



**Stony Brook University**

**Department of Economics**

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November, 2018

To: RECRUITMENT COMMITTEE OR OFFICER

Re: Stony Brook University Job Market Candidates for 2019 ECONOMICS Positions

Dear Colleagues:

I am enclosing a summary listing of our doctoral candidates who expect to receive their degree in 2019 and who seek positions that begin in the summer or fall of that year. I am including their CV and research statements.

You can find additional information about our job market candidates at our website <https://www.stonybrook.edu/commcms/economics/people/job-market-candidates.php>

Our students plan to attend the American Economic Association meetings in Atlanta, Georgia and interviews should be arranged with them directly.

Should you wish to come to Stony Brook University to interview, kindly provide us with a list of students you wish to see, the desired length of each interview and the expected dates of your stay on campus.

Please email for additional information on any of our students seeking positions.

Sincerely,

A handwritten signature in black ink, appearing to read 'Meta Brown', with a long horizontal flourish extending to the right.

Meta Brown  
Placement Director  
Email: [meta.brown@stonybrook.edu](mailto:meta.brown@stonybrook.edu)  
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# MARCOS FERNANDES

<https://sites.google.com/site/mrossfernandes>

E-mail: [marcos.fernandes@stonybrook.edu](mailto:marcos.fernandes@stonybrook.edu)

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## STONY BROOK UNIVERSITY

### Office Contact Information

Economics Department

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Stony Brook, NY 11794, USA.

Phone: +1 (646) 549-1112

**Personal Information:** Brazilian. Languages: English (fluent) and Portuguese (native).

### Education

Ph.D. in Economics, Stony Brook University, USA, 2013-2019 (expected).

M.Sc. in Economics, FGV, São Paulo School of Economics, Brazil, 2011.

B.Sc. in Economics, Universidade de São Paulo, Brazil, 2008.

### Research Fields

Social and Economic Networks, Political Economy and Industrial Organization.

### Working Papers

- Confirmation bias in social networks and the folly of crowds. (**Job Market Paper**)
- Social media networks, fake news and polarization (with M. Azzimonti) - *NBER WP 24462, Submitted*.

### Work In Progress

- Polarization cycles in social networks
- Media competition under bounded rationality
- The politics of favor exchange: an analysis of Senate co-sponsorship dynamics (with L. Karpuska)
- Lobbying activities and sectoral linkage
- Sudan conflict: a network approach (with A. Melo Ponce and C. Rubbini)

### Teaching Experience

- **Instructor at Stony Brook University** (2013 - 2019)
  - Industrial Organization (undergraduate: Su'16, Su'17, Su'18, F'17),
  - Public Finance (undergraduate: F'16, S'15, W'15, Sp'19)
- **Teaching Assistant at Stony Brook University** (2013 - 2018)
  - Econometrics I (graduate: Sp'16),
  - Mathematical Statistics (graduate: F'15),
  - Microeconomic Theory (undergraduate: Sp'17, Sp'15, F'14),
  - Macroeconomic Theory (undergraduate: Sp'18, F'18)
  - Introduction to Economics (undergraduate: Sp'14, F'13)

- **Teaching Assistant at FGV, São Paulo School of Economics** (2010)
  - Calculus I (undergraduate)
  - Advanced Statistics (undergraduate)

### **Conferences and Activities**

- **Invited Talks**
  - **2018:** Fordham University (New York, scheduled), UPenn - The Warren Center for Network & Data Sciences (Philadelphia, scheduled)
- **Regular Conferences**
  - **2018:** Southern Economic Association (Washington, scheduled), 29th International Conference on Game Theory (Stony Brook), 6th Econometric Society Summer School (Singapore), 4th Conference on Network Science and Economics (Nashville), 23rd Coalition Theory Network Workshop (Maastricht), 44th Eastern Economic Association Meeting (Boston).
  - **2017:** NBER Political Economy workshop (Boston), 22nd Coalition Theory Network Workshop (Glasgow), 43rd Eastern Economic Association Meeting (New York).
  - **2016:** 27th International Conference on Game Theory (Stony Brook).

### **Fellowships, Scholarships, and Awards**

- **Econometric Society Summer School:** Travel grant (Jul 2018)
- **Vanderbilt University:** Research support (Networks Science in Economics Conference, Apr 2018)
- **Stony Brook University, Department of Economics:** Research Grant (Aug 2018), William S. Dawes Outstanding Teaching Award in Economics (Jun 2017), Graduate Teaching Assistantship (2013–2019)
- **FGV - São Paulo School of Economics:** CAPES Graduate Scholarship (2009–2010), Teaching Assistantship (2010)

### **Review and Editorial Work**

- Referee: Computational Economics

### **Others**

- Computer Skills: R, Python, Matlab, Stata, Eviews, Mathematica, Pajek,  $\text{\LaTeX}$ .

### **Professional Experience**

- **Economist:** LCA Consultants (May 2012 – Feb 2013),
- **Economist:** HSBC Bank Brazil (Sep 2010 – Apr 2012)
- **Intern:** MCM Consultants (Jun 2007 – Dec 2008),
- **Intern:** Comgás (Feb 2007 – May 2007)
- **Other:** Caixa Econômica Federal (Dec 2003 – Dec 2006)

## **References**

### **Yair Tauman (Main Advisor)**

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### **Mihai Manea**

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### **Marina Azzimonti**

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## **Confirmation Bias in Social Networks and the Folly of Crowds**

*Job Market Paper*

I investigate how the tendency to interpret ambiguous evidence as confirming current belief (confirmation bias) affects public opinion when agents exchange opinions over a social network. I develop a social learning model where individuals observe a public sequence of potentially ambiguous signals and I allow them to interpret them according to a rule that accounts for the intensity of confirmatory bias. My first analytical result is that, regardless of the level of ambiguity, only two types of opinions may form, and both are biased. This holds for a single individual as well as for a networked society. One opinion type, however, is necessarily less biased (or more efficient) than the other depending on the true state. In this context, long-run learning is not attained even when individuals interpret ambiguous information impartially. Moreover, simulations based on the model demonstrate, in expected terms, that (i) some network structures are more conducive to reaching efficient consensus, (ii) some degree of partisanship enhances consensus efficiency, even when agents suffer from confirmatory bias and (iii) open-mindedness, in which ideologically opposed partisans agree to exchange opinions, can harm efficiency in some cases. These results suggest that policies designed to mitigate partisanship in social networks, and associated confirmatory bias effects, must grapple with certain positive network externalities generated by partisanship.

## **Social Media Networks, Fake News and Polarization** (with M. Azzimonti)

*NBER working paper 24462, Submitted.*

We study how the structure of social media networks, and the dissemination of fake news, may affect the degree of misinformation and polarization in a society. For that, we develop a dynamic model of opinion exchange in which agents that spread fake news, labeled Internet Bots, are present in a network. We characterize the evolution of opinions over time, and we evaluate the determinants of long-run misinformation and polarization in the network. Having constructed a set of heterogeneous random graphs, we simulate the information exchange process over a long horizon. This allows us to quantify the magnitude of the effect of the bots' circulation of fake news across the network on the extent of polarization and misinformation. A key insight from these simulations is that significant misinformation and polarization arise in networks in which only 10 percent of agents believe the fake news to be true. These and other findings substantiate the quantitative importance of network externalities.

# RESEARCH STATEMENT

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MARCOS FERNANDES

<https://sites.google.com/site/mrossfernandes/>

[marcos.fernandes@stonybrook.edu](mailto:marcos.fernandes@stonybrook.edu)

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I am an applied microeconomist, with interests in topics related to Social and Economic Networks, Political Economy and Industrial Organization. My current work focuses on how individuals' beliefs respond to misinformation in social networks, and how the social network structure and individuals' learning capabilities play a role in this process. Methodologically, I rely on network theory and econometric analysis, as well as random graphs simulations, to elucidate these phenomena.

**Current work.** In my job market paper, "*Confirmation Bias in Social Networks and the Folly of Crowds*," I investigate how the tendency to interpret ambiguous evidence as confirming current beliefs (confirmation bias) affects public opinion when agents exchange opinions over a social network. I develop a social learning model where individuals observe a public sequence of potentially ambiguous signals and I allow them to interpret signals according to a rule that accounts for the intensity of confirmatory bias. My first analytical result is that, regardless of the level of ambiguity, only two types of opinions may form, and both are biased. This holds for a single individual as well as for a networked society. One opinion type, however, is necessarily less biased (or more efficient) than the other depending on the true state. In this context, long-run learning is not attained even when individuals interpret ambiguous information impartially. Moreover, simulations based on the model demonstrate, in expected terms, that (i) some network structures are more conducive to reaching efficient consensus, (ii) some degree of partisanship enhances consensus efficiency, even when agents suffer from confirmatory bias and (iii) open-mindedness, in which ideologically opposed partisans agree to exchange opinions, can harm efficiency in some cases. These results suggest that policies designed to mitigate partisanship in social networks, and associated confirmatory bias effects, must grapple with certain positive network externalities generated by partisanship.

In "*Social Media Networks, Fake News and Polarization*", with Marina Azzimonti, we study how the structure of social media networks, and the dissemination of fake news, may affect the degree of misinformation and polarization in a society. For that, we develop a dynamic model of opinion exchange in which agents that spread fake news, labeled Internet Bots, are present in a network. We characterize the evolution of opinions over time, and we evaluate the determinants of long-run misinformation and polarization in the network. Having constructed a set of heterogeneous random graphs, we simulate the information exchange process over a long horizon. This allows us to quantify the magnitude of the effect of the bots' circulation of fake news across the network on the extent of polarization and misinformation. A key insight from these simulations is that significant misinformation and polarization arise in networks in which only 10 percent of agents believe the fake news to be true. These and other

findings substantiate the quantitative importance of network externalities.

**Future directions.** My research agenda is divided as follows.

**Social Learning:** The majority of papers in the literature on social learning focus on the long run properties of opinion dynamics, i.e., on the presence or absence of asymptotic learning. While this is a relevant object of study, cases in which the opinion dynamics move away from this long-run limit are similarly important and relatively unstudied. Two preliminary projects of mine aim to contribute to the nascent literature on persistent disagreement. In the first, “*Polarization Cycles in Social Networks*,” I study the properties of polarization (disagreement) cycles. Questions I address include: When do polarization cycles form? How long do they last? How severe are they? What induces extreme polarization? In addressing them, I rely on both theoretical analysis and random graphs simulations. In the second project, “*Media Competition under Bounded Rationality*,” I combine elements of strategic communication (cheap talk) models with non-Bayesian learning to examine the extent to which media competition may exacerbate public opinion bias when agents are not fully Bayesian. Questions addressed in this project include: How do media outlets modify their content in response to public opinion? How much competition is needed to reduce content bias? And, finally, what are the welfare implications of various network structures?

**Special Interest Politics:** Special Interest Groups (SIGs) have increasingly used Lobbying to influence government decisions. My preliminary work, titled “*Lobbying Activities and Sectoral Linkage*,” analyzes the relationship between lobbying activities and social welfare using an imperfect competition framework where firms compete in a vertically related market with heterogeneous goods. Firms can invest (non-cooperatively) in lobbying to reduce their tax burden. I derive the equilibrium analytically and use data (U.S. Senate, Compustat) to estimate some parameters of interest. For instance, I try to quantify (i) how the lobbying decisions are affected by the degree of competition within sectors and heterogeneity of goods and (ii) the lobbying returns for every dollar invested.

**Social Conflict:** The Sudan war in the southern territory of Darfur, an ongoing conflict initiated in 2003, is among the deadliest civil conflicts in history. My work, titled “*Sudan Conflict: a Network Approach*,” joint with Alejandro Melo and Camilo Rubbini, analyzes how a network of military alliances and enmities forms and affects the intensity of a conflict. Using available data on African conflicts (ACLED), we estimate the effect of potential pacification policies aimed at alleviating animosity among groups. Our model combines elements from network and contest theories.

All in all, my work to date has focused on issues related to misinformation in social networks, and my research agenda contemplates (i) the economic returns and welfare implications of lobbying activities and (ii) pacification policies for ongoing social conflicts. Such applications of network theory can shed new light on vexing social and economic concerns, particularly where one is able to bring the theory in a direct manner to data.

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### **Education**

Ph.D. in Economics, Stony Brook University, USA, 2012–2019 (expected).  
B.A. in Economics National Base Class, Jilin University, China, 2008–2012.

### **Research Fields**

Urban Economics, Demographic Economics, Applied Microeconomics, Spatial Analysis.

### **Working Papers**

- “How will *Hukou* Reform Affect the City System in China?”, 2018.
- “Distinguishing Places and Populations in China: Urban and Rural Areas and Urban and Rural Residents”, 2018.
- “Migrant Workers and the Social Welfare of the Rural Migrant Population”, 2014.
- “The impact of demographics on urban house prices: Evidence from thirty-five cities in China”, with Bo Li, Feiya Ou, Yin Liang and Po-Keng Cheng, 2014.

### **Data Sets**

- Founder, “China Spatial Administrative Unit Coding System [CN-SAUCS]”, 2017-present.

### **Publications**

- “The Analysis of the Structure of the China’s Labor Market”, *Business Research Journal*, May 2011, pp. 73–75.

### **Professional Experience**

- Full-time intern, Mortality Section, Population Division, DESA, United Nations (August 2017–December 2017).
  - Assist with research, analysis, and data management using demographic data from various developing and developed countries.
  - Collaborate in the development of an internal UN database of richly detailed regional demographic data for both UN and broader public reference and research.
  - Collaborate in the development and testing of new statistical and computational methods (including R packages) to standardize age distributions, evaluate data quality, and execute vital registration.
- Consultant, Research Foundation in CUNY (Spring 2015).



- Constructed a dataset of the county-level urban population and rural population of each city-proper from 2010 China Census Data and zip code cross-walks for county-level administrative divisions in China.
- Project Leader, China National Innovation Project for Undergraduates (2010–2011).
  - Led a National Innovation Project “*The Development of the Theory of Two-sector Labor Markets in China*” with 3 other team members from Economics, Mathematics and Law School with three other team members from Economics, Mathematics and Law School at Jilin University (funded by the Ministry of Education of China).
  - Published a paper “*The Analysis of the Structure of the China’s Labor Market*”, Business Research Journal, May 2011, pp. 73-75 and won the National Ping’an Paper Award.

### **Teaching Experience**

- Instructor at Stony Brook University
  - Urban Economics (undergraduate), Spring 2017, Spring 2018.
  - Economic Development (undergraduate), Fall 2017.
  - Urban Economics (undergraduate, on-line), Summer 2017, Summer 2018, Winter 2019.
  - Demographic Economics of Developing Countries (undergraduate), Winter 2017.
  - Mathematical Statistics, Summer 2016 (undergraduate), Fall 2016, Spring 2019.
  - Intermediate Macroeconomic Theory (undergraduate), Spring 2016.
  - Intermediate Microeconomic Theory (undergraduate), Summer 2015.
- Teaching Assistant at Stony Brook University
  - Introduction to Economics (undergraduate) – Professor Nuria Quella, Fall 2018.
  - Introduction to Economics (undergraduate) – Professor Roberto Burguet, Spring 2017.
  - Introduction to Economics (undergraduate) – Professor Eva Carceles-Poveda, Fall 2016.
  - Mathematical Statistics (undergraduate) – Professor Mark Montgomery, Fall 2014.
  - Intermediate Microeconomic Theory (undergraduate) – Professor Thomas Muench, Spring 2015.
  - Mathematical Statistics (undergraduate) – Professor Samuele Centorrino, Fall 2014.
- Teaching Assistant at Student Center of Economics Department, Jilin University, 2010–2011

### **Conference Presentations**

- Yijiao Liu, “How will *Hukou* Reform Affect the City System in China?”
  - 2018 Southern Economic Association Conference
  - 2019 AEA Poster Session

### **Honors and Awards**

- 2017 Summer Online Teaching Initiative, Office of the Provost, Stony Brook University, 2017.
- Graduate teaching assistantship, Stony Brook University, 2014–present.
- National Ping’an Paper Award, Third Prize, China, 2011.
- The National Innovation Project for Undergraduates, Ministry of Education of China, 2010–2011.
- Student Achievement Award of the School of Economics, Jilin University, China, 2009–2012.
- Scholarship to the School of Economics, Jilin University, China, 2008–2012.

### **Computer Skills**

- Languages: Python, R, QGIS, Stata, Matlab, SQL
- Other Packages: Maps API Webservices, HTML, LaTeX, LyX, MS Office

### **Languages**

- English (Fluent)
- Mandarin (Native)

### **Activities**

- Volunteer, “Expert group meeting on Sustainable cities, human mobility and international migration”, United Nations, September 08, 2017.
- Organizer, the 28<sup>th</sup> International Game Theory Conference at Stony Brook University, July 2017.
- Organizer, the 27<sup>th</sup> International Game Theory Conference at Stony Brook University, July 2016.
- Music Ambassador, Carnegie Hall, New York City, 2015–2016.

### **References**

#### **Professor Mark Montgomery (Advisor)**

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#### **Professor Meta Brown**

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#### **Professor Samuele Centorrino**

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# RESEARCH STATEMENT

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YIJIAO LIU

STONY BROOK UNIVERSITY

My primary academic interests involve developing and applying large geographic datasets and modeling migration patterns, the urbanization process, and demographic relationships in both developing and developed countries. My work falls into the fields of applied microeconomics, urban economics, and demographics.

Specifically, I have studied the migration patterns and urbanization process in China. The 2010 China census lacked the *de facto* (though not the *de jure*) population data for the city-proper of each city. To remedy this, in the first chapter of my thesis, I build new census dataset (China Spatial Administrative Unit Coding System, CN-SAUCS) that include information on village-level administrative units, which yield a link to cities, towns, and rural partitions in addition to the urban and rural divisions of local populations in China. Using web crawler techniques, I procured yearly village-level administrative datasets on China representing the years 2009 through 2016. In tracking the changes taking place in these administrative units over the years, I relied on Google/Baidu/Tencent/Gaode Maps API Webservices for geographic data on each village-level unit and Zip Codes for each township-level location in China. Notably, I combined GIS administrative unit data with the 2010 census data to generate approximate city-proper (central part of each city) population measures that were not previously available from China's statistics bureau. The absence of this type of population data has been a barrier to past research. Previous researchers may have avoided generating the sort of geographic resources that I have built here owing to the challenge of correcting and matching Chinese place names in large datasets of the sort that this project has involved. My innovation is to combine administrative unit information, census data, and commercial GIS data from Webservices Maps API, supplied by various companies, to generate a comprehensive geographic dataset on population location and demographics, thereby resolving one of the existing primary barriers to population research in China.

My job market paper uses these new data to analyze *hukou* reform. In China, the availability of government services has historically been tied to residence in an assigned geographic region, or *hukou*. *Hukou* reform will break up the restrictions across regions and between rural and urban areas. Experimental *hukou* reforms were carried out in some provinces before 2014, and in 2014 China implemented a nation-wide *hukou* reform. My new comprehensive dataset (CN-SAUCS) on the population geographies of China allows me to estimate the impact of *hukou* policy on the residential choices of (potential) migrants. Therefore, I combine the 2010 Chinese General Social Survey with CN-SAUCS to study how *hukou* reform affects location choices on various levels of regions in China.

My first short-term research goal is to simulate a productivity-maximizing geographic population distribution, and to compare it to both the population distribution observed now and the population distribution predicted to arise following *hukou* reform. Meanwhile, I will maintain CN-SAUCS, and extend it in two directions. First, I would like to develop crosswalks between the spatial datasets and the 1990 and 2000 cross-sectional censuses. Second, given China's current environmental and policy interests, the addition of climate change and air pollution datasets to the CN-SAUCS is of obvious potential value. My long-term research objective is to generalize my research methods and results for China to other developing or developed countries. I also expect to apply my findings and expertise to commercial applications with Maps API, such as Google Maps and Google Earth. I believe that richer information on population migration patterns is of potential value in guiding the choices of private firms, government agencies and intergovernmental organizations alike.

# ALEJANDRO MELO PONCE

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## STONY BROOK UNIVERSITY

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### Personal Information

Citizenship: Mexican. Languages: English (Fluent), Spanish (Native)

### Education

Ph.D. in Economics, Stony Brook University, USA, 2013-2019 (expected).  
B.A. in Economics (Economic Theory and Mathematical Economics fields), ITAM, Mexico, 2005-2010.

### Research Fields

Information Economics and Mechanism Design, Pure and Applied Game Theory, Mathematical Economics.

### Working Papers

- “The Secret Behind *The Tortoise and the Hare*: Information Design in Contests”, 2018 (**Job Market Paper**).

### Work In Progress

- “Information Design and the Informed Principal: The Case of Private Values”, 2018.
- “Robustness of Equilibria in Incomplete Information Tullock Contests”, 2018.
- “Preferences for Status in Large Anonymous Games”, 2016.
- “*Type Categorization* in Incomplete Information Games”. 2015.
- “Sudan Conflict: Network approach”, joint with M. Fernandes and C. Rubbini, 2015.

### Teaching Experience

- Instructor at Stony Brook University (2013–2019)
  - Econometrics (Undergraduate: summer 2016, spring 2017, spring 2018.)
  - Intermediate Microeconomic Theory (Undergraduate: fall 2016, spring 2019—*scheduled*.)
  - Money and Banking (Undergraduate: fall 2015.)
  - Introduction to Economics (Undergraduate: summer 2015.)
  - Thinking Strategically (Undergraduate: *online course*, summer 2017, summer 2018.)
  - Demographic Economics of Developing Countries (Undergraduate: *online course*, winter 2018.)
- Teaching Assistant at Stony Brook University (2013–2019)
  - Microeconomics II (Graduate: spring 2016)
  - Intermediate Microeconomic Theory (Undergraduate: summer 2014, fall 2014, spring 2015)

- Introduction to Economics (Undergraduate: fall 2013, spring 2014, fall 2017—*Head TA for 500 student class.*)
- Econometrics (Undergraduate: fall 2018.)

### Conferences and Presentations

- 2018: Southern Economic Association Annual Meeting (scheduled), Econometric Society Australasian Meeting, 29<sup>th</sup> Stony Brook International Conference on Game Theory, Midwest Economics Association Annual Meeting.
- 2017: Summer School of the Econometric Society: Advances in Economic Theory, 28<sup>th</sup> Stony Brook International Conference on Game Theory.

### Fellowships, Scholarships, and Awards

- Distinguished Travel Award, Graduate Student Organization, Stony Brook University, 2018.
- Departmental Travel Support, Department of Economics, Stony Brook University, 2017,2018.
- Summer School of the Econometric Society Travel support, Econometric Society, 2017.
- GSEU Professional Development Program Award, Graduate Student Employees Union, 2017.
- Summer Online Teaching Initiative Scholarship (*development of Thinking Strategically as an online course*), Office of the Provost, Stony Brook University, 2017.
- Tuition Scholarship and Graduate Assistanship, Department of Economics, Stony Brook University, 2013–2019.
- Scholarship for Undergraduate Studies, ITAM, 2005–2008.

### Past Employment

- Research Assistant for Prof. Miguel Angel Iraola Guzman, Center for Economic Research, ITAM (2011–2013).
- Research Assistant for Prof. Sandra Lizarazo, Center for Economic Research, ITAM (2010).

### Professional Service

- Session Chair (Session Micro Theory 2): 2018 Econometric Society Australasian Meeting.
- Discussant (Session 2A, Game Theory and Contests): 2018 MEA Annual Meeting.
- Local Organizer: 26<sup>th</sup>, 27<sup>th</sup>, 28<sup>th</sup>, 29<sup>th</sup> International Conference on Game Theory, Stony Brook University.
- President (2017–2018): Economics Research Group (*Graduate student club*), Department of Economics, Stony Brook University.
- Senator (2016): Graduate Student Organization, Department of Economics, Stony Brook University.

### Professional Memberships

Econometric Society, American Economic Association, European Economic Association, Midwest Economics Association, Southern Economic Association.

### Others

- Programming Languages: T<sub>E</sub>X and L<sup>A</sup>T<sub>E</sub>X, Mathematica, MATLAB, Dynare, R, Java, Python, Fortran.
- Miscellaneous: GNU/Linux, Eviews, Stata, Maple, MS Office.

## References

**Prof. Pradeep Dubey** (Advisor)

Leading Professor and Co-director  
Center for Game Theory, Stony Brook  
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**Prof. Yair Tauman**

Leading Professor and Director  
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& Dean of the Adelson School of Entrepreneurship  
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**Prof. Ting Liu**

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***The Secret Behind the Tortoise and the Hare: Information Design in Contests***

*(Job Market Paper)*

I analyze the optimal information disclosure problem under commitment of a “contest designer” in a class of binary action contests with incomplete information about the abilities of the players. The class of contests analyzed here is parameterized by the value of a common prize, the cost of exerting effort, the private first-order beliefs that the players hold about their rival's ability and the value to the designer of the action profile of the players. If the contest designer wants to incentivize the players to play in equilibrium a particular strategy profile, he can design an information disclosure rule, formally a stochastic communication mechanism, to which he will commit and then use to “talk” with the players. The main tool to carry out the analysis is the concept of Bayes Correlated Equilibrium recently introduced in the literature. I characterize the optimal information disclosure rule in the class of contests considered. I find that the optimal information disclosure rules involves private information revelation (manipulation). Furthermore, the optimal disclosure rule involves asymmetric and in most cases correlated signals that convey only partial information about the abilities of the players. In particular, when two players differ in their abilities, it is of crucial importance to reveal information asymmetrically. The revelation scheme alters not only the first-order beliefs of the players but also the higher-order hierarchies in a non-trivial way. Precisely for the previous two reasons, public revelation of information is not optimal, since it generates symmetric hierarchies of beliefs even when the players are different in their abilities. Finally, we perform a comparative statics exercise in which we also allow the designer to alter the value of the prize that the contestants are competing for while at the same time engaging in information design. I find necessary and sufficient conditions on the parameters of the game to ensure that a private, asymmetric and partial information revelation scheme is optimal for the designer and I also provide conditions for when is the case that giving no information is optimal.

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## RESEARCH STATEMENT

### ALEJANDRO MELO PONCE

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I am a theoretical microeconomist with interests in information economics and mechanism design, pure and applied game theory and mathematical economics. I study topics related to the role of information in incomplete information environments. My dissertation focuses on the provision of incentives in contests through information manipulation and design.

In my job market paper ‘The Secret behind *The Tortoise and the Hare*: Information Design in Contests’, I study how an interested third party with privileged information can manipulate two agents engaged in a “contest”. Consider a pollster who could influence an election between two candidates by sharing some information with them during the election. The two candidates will then incorporate this new information into their campaign strategies. The question is how the pollster would optimally *design* this information if he has his own agenda. I answer this question by analyzing the optimal information disclosure problem of a “contest designer” in a parametric class of two-player, binary effort contests with incomplete information about the abilities of the players. The model is simple and tractable enough that a full characterization of the optimal information disclosure rule is possible, while being rich enough to illuminate the role that information design plays in manipulating the players. The model provides a theoretical justification of why private information disclosure, instead of public, is necessary in contests to achieve the designer’s goals. I close the analysis of the model by providing necessary and sufficient conditions not only optimal in terms of providing incentives but also the most cost-efficient way to do it.

In other related research, I build upon the model in my job market paper to perform a worst-case analysis for the design of information in contests. I assume that now the contest designer has a *pessimistic attitude*, in the sense of expecting, after any information manipulation, the worst equilibrium behavior from the players. Tied to this notion is the issue about *uniqueness* of the equilibrium induced by information manipulation, since uniqueness precludes the possibility of a bad equilibrium arising under such manipulation. Thus, this project provides a bridge between the information design setting and the implementation literature on mechanism design. Under these considerations, it turns out that a public information disclosure rule emerges as a candidate for the designer, which provides a nice theoretical justification for the prevalence of public communication in real-life contests.

In other work in progress, I consider the impact of a preference for social status in large anonymous games. Large games model situations of *true perfect competition* in the sense that players’ actions are strategically negligible, while anonymity models the idea that *aggregate actions* impact payoffs. I model the preference for social status as a particular form of anonymity in which the players care about the *ranking* of their own actions as compared to the whole distribution of actions. I believe that this environment is important to understand the role that status seeking behavior plays in social dynamics and “races to the top”.

In future research, I plan to pursue several research avenues related to my dissertation. Firstly, I would like to extend the framework developed in my job market paper to analyze more general classes of contests. A natural extension is to analyze the optimal information disclosure rules for contests in which the set of actions is a continuum. This is not only a mathematical exercise but a natural extension in this literature since most real-life scenarios in R&D, rent seeking, political campaigns, job promotions, patent races or competition for innovation are naturally seen as contests with a continuum of actions. In many cases of importance, including information disclosure by a public entity or a financial institution, the information designer also holds private and differential information; therefore I plan to extend the ideas of my dissertation to analyze these possibilities.



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## STONY BROOK UNIVERSITY

### PERSONAL INFORMATION

Department of Economics	Phone:	+1 (631) 560-5557
Stony Brook University	Date of Birth:	December 19th, 1979
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### EDUCATION

Ph.D. in Economics, Stony Brook University, USA, May 2019 (expected).

M.A. in International Political Economy, University of California, San Diego,  
School of Global Policy and Strategy, USA, 2011.

B.A. in English and History, Yonsei University, Korea, 2007.  
Education Abroad, Division of Social Sciences, University of California, Los Angeles, USA, 2000-01.

### RESEARCH FIELDS

Applied Microeconomics, Labor Economics, Human Capital, Family Economics, Economic Demography.

### JOB MARKET PAPER

"How Does Education Affect the Housework Time of Husbands," 2018.

### RESEARCH IN PROGRESS

"Education and Time Allocation within Marriage: The Education Effect in the Case of the U.S., Spain, and Korea."

"Why Koreans Have Fewer Children - Labor Market Conditions and the Retreat from Marriage."

"Parental Altruism, Education, and Low Fertility in Korea."

### RESEARCH EXPERIENCE AND OTHER EMPLOYMENT

2011-12	Research Associate, Korea Development Institute (KDI)
2010-11	Publications Director and Referee, Journal of International Policy Solutions, University of California, San Diego
2010-11	Research Assistant for Professor Chung-in Moon, University of California, San Diego
2009-10	Research Assistant for Professor Takeo Hoshi, University of California, San Diego
2008	Foreign Exchange Dealer, Bank of Tokyo Mitsubishi UFJ
2007-08	Government Bonds Dealer, Corporate Business Department, KB Kookmin Bank

**TEACHING EXPERIENCE**

- 2015-18    Instructor at Stony Brook University  
            Intermediate Microeconomic Theory (ECO 303)  
            Mathematical Statistics (ECO 320)  
            Financial Economics (ECO 362)  
            Corporate Finance (ECO 389)
- 2014-18    Teaching Assistant at Stony Brook University  
            Introduction to Economics (ECO 108) – Professor Nuria Quella Isla  
            Mathematical Statistics (ECO 320) – Professor Samuele Centorrino  
            Applied Microeconomics (ECO 323) – Professor Steven Stern  
            Applied Microeconomics (ECO 323) – Professor Hugo Benitez-Silva

**FELLOWSHIPS, SCHOLARSHIPS, AND AWARDS**

- 2018        William S. Dawes Outstanding Teaching Award, Stony Brook University
- 2017        Wittgenstein Centre for Demography and Global Human Capital (IIASA, VIDÖAW, WU), Asian Demographic Research Institute (ADRI, Shanghai University) Scholarship
- 2016        Provost's 2017 Summer Online Teaching Initiative Award, Stony Brook University
- 2015        Lee and Yoo Graduate Scholarship in Korean Studies, Center for Korean Studies, Stony Brook University
- 2015        GSEU Professional Development Awards, Stony Brook University
- 2014        Oxford Poverty and Human Development Initiative Summer Research Scholarship, Department of International Development, University of Oxford
- 2010-11    Teaching Fellowship, Department of Literature, University of California, San Diego
- 2009-11    Research Fellowship, Graduate School of International Relations and Pacific Studies (IR/PS), University of California, San Diego

**COMPUTER SKILLS**

R, STATA, MATLAB, Fortran, Maple

**LANGUAGES**

Korean (Native), English (Fluent), Japanese (Fluent), Chinese (Moderate).

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**Juan Pantano**

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## **JOB MARKET PAPER**

### **“How Does Education Affect the Housework Time of Husbands,” 2018**

Using the 2015 Panel Study of Income Dynamics (PSID) data set, I estimate a collective model of family time allocation decisions. Traditional theories explain that higher education leads to less housework. However, in the data set, we see that more educated husbands take a higher share of the housework than less educated husbands, which has never been explained by the existing literature. I develop a theoretical model to examine how a husband's education affects his time at home and analyze the impact of education on the husband's housework time. My structural estimation results reveal that husbands' education elasticity of home productivity is greater than that of market productivity and even wives' education elasticity of domestic productivity. I find that the husband decreases his leisure time and increases time spent on housework and market labor as his educational attainment level increases. This fits well with the data.

## **RESEARCH IN PROGRESS**

### **“Education and Time Allocation within Marriage: The Education Effect in the Case of the U.S., Spain, and Korea.”**

I assess the education effect on the time use behavior of spouses in a given household using three data sets: the 2015 Panel Study of Income Dynamics for the U.S., the 2009 Time Use Survey of Spain and the 2014 Korean Longitudinal Survey of Women and Families. Interestingly, husbands' housework time in the U.S., Spain, and Korea all show similar patterns. Well-educated husbands participate more in housework than less-educated husbands in recent years, and this observation holds across different cultural contexts. Considering the social and cultural differences between these countries, I suggest that this phenomenon results from economic decisions or rationality. This paper provides a theoretical framework to examine this phenomenon. By using the fractional response model, I analyze the impact of education on the husbands' housework time in these three different countries and support the theoretical framework.

### **“Why Koreans Have Fewer Children - Labor Market Conditions and the Retreat from Marriage.”**

Using the 2014 Korean Longitudinal Survey of Women and Families, I demonstrate that Korea's recent low aggregate fertility rate is driven primarily by young Koreans' retreat from marriage, and not by changing fertility decisions among married couples. In addition, this research sheds light on less-educated women, who are often overlooked in studies of fertility trends. My research indicates that it is less-educated women whose marriage rates have shown the steepest decline.

### **“Parental Altruism, Education, and Low Fertility in Korea.”**

Korea has been experiencing dramatic decrease in its fertility level since 1960s. According to the World Bank, its total fertility rate reached 1.2 births per woman in 2016, which is far below replacement level of 2.1 births per woman. Despite the government's recent fertility encouragement efforts, Korea's total fertility rate has continued to be the lowest level among the world. Considering Koreans' education arms race, parental altruism model best explains the current phenomena. I develop a non-dynastic parental altruism model and use it to explore the impact of parental education investment decisions on their fertility choices. Altruistic parents transfer resources to their offspring by providing education, which in turn forms children's future economic status. My model predicts that the fertility rate is a decreasing function of intergenerational differences in education levels.

# RESEARCH STATEMENT

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I am an applied microeconomist, and my research areas are labor economics and the economics of the family. I study individual and household decisions regarding marriage, fertility, time allocation, and the determinants and consequences of human capital, mostly in the form of education. My recent research focuses on using time use data to uncover statistical regularities and link them with economic theories of family and education.

In my job market paper, "How Does Education Affect the Housework Time of Husbands," I develop a collective model with household production to examine how a husband's education affects his housework time. Traditional theories imply that higher education leads to less housework. However, recent empirical evidence demonstrates that more educated husbands contribute a greater share of the housework than less educated husbands. I estimate the model of household time allocation using data from the 2015 Panel Study of Income Dynamics. Parameter estimates arising from the model reveal that husbands' education elasticity of home productivity is greater than their education elasticity of market productivity, and, moreover, exceeds wives' education elasticity of home productivity. To my knowledge, this is the first empirical study specifically concentrating on the effect of education on counter-intuitive time allocation decisions of husbands. I find that husbands sacrifice leisure time and increase time spent in both housework and market labor as their education levels increase.

In my other research projects, I investigate microdata from around the world to document statistical regularities and connect them with economic theories of fertility, family formation, and human capital. Using the 2009 Time Use Survey of Spain, the 2014 Korean Longitudinal Survey of Women and Families, and the 2015 Panel Study of Income Dynamics for the U.S., I find similar time allocation patterns among husbands in all three countries, despite their varied social and cultural backgrounds. Well-educated husbands participate more in housework than less-educated husbands. I rationalize these decisions in the context of a simple theoretical framework.

In an ongoing project, I study declining fertility in Korea. Using Korean microdata, I demonstrate that Korea's recent low aggregate fertility rate is driven primarily by young Koreans' retreat from marriage, and not by changing fertility decisions among married couples. In addition, this research sheds light on less-educated women, who are often overlooked in studies of fertility trends. My research indicates that it is less-educated women whose marriage rates have shown the steepest decline. In other work in progress, I develop a non-dynastic parental altruism model and use it to explore the impact of parental education investment decisions on their fertility choices. Altruistic parents transfer resources to their offspring by providing education, which in turn forms children's future economic status. My model predicts that the fertility rate is a decreasing function of intergenerational differences

in education levels.

In future research, I plan to pursue several research avenues related to my job-market paper. I plan to extend this framework to treat children as endogenous in the household model. This will allow me to explore the parent's time allocation decisions relating to childcare or child development, which in turn will paint a richer picture of the effect of education on husbands' and wives' productivity and their resource and time allocation choices. Furthermore, I plan to use a model similar to the model developed in my job market paper to study families' fertility decisions, as well as the model's implications for inequality among income groups. I hope to investigate the joint determination of childbearing decisions together with household time allocation decisions in a dynamic life cycle framework, using an extensive panel data.

# **ANZHOU ZHANG**

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## **STONY BROOK UNIVERSITY**

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### **Education**

Ph.D. in Economics, Stony Brook University, USA, 2013-2019 (expected).  
M.A. in Accounting, Peking University, China, 2008-2010.  
B.A. in Accounting, Harbin Institute of Technology, China, 2002-2006.

### **Working Experience**

- HuaAn Fund Management Co., Ltd., Shanghai, China, 2010-2013
- Harbin Electric International Co., Ltd., Harbin, China, 2006-2008

### **Research Fields**

Microeconomic Theory, Industrial Organization, Corporate Finance, Applied Econometrics.

### **Working Papers**

- “R&D Race, Patent Licensing and the Social Value of Innovation”, 2018 (**Job Market Paper**).
- “The Share Contracts in Financial Investment Funds”, 2018.
- “The Provision of Financial Statements as a Public Good: Theory and Evidence”, 2018.

### **Work In Progress**

- “The Licensing of Preliminary Innovations”, with Yair Tauman, 2018
- “The Under-pricing and Under-performance of IPOs in China”, with Zhicheng Li, 2018.

### **Teaching Experience**

- Instructor at Stony Brook University
  - Game Theory (undergraduate), Fall 2018
  - Corporate Finance (undergraduate), Summer 2018
  - Mathematical Statistics (undergraduate), Summer 2017
- Teaching Assistant at Stony Brook University
  - Introduction to Economics, Fall 2013, Spring 2014, Summer 2016, Fall 2017, Spring 2018
  - Intermediate Microeconomic Theory, Fall 2015, Spring 2016, Fall 2016, Spring 2017
  - Intermediate Macroeconomic Theory, Fall 2014, Spring 2015

### **Conferences and Activities**

- The Southern Economic Association 2018 Conference, Washington, DC, 2018 (Scheduled)
- The 29th Stony Brook International Conference on Game Theory, Stony Brook University, USA, July 2018.

### **Fellowships, Scholarships, and Awards**

- Graduate Fellowship, Stony Brook University, 2013-2019.

### **Others**

- Languages: English: Fluent; Mandarin Chinese: Native.
- Computer Skills: Matlab, R, RATS, Maple, SAS,  $\text{\LaTeX}$

### **References**

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### **R&D Race, Patent Licensing and the Social Value of Innovation**

*(Job Market Paper)*

This paper studies an R&D race to a cost-reducing innovation with an arbitrary finite number of participants who are outsiders to the industry. The winner collects revenues through patent licensing. It shows that unrestricted competition among R&D participants for the patent right together with intense competition among incumbent firms for licenses can lead to a negative expected social value of the innovation. The paper analyzes the effect of pre-innovation market structure on the expected social value of the innovation. If the pre-innovation market is highly competitive, the expected social value of the innovation will always be non-negative. As the competitive level increases, the expected social value decreases. If the pre-innovation market is perfectly competitive, the expected social value of a non-drastic innovation is zero. Further, this paper shows that with identical innovating ability, outside entities have higher incentives to innovate than incumbent firms. If the number of outside R&D competitors is sufficiently large, incumbent firms will not compete in the R&D race.

### **The Share Contracts in Financial Investment Funds**

This paper studies a dynamic contract with size-contingent share rates, a static contract with decreasing share rates and a static flat share rate contract with or without leverage. The first is used in open-end mutual funds, the latter two are used in closed-end funds (including hedge funds). I find that the dynamic contract with size-contingent share rates is efficient in addressing the moral-hazard problem in the sense that it induces the risk-averse agent (the fund manager) to exert the same level of effort in every period as he would exert if his effort were observable by the principal (the investor). I also show that in a competitive agent market, the dynamic contract with size-contingent share rates is superior to both the decreasing share rate contract and the flat share rate contract in terms of principal's welfare. Finally, this paper shows that the flat share rate contract with leverage yields principal a higher expected rate of return on investment than the flat share rate contract without leverage.

### **The Provision of Financial Statements as a Public Good: Theory and Evidence**

This paper studies the provision of public firms' financial statements from the perspective of public goods. I show the provision of financial statements amounts to using a simple mechanism which, under certain assumptions, induces consumers will reveal their demand for the public good truthfully. The quantity of public good provided under the mechanism converges in probability to the socially efficient quantity, as the number of the consumers goes to infinity. Further, I derive testable implications regarding the changes in provision of financial statements arising from the liquidity-split reform in China's capital market, and I find supportive evidence in relevant reform-era data.



# RESEARCH STATEMENT

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I am a microeconomist with interests in theory, industrial organization, corporate finance and applied econometrics. My research uses theoretical models to understand individual choices, organizational behavior, the strategic interactions among them and the various institutional (contractual) arrangements these interactions produce. Further, I test the predictions of my models using contemporary econometric techniques.

My job market paper, “R&D race, patent licensing and the social value of innovation”, studies an R&D race to a cost-reducing innovation with an arbitrary finite number of participants, who are outsiders to the industry. The winner collects revenue through patent licensing. It shows that unrestricted competition among R&D participants for the patent right together with the intense competition among incumbent firms for licenses can lead to a negative expected social value of the innovation. Because the intense competition among firms for licenses tends to force them to pay a large rent for a license and in the end they realize a lower net payoff. However, if the R&D competition is unrestricted, the large rent paid to the patent holder attracts more participants to join in the R&D race and hence induces “over-investment” in research without increasing the R&D participants’ total expected profit. This paper also studies how the effect of the pre-innovation market structure on the innovation’s expected social value. It shows if the pre-innovation market is sufficiently competitive, the expected social value is always non-negative. The expected social value then declines toward zero as the competitive level of pre-innovation market increases toward the perfect competition.

In a second paper, “The share contracts in financial investment funds”, I study various share contracts in the financial investment funds. My aim is to understand why varied contracts are used in different financial funds. I show that the dynamic contract with size-contingent share rates that is used in the open-end mutual funds is efficient in addressing the funds’ moral hazard problem, in the sense that it induces the risk averse agent (the fund manager) to exert the level of effort that he would exert if his effort were observable by the principal (investor). The crucial feature is my requirement that the fund manager be able to adjust the share rate after observing the fund size. This, however, is consistent with industry practice, as some funds announce a management fee schedule that is size-contingent in the prospectuses and contracts, rather than a flat management fee rate. Further, I demonstrate that dynamic contracts with size-contingent share rates are superior to both the decreasing share rate contracts and flat share rate contracts used in closed-end funds (including hedge funds), in terms of the principal’s welfare. To explain the co-existence of these three types of contracts, I invoke their different contract costs, the feasibility of using leverage under each contract type, and the efficiency of each contract type in screening agents who have differentiated abilities.

In a third paper, “The provision of financial statements as a public good”, I study the provision of public firms’ financial statements from the perspective of public goods. I show the provision of financial statements amounts to using a simple mechanism which, under certain assumptions, induces consumers to reveal their demand for the public good truthfully. The quantity of the public good under the statement provision mechanism converges in probability to the socially efficient quantity, as the number of consumers goes to infinity. From here, I derive

testable implications regarding the changes in the provision of financial statements arising from the split-liquidity reform that occurred in China's capital market in 2005, and I find supportive evidence in relevant reform-era data.

Going forward, I intend to continue two ongoing projects. In the first research, joint with Yair Tauman, we examine the patent licensing of preliminary innovations which require the licensees' further investment in R&D to develop it into a final innovation. In the second, joint with Zhicheng Li, we attempt to explain the evolution of the under-pricing and under-performance of IPOs in China as China's IPO mechanisms change over time.