanthropy And Strategic Advocacy

By: Marianne Bertrand, Matilde Bombardini, Raymond Fisman, Brad Hackinen, and Francesco Trebbi

Discussion Paper 346

Government officials must weigh the quality and impartiality of the information provided by interest groups as it could be tainted by these groups' own interest. Policymakers may view information provided by for-profit corporations as less credible if that information is not corroborated by other groups with non-aligned interests. Non-profit organizations are perceived as having interests unaligned with businesses and thus play a role in balancing the lobbying process. The authors of this paper show how corporations distort policy to their advantage by subverting this role through donations to non-profits.

To establish evidence of the interactions of for-profit and not-for-profit entities, the authors take advantage of the fact that U.S. Federal agencies are legally required to publish proposed rules in the Federal Register, accept public comments on those proposed rules, and consider these comments before rules are finalized. While there is no legal requirement for agencies to act on feedback received in the comments, the agencies themselves often attribute changes between proposed and final rules to arguments made via rulemaking. The authors create a dataset that includes the vast majority of these comments submitted in the rulemaking process since 2003 and all related regulatory material along with the identity of the commenter. They then combine this comment data with data on charitable donations by foundations linked to corporations in the S&P 500 and Fortune 500 between 1995 and 2016 through detailed tax forms filed with the Internal Revenue Service (IRS).

Using this data and natural language processing and machine learning tools, the authors document three robust patterns. First, shortly after a firm donates to a non-profit, that non-profit is more likely to comment on rules on which the firm has also commented. Second, when a firm comments on a rule, the comments by non-profits that recently received grants from the firm's foundation are systematically closer in content to the firm's own comments, relative to comments submitted by other non-profits. Third, the final rule's discussion by a regulator is more similar to the firm's comments on that rule when the firm's recent grantees also commented on it.

The authors explain the two theoretical interpretations of the findings. In the "comments-for-sale" view, grantees may simply be "for sale" and willing to change the content of their comments to regulators in exchange for corporations' financial support. In the more benign "comments facilitation" view, donations may serve to relax the budget constraints of selected grantees. As new regulations are proposed, a firm precisely targets with donations non-profits that happen to be aligned with its interests at that particular point in time to keep them afloat so that they can provide an independently similar viewpoint to regulators. While the negative welfare consequences of a "comments-for-sale" scenario are immediate, the authors show that, even if corporate grants' only effect is to relax the grantee's budget constraint, this can also lead to distorted policy making.

Growth, Automation, And The Long-Run Share Of Labor

By: Debraj Ray and Dilip Mookherjee

Discussion Paper 347

Growing evidence worldwide for a declining labor income share (Karabarbounis and Neiman, 2014) has generated active debate and research. In Capital in the 21st Century, Piketty (2014) seeks to explain this core aspect of modern economic growth. His $r > g$ explanation has been criticized as it is a familiar transversality condition in many growth models which exhibit no decline in labor share. Explanations based on capital substituting for labor along an aggregate CES function are also problematic as they require capital-labor substitution elasticities that are larger than empirical estimates available. Other explanations such as globalization, declines in firm competition and the bargaining power of labor and technical progress that favors automation may play some role. But Karabarbounis and Neiman show that half the observed decline in labor share is accounted by declining prices of capital equipment, even after controlling for all these other factors. In line with this evidence, the authors provide an explanation driven by capital accumulation alone, one that operates even in the absence of changing concentration, skewed bargaining power, or technical progress.

To do this, they study a dynamic general equilibrium model of growth and distribution with two distinctive features. First, individual claims to physical capital can be scaled indefinitely while human capital accumulation is contained in one physical self. Second, physical capital can take the form of machines, which are complementary to human labor, or robots, a substitute for it. The threat of replacing humans with robots exists in every sector and can be activated if the ratio of sector-specific wages to robot prices is large enough.

Besides these features, a key concept in their theory is the possibility of using machines and robots to produce robots. This self-replication condition is placed on the robot sector alone and ensures the economic viability of producing robot services from machines and robot services alone. They show that that this implies that firms in every sector have the option to automate at some finite cost, which restricts wage growth for human workers.

Faced with the automation threat, workers in those sectors respond by acquiring education and moving to other less-threatened sectors where humans have a stronger comparative advantage over robots. Automation is therefore consistent with unbounded growth in the wages of some or all workers, who could manage to stay ahead of the threat by entering high-skill occupations in high-demand sectors. Nevertheless, if preferences are asymptotically homothetic, the authors show that the aggregate share of such sectors in the economy must eventually shrink, and the growth in human wages will fail to match the growth of capital incomes. In the long run, the share of labor in national income converges to zero.

Their theory helps identify four possible escape routes from the prediction of an asymptotically declining labor share. The first is a failure of the self-replication condition, in which case sustained automation is not guaranteed. The second is the sheer impossibility of full automation in some sectors. The third has to do with a particular structure of preferences. If preferences are non-homothetic in a direction that aligns with ever greater "human-friendliness" in production, then human labor might perpetually retain a positive share of income. The fourth involves opportunities for technical progress biased in favor of human labor.

A Theory Of Progressive Lending

By: Dyotona Dasgupta and Dilip Mookherjee

Discussion Paper 348

In developing countries, Microfinance Institutions (MFIs) utilize various mechanisms in order to incentivise poor borrowers to repay while trying to help them earn higher incomes. Progressive lending is one such strategy, where first time borrowers are allowed to borrow a small amount, with future loan sizes growing over time depending on repayment rates on past loans. This paper provides a theoretical rationale for such a strategy, and explores the short- and long-term implications for borrowers income and asset growth.

The paper studies a dynamic model of efficient lending contracts between a borrower lacking collateralizable wealth who cannot commit to a long-term relationship, and a lender who can commit. The borrower prefers to smooth consumption intertemporally and maximize present value of her lifetime utility by accumulating wealth via saving at a constant interest rate equal to her intertemporal discount rate and/or investing in a concave production technology. Loans help finance investments and smooth consumption. As borrowers' post-default outside options are increasing in wealth accumulated so far, the lender may want to limit the scope for borrowers to use loans to escape poverty. The moral hazard problem is eased by 'specificity' of borrower assets to the relationship with the lender in the following sense: if the borrower defaults and terminates the relationship her assets generate a lower rate of return, owing to withdrawal of access to technology or marketing assistance provided by the lender. In the absence of such specificity, it is well known (e.g., Bulow and Rogoff, 1989; Rosenthal, 1991) that no lending contract exists that would enable the lender to break even and the borrower to be better off compared with autarky.

The authors show that the lender can without loss restrict attention to a sequence of one-period loans offered conditional on repayment of past loans and achievement of stipulated investment targets. Moreover, loan contracts are conditioned on a single state variable, a measure of net wealth of the borrower equal to the value of current output, less debt repayments due. The authors obtain a recursive representation of Pareto efficient contracts maximizing the welfare of an agent. This allows them to represent the incentive constraint in a tractable manner and characterize the dynamics of the agent's investment, wealth, and consumption.

With this representation, the authors find that agents with initial wealth above some threshold can achieve first-best welfare in a steady state where investment is first-best and consumption perfectly smoothed. For agents with wealth below this threshold, they show that the optimal strategy can be implemented by a progressive lending strategy, where loan amounts are strictly increasing in net wealth. Though allocations are distorted at every date, investment and consumption grow over time and eventually the allocation converges to the steady state corresponding to the first-best threshold.

The model therefore provides a rationale for the practice of progressive lending used by MFIs. These results imply that this kind of lending provides repayment incentives efficiently, ensures that the lender's profits targets are met, and enables poor borrowers to escape poverty and accumulate wealth. The authors conclude with some comparative dynamics and extensions. The model shows that "aid" from an outside institution yields short-run increases in investment and consumption but leaves the long-run allocation unaffected.

Islam And The State: Religious Education In The Age Of Mass Schooling

By: Samuel Bazzi, Masyhur Hilmy, and Benjamin Marx

Discussion Paper 349

Besides providing increased access to education, mass public schooling initiatives are often designed to foster secularism, national identity, and nation building. This was the case for Indonesia's celebrated Sekolah Dasar (SD) Presidential Instruction (INPRES) policy in the 1970s which sought to limit religious influence in society (Boland, 1982) by moving towards a single national curriculum. Though SD INPRES achieved its developmental objective (Duflo, 2001), it failed in this political objective as Islamic schools continue to play a significant role in education markets in Indonesia today. The authors of this paper show how these schools responded to SD INPRES and thus counteracted the secularizing impacts of mass schooling.

With oil revenues from the early 1970s, the Suharto regime prioritized development spending which included a large allocation for primary school construction. Up to 61,000 schools were constructed between 1973-1980 under the SD INPRES program. These schools were accompanied by mass hires of teachers and the removal of primary school fees in 1977. To secularize and homogenize education, the regime initially required that formal education must be administered by the Ministry of Education. Some Muslim leaders strictly opposed this decree and the government allowed the madrasas, schools that offer substantially more religious content in their curriculum, to remain under the Ministry of Religious Affairs (MORA).

To study how SD INPRES affected education markets over the short- and long-run, the authors assemble survey data with breakdowns by madrasa and secular education, registries which include information on the universe of religious schools, and a database on schools' curricula. They also use text from legislative candidates' campaign documents in the 2019 election and linguistic proxies for religious and national identity to analyze downstream outcomes. The authors use the standard difference-in-differences specification from Duflo (2001) to identify these effects. For religious school attendance and downstream outcomes, the strategy compares the difference in outcomes between cohorts young enough to be exposed to the program to those too old to have directly benefitted from the program in districts with more and less exposure to school construction. For the supply-side responses, the strategy compares the number of new religious schools constructed in each year before and after 1972 in districts with varying levels of INPRES intensity.

In the short-run, SD INPRES decreased attendance in primary madrasa. However, it also increased demand for secondary schooling. The authors show that secondary madrasa entered to capitalize on this growing demand. The demand- and supply- side responses increased the likelihood that exposed cohorts completed any Islamic education. This pattern persisted in the next generation as these cohorts' children were also more likely to have attended Islamic schools. Besides the quantity response, Islamic schools in more exposed districts also responded by devoting more time to Islamic subjects such as Islamic law (fiqh), theology (aqidah), ethics (akhlaq), and Arabic instruction counteracting the state's efforts to homogenize and secularize education.

INPRES did not increase support for Suharto's political party, Golkar, in the 1977, 1982, and 1987 elections. Rather, Islamic parties, the main opposition of Golkar, gained in the immediate aftermath in districts with greater INPRES intensity. The responses of Islamic schools also prevented the program from promoting identity and nation building. The authors show that exposed cohorts did not increase support for nation building or the use of the national language and that candidates from exposed cohorts were less likely to campaign on nation-building themes. Exposed cohorts instead report greater engagement with Islam, are more likely to be literate in the Arabic language, and exhibit greater piety. In aiming to limit religious influence, the authors show that SD INPRES actually increased religiosity. Taken together, these results show how the ideological effects of mass schooling depend on the response of non-state schools.

How Should Policy Responses To The COVID-19 Pandemic Differ In The Developing World?

By: Titan Alon, Minki Kim, David Lagakos, and Mitchell VanVurenx

Discussion Paper 350

As COVID-19 made its way to less-developed countries, it quickly became clear that many of the dramatic and unprecedented responses in the west were not applicable in the developing world due to three key differences. First, these countries lack the fiscal capacity to make substantial transfers to populations for long periods of time. Without these transfers, lockdowns are economically infeasible as many households live hand-to-mouth. Second, enforcing lockdowns is especially difficult in this context given the size of the informal sector. Third, the potential health consequences of the pandemic are also quite distinct from those of the west, which has an older and more susceptible population but substantially more developed healthcare systems. In this paper, the authors study how aggregate policy should account for these differences so that developing countries can limit the pandemic's death count as well as its negative economic consequences.

To do this, the authors combine a workhorse macro model with a variant of the SIR model standard in epidemiology. The model features fiscal capacity constraints which reduce the ability of governments to tax and transfer resources across households and adds an "informal sector" as in Ulyssea (2018) and worker sorting on skill as in Roy (1951) and Feng, Lagakos, and Rauch (2018). The authors allow for hand-to-mouth consumers, which is the emphasis of Kaplan, Moll, and Violante (2020), and healthcare capacity constraints as in the recent macroeconomic literature on the pandemic. They model the epidemiological dynamics in the model using a variant of the SICR model that is standard in the epidemiology literature, combined with economic choices that govern the disease path endogenously, as in the macroeconomic literature on disease transmission.

To compare the differences in optimal policy responses between developed and developing countries, the authors parameterize the model to match the prepandemic stationary distribution of both a representative advanced economy and a representative developing economy. They compute the model's equilibrium response to the pandemic as a surprise shock where a small exogenous fraction of the population becomes infected with the coronavirus and the disease makes its way through the populous. Lastly, they simulate the effects of various types of lockdowns in the advanced and developed economies and compare their impacts on GDP, fatalities, and consumption-equivalent welfare.

The model predicts that blanket lockdowns do less to reduce the welfare costs of the COVID-19 pandemic in developing countries and save fewer lives per unit of lost GDP. Their estimates imply that a medium length blanket lockdown lasting 28 weeks in developing countries saves about half as many lives per unit of economic output lost as it does in advanced economies. It raises welfare (as measured by a consumption equivalent welfare metric) by around 3 percent in the advanced economy, compared to just 0.6 percent in the developing country. Older households gain a lot more from these blanket lockdowns in developing economies. Age-specific lockdowns are even more potent in developing countries. Older individuals reflect such a small share of the total population and these policies allow the government to isolate them and provide them with larger transfers than they would be able to under the blanket lockdowns.

Overall, the quantitative analysis in this paper points to age-specific lockdowns as the most promising form of lockdown for developing countries, though of course many logistical issues are still open. The authors are careful to mention that there are many other relevant aspects of developing economies that they have not modeled in the paper. They hope to add some of these aspects in their analysis in the future.

FACULTY PROFILES

Marianne Baxter's research is in the fields of macroeconomics and international economics. In research related to her prior work on macroeconomic consequences of home production, she has been engaged in a large-scale econometric analysis of household expenditures and household time use as they pertain to home production. She is also working with a data set using IKEA catalogs from many countries and up to twenty years to study the determinants of departures from the law of one price.

Samuel Bazzi's research lies in development and political economy. His core research is organized around three themes: (1) understanding barriers to migration, (2) political and cultural challenges to nation building, and (3) the scope for public policy to foster integration in diverse societies. Another strand of research explores agglomeration spillovers and constraints to firm growth.

Rachel Brulé is an Assistant Professor of Global Development Policy at Boston University's Frederick S. Pardee School of Global Studies, Graduate Faculty with BU's Department of Political Science, a Core Faculty at the Global Development Policy Center and affiliated faculty with the Institute for Economic Development. Her research expertise is in comparative politics with a substantive focus on gender, South Asia, the political economy of development, political representation, and institutions. Her research combines careful causal identification with innovative theory building to understand the conditions under which policies intended to improve equality may deepen inequality, as well as when, how, and why crises may mobilize long-term support for improving equality.

Christophe Chamley's research is on social learning, coordination of expectations and markets in macroeconomics, and in the history of states' finances from 5000 BC to the 19th century.

Randall Ellis' recent research focuses on how health care payment systems affect consumers, health care providers and health plans. He is actively using big data to address policy issues, consumer demand, and provider behavior. He continues to conduct research on risk adjustment and predictive modeling, which resulted in the payment models used in the US since 2000 and Germany since 2009, with similar models being adopted in other countries. He was recently awarded a grant from HHS Agency for Healthcare Research and Quality for "Advanced Risk Adjusters and Predictive Formulas for IDC-10 Based Risk Adjustment". He is also working on health care innovation, feasible transitions to Medicare for All, and children with medical complexity. He blogs regularly about health economics topics, recently about COVID-19. He is currently collaborating with researchers in the US, Netherlands, France, and Brazil.

Raymond Fisman works in two main areas of political economy --- the causes and consequences of inequality, and corruption. His recently work on the consequences of social ties in Indian banking was recently published in the American Economic Review, and his research on social ties and favoritism in Chinese science in the Journal of Political Economy. His book on corruption, with political scientist Miriam Golden, was published in April 2017.

Martin Fiszbein works in the fields of economic growth, development, history, and urban economics. In particular, his research seeks to understand the dynamics of structural change, human capital formation and economic growth. In a series of current projects, he studies the effects of the production structure on patterns of long-run growth. This works examines predictions from a variety of macro-development and urban economics models using rich subnational data from the United States and from Argentina.

Ivan Fernandez Val specializes in theoretical and applied econometrics. He has recently been working on nonlinear panel data and distributional methods with applications to labor economics and other fields.

Stefania Garetto is a trade economist whose work is centered on the study of foreign direct investment and the activities of multinational corporations, both from a real and from a financial perspective. Stefania's current research combines empirical analysis and structural dynamic modeling to understand the creation of multinational firms via mergers and acquisitions, and their expansion in space over time. She is a research associate of NBER and a research fellow of CEPR.

Siddharth George's research interests are in development economics, political economy, and labor economics. For example, he has explored the economic effects of political dynasties in India since 1862.

Tarek Alexander Hassan's research focuses on international finance and social factors in economic growth and macro-finance. His work in international finance focuses on large and persistent differences in interest rates across countries and the effect of exchange rate manipulation on the allocation of capital across countries. Another set of papers studies the effect of social structure on economic growth and the effect of historical migration and ethnic diversity on foreign direct investment.

Mahesh Karra is an IED affiliate and Assistant Professor of Global Development Policy at the Frederick S. Pardee School of Global Studies and Associate Director of the Human Capital Initiative at the Global Development Policy Center. His academic and research interests are broadly in development economics, health economics, quantitative methods, and applied demography. His research utilizes experimental and non-experimental methods to investigate the relationships between population, health, and economic development in low- and middle-income countries.

Robert King focuses his research on monetary policy and macroeconomics. Particular areas of current interest are the nature of price dynamics, the influence of reputation and credibility on optimal monetary policy, and the history of banking markets.

Laurence Kotlikoff specializes in fiscal policy, macroeconomics, money and banking, computational economics, healthcare, and personal finance. He also works on the economics of robots. The author or co-author of 19 books and hundreds of journal articles, Kotlikoff is also a prolific columnist and a #1 NY Times Best Seller author. His columns have appeared in the New York Times, the Wall Street Journal, Bloomberg, Forbes, PBS.org, VOX, and many of the other top newspapers and magazines in the U.S. and abroad. His recent work has focused on carbon taxation, inequality and fiscal progressivity, work disincentives and labor supply, the causes of the great recession, the future of global economic power, computing large scale life-cycle models with aggregate shocks, and modeling the economic impact of artificial intelligence.

David Lagakos conducts research in the fields of macroeconomics and development economics, focusing on the determinants of sectoral productivity levels, human capital accumulation, structural transformation, and cross-country differences in labor market outcomes, among other topics. His research has appeared in the American Economic Review, the Journal of Political Economy, the Quarterly Journal of Economics and other prominent academic journals. He currently serves as an editor of the Review of Economic Dynamics and a co-editor of the Journal of Development Economics. Since 2016 he has worked as the lead academic for the International Growth Centre in Ghana, helping to foster policy-relevant academic research on economic growth. Lagakos is a research affiliate at the NBER and is a co-organizer of the annual NBER conferences on Economic Growth and Macroeconomics Across Time and Space.

Kevin Lang's research concerns education and labor markets, with a particular focus on discrimination. While his work is primarily centered on the United States, he is currently involved in projects in Singapore on the market for illegal money-lending and on incentives in the retail illegal drug market.

Robert Lucas has completed two books in the last year. Crossing the Rural-Urban Divide: A Compilation of Prior and Fresh Evidence from Developing Countries is under review for publication. This volume includes critiques and summaries of the existing literature on migration between the rural and urban sectors of developing countries, and presents fresh analyses of micro data from 75 countries on various aspects of these migrations, contradicting the conventional wisdom in some cases, supporting it in others, but also addressing several topics not previously examined. Portions of this book were presented in Abu Dhabi and the UK in the spring of 2020 before the pandemic curtailed further international presentations. Migration and Development: The Role for Development Aid was published in 2019 by the Swedish Ministry of Justice and presented in Stockholm. This report critically examines aid policies in the context of global, cross-border migrations and refugee flows, with recommendations on the future role of aid in fulfilling the objectives of the Global Compact for Safe, Orderly and Regular Migration. Lucas has now gone on to examine the connections between short-term migration, food security and child health in seven countries of Sub-Saharan Africa.

Robert A. Margo's recent publications include "Gallman Revisited: Blacksmithing and American Manufacturing, 1850-1870," (with Jeremy Atack) in the January 2019 issue of Cliometrica; and "Automation of Manufacturing in the Late 19th Century: The Hand and Machine Labor Study," (with Jeremy Atack and Paul Rhode) in the Spring 2019 issue of the Journal of Economic Perspectives.

Jianjun Miao continues to work on two lines of research. The first concerns macroeconomic implications of financial frictions, specifically business cycle and growth implications of bubbles and credit constraints. The second involves new models of ambiguity sensitive preferences and applications to macroeconomics and finance.

Yuhei Miyauchi's primary research interest is to understand how socio-economic activity is shaped within cities and across regions. Yuhei tackles these questions using a combination of theory and new sources of granular data, such as cell phone, smartphone transaction data and firm-level transaction data.

Dilip Mookherjee works on a combination of theoretical and empirical topics related to development economics. Current empirical projects focus on various Asian countries, addressing topics such as political clientelism and delivery of welfare programs, middlemen and marketing supply chains, and the role of local community networks in financial intermediation and entrepreneurship. His theoretical interests include effects of automation on income distribution, and control of collusion in hierarchies. He is a member/fellow/affiliate of BREAD, CEPR, EDI and the NBER Development groups, and Lead Academic of the IGC India Program.

Andrew Newman is currently engaged in several research agendas pertaining to organizational economics, industrial organization, institutions, inequality, and the economics of the household. Recent work involves a unifying organizational- and industrial-economics theory of endogenous market structure. Other work develops testable theories of how firms' internal organization decisions such as outsourcing or vertical integration interact with markets and how those decisions in turn affect product market performance, particularly in the face of globalization. He has been contributing to the economic theory of matching markets and applying that to affirmative action policies. He is also exploring how the processes by which people learn about their economic environment can lead to organizational dysfunction and change.

Daniele Paserman specializes in labor, applied microeconomics, political economy and behavioral economics.

Natalia Ramondo is a trade economist whose research is focused broadly on issues of globalization, particularly with respect to the role of multinational firms. Ramondo is part of a new wave of economists using quantitative models and detailed datasets to understand the welfare gains (and losses) from various forms of economic openness. Her research is theoretically rigorous, timely, and relevant for policy.

Pankaj Tandon concentrates on technological change, microeconomics, public enterprises, and food policy. He has worked on evaluating privately financed infrastructure projects and privatization programs. His main field experience has been in Egypt, India, Mexico, and Venezuela.

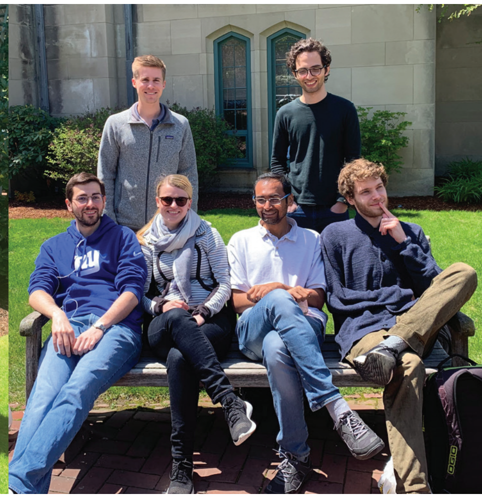
Professors Emeriti: Peter Doeringer, Shane Hunt, and Gustav F. Papanek

Featured Professor Emeritus: Gustav F. Papanek

Gustav Fritz Papanek was recruited by Paul Rosenstein-Rodan to join the Economics Department in 1974. Professor Papanek served as chair of the Department from 1974 to 1983, a period marked by substantial growth in faculty and the internationalization of the Department's graduate programs. He also founded the Center for Asian Development Studies at Boston University and was Director of the Center until 1989. He was appointed as Professor Emeritus when he retired from the University in 1992. Professor Papanek's research has focused upon development strategies with a particular emphasis on implications for employment and poverty alleviation. His work has appeared in the American Economic Review, the Journal of Political Economy, the Quarterly Journal of Economics, and the Economic Journal, as well as in many development field journals, and he has authored several books.

Over the span of his career, Professor Papanek has been active in policy advising. Prior to joining Boston University, Professor Papanek was Director of the Harvard Development Advisory Service from 1958-1970 when he was also Director of the Advisory Group to the Pakistan Planning Commission, and from 1970-1973 he directed the Advisory Group to the Planning Commission of Indonesia. He has provided economic advice to scores of prime ministers, presidents, ministers, central bank governors and senior officials, not only in Indonesia and Pakistan but also in such countries as: Argentina, Bangladesh, Colombia, Egypt, Ethiopia, Ghana, Greece, Guinea, India, Iran, Korea, Liberia, Malaysia, Micronesia, and Sri Lanka. During his time at Boston University, the Economics Department became known as one of the leading departments in development economics, the Department's development research centers flourished, and the Department attracted faculty and graduate students from all over the world. The Institute for Economic Development and the Economics Department are organizing a conference in honor of Professor Papanek to be held on October 22, 2020, with participation by a number of the alumni from Asia who passed through Boston University during this era, many of whom have gone on to illustrious and influential careers in government and international organizations, as well as in academia.

Graduate Students


2020 Abdala and IED Summer Fieldwork Grant Recipients

This program was created in 2019, to fund research fieldwork of graduate students. These grants are made possible by a generous gift from alumnus Manuel Abdala. Fieldwork is broadly defined to include conduct of surveys, interviewing, collecting archival/historical data, or performing laboratory experiments, along with associated activities necessary to carry out a research project.

The 2020 grants provided funding in the range of $3k- $10k each to the following PhD students' research: Gerard Domenech Arumi, "Perceived Inequality and Preferences for Redistribution in Spain", Matteo Ferroni, "Estimating Acceptance of Corruption", Thomas Gautier, "A Contracting Field Experiment in Malawi", Thomas Pearson, "Aiding Integration of Venezuelan Migrants in Colombia", Silvia Vanutelli, " Independent Monitoring and Local Governance in Italy, and Corinne Stephenson "When Politics and Academia Collide: Evidence from Erdogan's Turkey".

The MA awardees were Tanya Mishra, "Can I get that in writing: Lessons from a Contracting Field Experiment in Urban Malawi", and Hyun Soo Suh, "Examining the Impact of Family Planning on Fertility, Maternal and Child Health, and Economic Well-Being from a Field Experiment in Urban Malawi".

2020 Summer fieldwork has been delayed due to the global impact of COVID-19 on travel; therefore, Abdala and IED summer fieldwork grants will be extended until May 2021 and project summaries will be reported in the 2021 Summer Research Review.

2020 Rosenstein-Rodan Prize: Lisa Tarquinio

This program was created in 2019, to fund research fieldwork of graduate students. The Rosenstein-Rodan prize is awarded annually for the best paper in a development-related area written by a PhD economics student. The 2020 Rosenstein-Rodan Prize was awarded to Lisa Tarquinio (Economics), for her paper ***`The Politics of Drought Relief: Evidence from Southern India'.***

Abstract

In developing countries, and particularly so in rural areas, there is an inextricable link between livelihoods and the environment. Natural disasters therefore threaten the livelihoods of these households, with this paper showing a reduction in overall economic growth, as measured by nighttime lights, following a drought. This paper demonstrates that government intervention in the form of social drought declarations, particularly if appropriately targeted, has the potential to avoid such dynamics in areas affected by drought. However, in this paper, I also show that the targeting of relief to drought- affected areas through social drought declarations in Karnataka, Andhra Pradesh, and Telangana, India is disrupted by political motivations even when a rules-based allocation program is in place. The observed increase in likelihood of a declaration caused by rising electoral competition is consistent with a model of allocation driven by the state ruling party's re-election motives.

2020 Rosenstein-Rodan Honorable Mention: Yuheng Zhao

Yuheng Zhao was selected for Honorable Mention, for his paper ***`The Impacts and Mechanisms of School Consolidation: Evidence from Rural China 1989-2015'.***

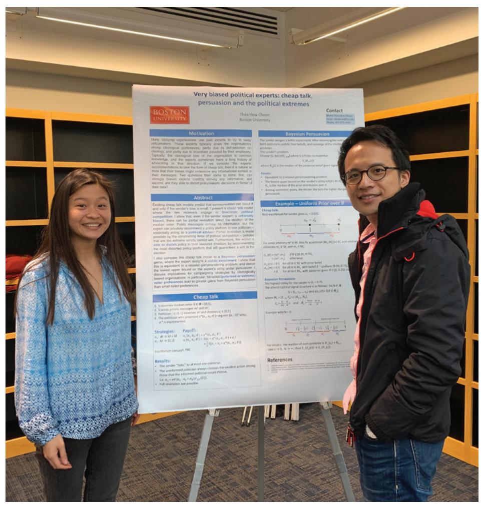
Abstract

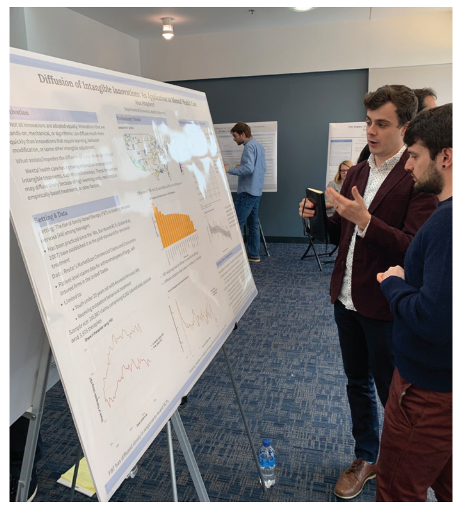
This paper estimates the impacts and mechanisms of school consolidation program in rural China since the late 1980s. Using a large household survey in China between 1989 and 2015, I identify the causal impact of school closure through a generalized dif-in-dif framework. Local primary school closure was associated with a 0.85 years decrease in average education attainment for treated individuals in villages with school closure. This impact was partly driven by a delay of enrollment and grades repetition. But there was no evidence for decrease in lifetime education attainment. School consolidation increased the lifetime education for females, especially for those in the low quantile, but it also increased the low grade drop out at the same time. Besides education, individuals exposed to closure on average would get married later and be more likely to have a non-agricultural occupation. The school closure also stimulated migration in China, as parents with school age children exposed to closure had higher probability of migration for work.

Student Placement

This year, fifteen graduating BU Ph.D. students have accepted job offers. Among the accepted jobs, five are tenure-track positions in universities, one is a post-doctoral fellowship, three are governmental positions, and five are in private companies. Congratulations to our Ph.D. graduates!

Calvin Ackley, Economist, Bureaus of Economic Analysis; **Fatima Aqeel,** Assistant Professor, Colgate University; **Seth Benzell,** Assistant Professor, Chapman University, Argyros School of Business; **Chelsea Carter,** Senior Economist, Government Accountability Office; **Jacob Fabina,** Economist, US Census Bureau; **Xiangyu Feng,** Assistant Professor, Xiamen University; **Thea How Choon,** Assistant Professor, St Lawrence University; **Yeseul Hyun,** Associate, Analysis Group; **Jia De Gedeon Lim,** Assistant Professor, University of Hong Kong; **Giovanna Marcolongo**, post doctoral position, Bocconi University, Italy; **Petra Niedermayerova,** Associate, Analysis Group; **Julia Richers,** Morgan Stanley, Vice President, Global Economics Research; **Gianluca Russo,** Post-Doctoral Fellow, Universitat Pompeu Fabra; **Colin Shanks,** Associate, Cornerstone Research; **Manni Yu,** Associate, JP Morgan Chase & Co.





ALUMNI NEWS

Annual Distinguished Alumni Award: Lisa Emsbo-Mattingly

The Institute for Economic Development and the Department of Economics continued the annual award to honor a distinguished alumnus. The Department Chair and IED Director, along with a few senior faculty, established this award to recognize the remarkable accomplishments of our alumni and to inspire and motivate current students in the department. The 2020 Distinguished Alumni Award was awarded to Lisa Emsbo-Mattingly received a Master of Arts in Economics from Boston University in 1996, after taking courses in econometrics, industrial organization, and labor. Catching the early wave of opportunity in finance, she began her career at DRI/McGraw-Hill (now IHS Global Insight) and worked at the Eastern Research Group before joining Fidelity Investment as an economic analyst in the international forecasting division. At Fidelity, she was promoted to become Director of Economics Research and then advanced again to become Director of Research, Global Asset Allocation. In this role she leads the development of asset allocation and macro investment recommendations for Fidelity's portfolio managers and investment groups. Doing this well entails constructing models and conducting fundamental economic research, and effectively communicating results.

Lisa is a sought-after speaker at academic and business meetings because of her wide expertise in macroeconomics and financial markets. She is especially known as an active scholar and spokesperson on China and its role in trade and international growth. She is also a regular speaker on issues related to women, having spoken recently at the Boston Women in Finance group. She is also the only one of our Distinguished Alumni awardees who is a listed inventor on four pending and active patent applications for software related to portfolio management across seasonal and cyclical markets.

Lisa views herself as a "business" economist and is a former President of both the National Association for Business Economics and the Boston Economic Club. For those unfamiliar with what it means to be a "business economist" she emphasizes that "business economists are not members of the high church of academic orthodoxy". Instead, they are economists with a "tool kit" consisting of "research functions, such as business cycle analysis, demographics research, data analytics, primary research, diversity of thought, and client research". This tool kit "also includes personal skills that should be cultivated and practiced, such as curiosity, maintaining a nonpartisan view, humility, courage, and effective communication."

In her spare time, Lisa is a regular participant in the annual Pan-Mass Challenge, in which she bicycles long distances to raise money for cancer treatment and prevention.

Lisa will be honored at a joint 2020-2021 Distinguished Alumni Awardee reception in May 2021.

Featured Alumni

Dr. Manuel A. Abdala

PhD 1992

Manuel Abdala is currently the Senior Managing Director with Compass Lexecon and benefactor of the Manuel Abdala Grant. We pay tribute to Dr. Abdala for his generous donation to BU in 2019 which funds selected PhD students' summer fieldwork in development economics.

Manuel Abdala has published extensively on topics covering infrastructure economic regulation, institutional design, utility privatization and valuation, industry structure, and competition policy. Dr. Abdala has completed projects on ex-post privatization analysis in several countries, including various research studies led by the World Bank. He has also served as key economic advisor to Argentina's Secretariat of Energy on the energy sector reform that took place in the 1990s. He has conducted numerous works and studies for private companies and public institutions related to business valuation, damage analysis, and regulatory analysis of infrastructure projects in several countries, including Algeria, Argentina, Azerbaijan, Bolivia, Brazil, Bulgaria, Canada, Chile, China, Colombia, Costa Rica, Croatia, Dominican Republic, Ecuador, Egypt, El Salvador, Georgia, Guatemala, Hungary, India, Italy, Kazakhstan, Mexico, Netherlands, New Zealand, Panama, Paraguay, Peru, the Philippines, Poland, Puerto Rico, Russia, Senegal, South Korea, Spain, Trinidad and Tobago, Turkey, the United States, the United Kingdom, Ukraine, Uruguay, and Venezuela.

Dr. Paul Karner

PhD 2012

Paul Karner will help spearhead a new leadership council of graduates from the PhD program. The Council, conceived of prior to the pandemic, was originally envisioned to help connect current PhD students with alumni and coordinate activities of mutual interest, such as research, data access, and job market informational sessions. With the pandemic now expected to severely impact the PhD job market, those connections and the coordinating role of the new Council may be more important than ever.

Paul completed the PhD program in 2012 with a focus on development economics. In his dissertation, "Family Networks and Household Outcomes in an Economic Crisis", supervised by Prof. Mookherjee, he used panel survey data from Indonesia to explore the role of remittances in how households responded to the 1998 global financial crisis. After graduation, he worked for the economics consultancy Analysis Group and served as Research Director for The Betsy Lehman Center for Patient Safety, a Massachusetts state government agency. Paul now runs the economics and data science consultancy Horizon Data Science.

Alumni Engagement

The IED works in close partnership with the Department of Economics' MA Alumni Council and newly formed PhD council to foster a cohesive relationship between the department, current students, and alumni. Through the organization of academic and social events, the IED aims to provide collaborative experiences to our vast network of alumni.

Master's Alumni Council

The Master's Alumni Council (MAAC) continues to provide support to our Master's students with career development events through the year. This past year the MAAC sponsored an excel workshop, mock interviews, and a career information meeting during the fall semester.

The Master's Alumni Council held a MA Career Information Meeting in late October 2019 featuring a talented panel of MA alumni who shared their experiences with current master's students and offered insights on career development. The panelists are shown above (from left): Kirsten Oltmanns (MA 2017, Economist – Bureau of Labor Statistics), Qianliang 'Leon' Xu (MA 2017, Assistant Vice President – Citibank), Caroline Margiotta (BA/MA 2017, Health Analyst – Mathematical Policy Research), Sarah Henly-Thomas (MA GDE 2011, Economist – HDR), Ryan Smith (BA/MA 2017, Consulting Associate – Charles River Associates), Prithvi Hingorani (BA/MA 2015, Research Associate – Cornerstone Research), Caitlin Lyons (BA/MA 2015, Senior Financial Analyst – The TJX Companies), Kelly Colden (BA/MA 2014, Global Account Finance Advisor, Assistant Director – Ernst & Young), & Julia Frayer (BA/MA 1997, Managing Director – London Economics International LLC).

PhD Alumni Council

We are pleased to announce the members of our recently formed PhD Alumni Council:

Paul Karner'12, Chair, Jesse Bruhn '19, Emily Rose Gee '15, Jee-Yeon Kim Lehmann '12, Dara Lee Luca '11, Aditi Mehta '08, Silvia Prina '08

The PhD Council will work in collaboration with IED and the GEA to plan networking and career development events throughout the academic year. In October 2019 the Graduate Economics Association (GEA) hosted a non-academic PhD Career Meeting where several PhD alumni shared their career experiences in the public sector and provided advice to PhD students who are interested in a non-academic career track.

Featured are panelist (from left) Lehr Nils (GEA), Laurie Hakes (GEA), Bitsy Perlman ('16), Maria Palacios ('18), Andrew Busey ('18), Paul Karner ('12), and panel moderator, Dilip Mookherjee.

IED Research Visitors

Gabriella Santangelo is a visiting Assistant Professor from the University of Cambridge and a Fellow at St. John's College. She received her PH.D. in Economics from Yale University in May 2016. While at IED, she worked closely with faculty and PhD students and presented her research paper titled "Does Schooling Cause Structural Transformation?"

Marialuz Moreno Badia is a deputy division chief in the IMF's Fiscal Affairs Department, where she coordinates work on the Fiscal Monitor. Her country work experience includes a broad range of advanced and emerging countries such as Brazil, Greece, Ireland, and Spain. Her main research interests are on fiscal institutions, debt sustainability, and fiscal-financial interlinkages. She holds a PhD from Boston University.

Distinguished Faculty Visitors 2019/20

The following distinguished visitors spent a few days in the Economics department each, giving a seminar and two lectures in their field of expertise for the benefit of our graduate students and faculty:

Marina Halac (Yale) visited from September 16-20, 2019 (Theory)

Mushfiq Mobarak (Yale) visited from September 30-October 4, 2019 (Development)

Esteban Rossi-Hansberg (Princeton) visited from October 8-November 1, 2019 (Macro)

Francesca Molinari (Cornell) visited from November 4-8, 2019 (Econometrics)

Kathryn Shaw (Stanford) visit postponed to March 15-19, 2021 (Empirical Micro)

Allan Timmermann (UCSD) visit postponed to Spring 2021 (Econometrics)

Sam Kortum (Yale) visit postponed to April 5-9, 2021 (IO/Health/Trade)

Seminars

IED organizes a weekly seminar during the academic year where visiting speakers present their research. The following is the list of seminars for the 2019-20 year:

Fall 2019

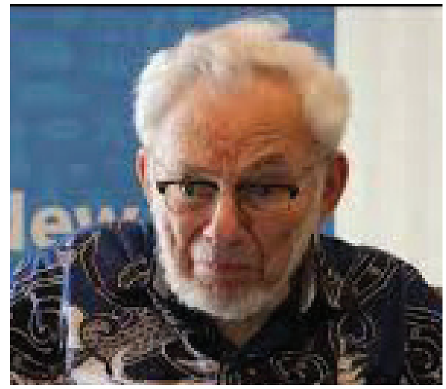
9/16/19	Jesse Handbury (Wharton)	"Income Growth and the Distributional Effects of Urban Spatial Sorting"
9/23/19	Mahesh Karra (BU Pardee)	"The Causal Effect of Improved Access to Postpartum Family Planning: Evidence from a Field Experiment in Urban Malawi"
9/30/19	Mushfiq Mobarak (DV,Yale)	"Slippery Fish: Enforcing Regulation under Subversive Adaptation"
10/7/19	Jean-Paul Carvalho (UC Irvine, visiting Harvard)	"Radicalization (with Michael Sacks)"
10/28/19	Thomas Le Barbanchon (Bocconi, visiting Duke)	"Electoral Competition, Voter Bias and Women in Politics"
11/4/19	Klaus Desmet (SMU, visiting Brown)	"The Geography of Diversity and the Provision of Public Goods"
11/11/19	Gabriella Santangelo (University of Cambridge, visiting BU)	"Does Schooling Cause Structural Transformation?"
11/18/19	Marianne Wanamaker (Tennessee)	"Cohort Effects of Restrictive Abortion Legislation --- Evidence from 19th Century Law Variation"
11/25/19	Martin Fiszbein (BU)	"Staples, Linkages, and Development: Evidence from Argentina"
12/2/19	Kamran Bilir (Wisconsin)	"Knowledge Diffusion Through Networks Zhang (joint with Treb Allen, Chen, and Chris Tonetti)"
12/9/19	Matteo Bobba (TSE, visiting Princeton)	"Perceived Ability and School Choices"

Spring 2020

All spring 2020 seminars were canceled due to COVID-19.

Upcoming Events
Fall 2020

Conference in Honor of Professor Gustav Papanek



The Institute for Economic Development and the Economics Department are organizing a conference in honor of Professor Papanek to be held on October 22, 2020, with participation by a number of the alumni from Asia who passed through Boston University during this era, many of whom have gone on to illustrious and influential careers in government and international organizations, as well as in academia. For further event details, please contact Professor Robert Lucas at rlucas@bu.edu.

Spring 2021

2nd Annual Paul Streeten Distinguished Lecture in Global Development Policy

The 2nd Annual *Paul Streeten Distinguished Lecture in Global Development Policy scheduled for April 6, 2020 was postponed until Spring 2021.* Ann E. Harrison, Dean of the Haas School of Business at Berkeley and renowned economist who has dedicated her career to furthering inclusive and sustainable policies in development economics, international trade, and global labor market was scheduled to present her views on **"Beyond the Market: The Role of Industrial Policy in Global Development".** We remain hopeful that Spring 2021 will support in-person lectures and Dr. Harrison will once again accept our invitation to speak at the Paul Streeten Distinguished Lecture.

Please contact iedcoord@bu.edu if you wish to be added to the IED mailing list.

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